INTERNATIONAL
FEDERATION OF
PENSION FUND
ADMINISTRATORS

THE CHALLENGES OF AGING AND TECHNOLOGICAL CHANGE ON SOCIAL SECURITY

Presentations from the FIAP International Seminar, organised by FIAP and ASOFONDOS on 12th and 13th April 2018 in Cartagena de Indias, Colombia.

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INTERNATIONAL FEDERATION OF PENSION FUND ADMINISTRATORS (FIAP)

The International Federation of Pension Funds Administrators, FIAP, is an international agency incorporated in Uruguay, bringing together the trade associations of pension fund managers from 13 countries (Bolivia, Colombia, Costa Rica, Curaçao, Chile, El Salvador, Spain, Kazakhstan, Mexico, Peru, the Dominican Republic, Ukraine and Uruguay). The workers represented by FIAP member associations and institutes total more than 108 million as of June 2018, and have accumulated more than USD 584 thousand million in their respective individual accounts.

FIAP endeavors to contribute to the improvement and strengthening of private pension systems, in order to offer the best possible pensions to its members, via financially sustainable systems. For this purpose, it seeks to be a meeting place for the exchange of experiences between countries that have adopted pension systems based on privately managed individually-funded savings, and by providing information and support for the improvement of systems. In order to further these objectives, FIAP has organized 15 international seminars.

The Federation also brings together 14 “collaborating members”, which are predominantly companies that provide services and products to the pension fund management industry and currently include: ALFI (Association of the Luxembourg Fund Industry); Amundi Asset Management; BNY Mellon; Brown Brothers Harriman & Co; Compass Group Global Advisors; GAM (Luxembourg) S.A. Spanish branch; Inversiones Security; Jupiter Asset Management; M&G Investments; Pictet & Cie (Europe) S.A., Spanish branch; Principal Financial Group; S&P Dow Jones Indices; State Street Global Advisors and SURA Asset Management.

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OPENING SPEECHES

A sense of freedom

We live in an age of constant change which cannot be distilled into a single scientific discovery. In the past during, transformative events altered the entire course of human history. Our age, however, can be categorized as a never-ending series of technological advances which, in a fairly inconspicuous fashion, have slowly impacted quality of life levels; especially when we compare our lives to those lived by our predecessors.

Notwithstanding all the concomitant benefits these transformations have contributed to our daily lives, the speed with which they have occurred has opened an abyss before the human race. We stare into an unknown future. The uncertainty triggered by the rapid pace of development demands we be vigilant and properly address the challenges this evolution has provoked. Humans must also adapt, in order to ensure we reap all the potential benefits.

We should also never lose sight of the fact that all this progress tends to feed our fears regarding the future. Many react in a manner which Mario Vargas Llosa illustrates in his latest book entitled *The Call of the Tribe*. He describes society's penchant for surrendering our decision-making faculties to others. This presumably makes the tribe feel more secure, whereas it is thus unencumbered from the sizable weight that freedom of choice can often exert on the human mind. However, under these circumstances civilization reverts back to a herd mentality in which it simply lumbers on behind a leader, who can then be blamed should any calamities befall the group.

The Spanish philosopher Ortega y Gasset foretold this phenomenon in his seminal work *The Rebellion of the Masses*, in stating that men had lost their individuality, along with the ability to operate as free and thinking entities. They had opted to devolve into a broader mass, succumbing to a collective cognizance that operates on behalf of the constituent individuals – though on the basis of instinct, passion and emotion.

The real problem with this dynamic is that when mankind finally does wake up and tries to retake the reins, we are not necessarily going to find a generous leader at the helm that is willing to assuage fears and guide everyone on to the surest path forward.

More often than not, individuals who achieve power are fully aware of the opportunities which arise when people are willing to trade personal liberties for increased security. Any adept politician is capable of capitalizing upon these instances and quickly converting them into the power and authority needed to make decisions – and, of course, all under the pretext of ensuring a more just dynamic between individuals.

Freedom and pension reform

More than three decades ago, a series of radical pension-system changes were launched in South America. Responsibility for accruing pensions passed from the State to individuals, who became the account holders of their individualized savings accounts.

During every year since the launch of said system, worker investments have obtained returns of approximately 8% per year. Along the way, these individual retirement accounts have bolstered the savings and investment rates of our broader economies, explaining at least 8% of GDP growth rates.

These positive results – particularly in view of the categorical failure of funded systems – should be cause for universal acclaim. Unfortunately, this has not been the case. As systems matured and began to pay out, recipients became increasingly discontent, whereas expectations outstripped pension payouts.

For years, we have met in this forum to discuss the entire spectrum of factors which might fully explain why pensions do not meet worker expectations. We have also looked at what needs to be done to solve these issues.

Technical reasons for low pensions

Together with noted experts, FIAP analyzed the factors at play when individual capitalization systems were first introduced. We have also looked at the impact this climate of change had on pension amounts.

1. **Population aging.** We are all aware of this dynamic and what it means: more older adults, living longer lives. In Chile, life expectancies at age 65 have increased by 8.7 years in the case of women, and 6.7 years in the case of men, since the new system was launched. As a result, the same amount of funds must cover a longer period of payout. This dynamic makes the temptation to adopt reforms which propose a return to funded systems – or even the introduction of a hybrid system – increasingly attractive.

2. **Low interest rates.** The rate at which workers savings are converted into pensions decreased by from 6% to 2.6% since the 1980s, when the new system framework was implemented.

   If the issues of population aging and low interest rates had remained constant during the last thirty-five years, pension amounts would be twice as high as those which are currently paid out.

3. **Low contribution density.** In Chile, 27% of pensioners contributed to their pensions for less than five years. Nearly 41% contributed for less than 15 years, and average contribution density is tracking at 51%. Only 38% of Chileans currently contribute for more than 20 years. In other words, the average pensioner only contributes during their work life. And it bears mentioning that Chile is a standout in terms of formality within the region. Individuals contributing for more than 20 years obtained an average pension of USD 506, which closely approximates the USD 624 amount which pensioners characterized as "reasonable" in surveys.

> Low contribution density primarily affects women, independent workers and low-income earners, whereas these groups tend to enter/exit the formal labor market with higher frequency. On average, women contribute 10% of earnings for a period of 15 years. These funds must then finance a 30-year pension, whereas this is the average like expectancy for women at retirement age. Clearly, 10% of their monthly income is not going to cover what they aspire to.

Even though developing a solution to this universally-accepted diagnosis is feasible, during the last three decades nothing has been done to address the principal parameters of the pension system; namely, contribution rate and retirement age. Efforts to incorporate the self-employed into the contributive system have also been scarce. And, again, no headway has been made. Measures designed to truly foment a culture of voluntary savings – be it individual or collective – have also eluded society.

Disconnect between diagnosis and solutions

Given the clarity with regard to the diagnosis, no serious impediments should exist to society reaching a consensus on how to address the factors which are keeping pension amounts below worker expectations. However, many of the solutions put forth thus far have no discernable connection to the predominant diagnosis; some even suggest a return – albeit partial – to funded systems is a viable option, despite overwhelming international evidence to the contrary.

Those charged with calming the anxiety people experience when exercising freedom of choice in a scenario such as an individual capitalization system, have often merely stumbled on to an opportunity to extract more power for the States that they administer.

Predictably, instead of focusing on savings behavior and promoting a culture of savings which would provide better pensions, these leaders often focus on the so-called injustices of the broader framework. Thus, their actions only serve to fan the flames of mistrust and stampede society towards the aforementioned herd mentality.

It is this very lack of focus on concrete objectives which has served to undermine nearly every effort made at system improvement. How different the pensions of these men and women would be if we had merely avoided wasting so much time on critiquing frameworks and arguing about the benefits of funded systems. If we had spent even a small percentage of that time on addressing issues such as increasing contribution rate, fomenting a culture of savings or strengthening the diversification of investment portfolios, we would have a completely different scenario.

Other reasons

It is important to analyze the reasons why the level of pension discontent is so high. I refer here to more than simply the technical underpinnings of the foregoing diagnosis; more than what Karl Popper warned us all to be vigilant about – the seemingly never-ending compulsion that the enemies of free societies have for restricting individual liberties. In order to determine what lies behind the reasons put forth, it will not suffice to merely state that a portion of society is mistaken. We must endeavor to ascertain what arguments are being put forth and why.

In order to determine the basis of pensioner dissatisfaction, an excellent starting point is a recent multidisciplinary study performed by the Catholic University of Chile. The research was headed by economist Salvador Valdés, and entitled *Pensiones: del Descontento a las Soluciones.* The study, as its title suggests, invites society to move from away from discontent and towards viable solutions. Valdés analyzes what he terms "the pension gap", defined as the difference between the expected pension amount and the amount paid out. A team of economists, psychologists and sociologists were utilized in a variety of capacities in an attempt to identify the source of the discontent.

The researchers began by conducting a survey of Chilean pensioners in order to determine what these individuals considered a "reasonable" pension to be. The survey found that respondents considered USD 624 to be a reasonable amount, even though a representative participant currently earns USD 666. This is to say, pensioners desire a level which correlates to 94% of the salaries currently being earned by fund participants. Additionally, it should be noted that this amount far outstrips the salaries the pensioner received while still economically active. In fact, what these individuals considered to be *reasonable* actually corresponds to double what they earned throughout their careers. Clearly, there is a significant disconnect between expectations and reality here, whereas no one expects to receive a pension which is double the amount they earned when working.

The study identified an internal, systemic cause for the discontent. The system provides pensions to all workers – even the 50.4% who would not have been covered under the funded system. In the previous scenario, workers simply lose all contributions if they fail to achieve a minimum number of years within the system.

The study also identified external causes. Constant reporting of excellent returns on investments created a fair amount of optimism among future pensioners, who failed to take into account other factors which impact payouts; namely, contribution density and interest rates.

In other words, a huge misunderstanding occurred in which pensioners created unreasonable expectations for their future pensions. In the end, they came to believe that a lifetime of inconsistent contributions would somehow translate into a full pension. According to Convention 128 of the ILO, only individuals who contribute for more than 30 years should expect to receive a "complete" pension. Workers with less than ten years in a system should only expect to receive a reduced benefit that could never be categorized as a pension, and should instead be viewed merely as "a programmed reimbursement of contributions". As a result, contributions made during a period of between ten and thirty years should only be expected to result in a partial pension.

Towards a diagnosis-based solution

Whereas the verdict on what ails pensions is fairly clear, we need diagnosis-based solutions. However, what measures need to be taken in order to narrow – or ideally, completely close – the pension gap?

1. To begin with, solutions put forth need to be multidisciplinary and aimed at helping individuals to develop expectations as a function of their respective work and tax histories. Therefore, efforts need to be redoubled in order to optimize communication channels with fund participants, foment financial education, and ensure individuals understand exactly how many years of contributions are needed to accumulate enough savings for a *complete* pension. Again, individuals with less than ten years within a given need to understand that a full pension is not an option; instead, expectations must be limited to a "programmed reimbursement of contributions".

   Individual capitalization systems do not utilize a minimum number of in-system years to determine individual pension rights, whereas all deposits rightfully belong to their respective account holder. However, in an ideal world steps would be taken to increase awareness regarding the amount of years each participant must accrue. All efforts in this regard would necessarily possess the added benefit of inculcating a culture of savings.

2. Clearly, no one is seeking to simply encourage participants to lower expectations. Payout amounts should be increased. In this regard, the OECD has been emphatic. It states that the most vital change that needs to take place in society is "contributing more and for longer periods". Pension amounts cannot be improved unless contribution rates and retirement ages are, respectively, adjusted and improved vis-à-vis changes in life expectancy projections.

3. The issue of contribution gaps also needs to be dealt with head on. This will mean taking concrete steps to improve labor markets. Where women are concerned, international experience dictates that access to acceptable means of transportation, childcare and more flexible work weeks are mechanisms that promote their transition to formal-sector work.

4. Something needs to be done to truly promote voluntary pension saving (VPS). In OECD nations, the current replacement rate is 54%. This clearly drives VPS. Measures such as tax incentives, increased liquidity, unrestricted competition, matching contributions and automatic enrollment have a superb track record in nations such as New Zealand (Kiwi Saver), the UK (NEST) and the US (401K).

5. Every effort must be made to ensure that pension funds are unencumbered by any ends other than their prime objective (i.e., providing pensions), no matter how noble said outflows may be. If current savings levels are incapable of financing decent pensions, it would be illogical to use them for other ends, and irrational to permit full payouts upon reaching retirement age.

6. Strategies for optimizing the long-term return rates of pension resources (increased diversification, incorporation of new instruments such as alternative assets) need to be identified.

7. Systems solidarity needs to be improved as well. But not just any type of

solidarity. We refer here to the implementation of non-contributive pension systems focused on the most vulnerable among us. However, designs also need to ensure we are not incentivizing shortfalls in terms of contributions within contributive systems.

8. Promote the existence and use of deferred annuities; or alternatively, introduce longevity insurance with an eye to ensuring pension savings are used to finance the first twenty years of retirement, with the remaining years financed by this type of insurance instrument.

9. Protect older adults in severe dependency through the use of dependency insurance policies funded through a payment added on to individual contributions.

Action needs to be taken immediately. Our nations cannot continue to put off this issue of reform. The International Federation of Pension Fund Administrators (FIAP), through its seminars, roundtables, and participation at international forums, has identified the most practicable strategies for improving the pensions of workers enrolled in our funds. In our debates on this issue, the FIAP membership has remained focused on the task at hand, foregoing all of the inflammatory initiatives which have surfaced so frequently of late within the social security sector.

Although it is fairly easy to inculcate unrealistic expectations, it is especially ignoble to do so, whereas those who perpetrate this type of deceit are fully aware that it is future generations who will pay for the current age’s inability to confront reality. In the words of Karl Popper, those who promised paradise on earth never gave us anything but hell.

Thank you.

Guillermo Arthur
President of FIAP

OPENING SPEECHES

It fills me with satisfaction to see this auditorium filled with individuals intent on achieving a better today – and tomorrow – for all Colombians: the current generation, as well as those yet to come. We are gathered here to better understanding and debate the most important events within the pension sector, the challenges they present, and to consider a variety of perspectives on demographic, social, political, and macro-economic factors. A truly effective analysis requires a wide spectrum of focal points, especially if we are to identify truly responsible reforms aimed at strengthening old-age protection systems. This is the most inclusive way forward in terms of ensuring the future of Colombia, as well as the rest of the Hemisphere.

Let us begin by affirming that individualized retirement schemes containing a solidarity component unquestionably provide two benefits. The first is the proprietary nature of the framework: funds deposited by an account holder remain under their control. This is as it should be, whereas assets deposited during a worker's life are the product of that individual's labor, dedication and sacrifice. The second benefit, which is no less significant, is that these funds generate income for the account holder. Portfolio performance during 2017, for example, was especially good within the pension sector and this translated into stronger earnings for the nearly 15,000,000 private-sector fund participants in Colombia. According to 2017 figures from the Financial Superintendency (SFC), earnings reached COP 28 billion. These funds were deposited into the individual savings accounts of each one of these pension-fund participants.

The benefits achieved by account holders through their portfolios have been validated by available data. Since the launch of the Colombian private-sector system in 1994, moderate-risk pension portfolios have nominally earned approximately 14%. This was achieved by fully committing to a diversification strategy, which was successfully developed by fund administrators. This approach has delivered the solid earnings and low risk which are so important to an account holder's peace of mind. Clearly, a firm commitment to diversification has also enabled funds to maximize returns and mitigate the impact of market fluctuations.

Another important indicator is the asset volume achieved by Colombia's pension-savings sector, which is currently an historic high of COP 230 billion; which is to say, 25% of GDP.

Fund administrators have generated COP 145 billion since the sector was launched, earnings, which were deposited directly into worker accounts. Along these same lines, the contribution that private-sector pension funds have made to the nation's development, as well as the strengthening of its capital market, is noteworthy to say the least. This level of portfolio performance, together with the sector's participation in national growth, is an excellent indicator of the professionalism in terms of asset management which pervades the sector. These asset managers have enabled the pension sector to become an important player in the stock market (for a total of nearly 5% of GDP), as well as 26% of the public debt market. Clearly, pension-fund assets have played a major role in increasing the overall the liquidity of the entire Colombian economy.

It should also be noted that pension funds have participated in the structuring of, and investment in, private-capital infrastructure vehicles in Colombia, as well as those containing real estate exposure. And along the way, the sector has steadily increased its involvement in every asset type available in global capital markets. This evolution has been achieved, in part, thanks to the experience of the respective investment management teams, who have made a major contribution to adherence to the highest standards of investment management.

Another major achievement of the individualized pension sector is the role it has played in inculcating the internationally-accepted standards of corporate governance. It has made great headway in terms of implementing and demanding transparent and ethical practices designed to ensure the continued sustainability and development of the broader market. The sector's efforts in this respect have also paid major dividends in terms of generating security, fair competition and investor confidence. Pension fund administrators in Colombia have also encouraged increased levels of access to information on behalf of investors, procedures regarding the exercising of stakeholder rights, and processes designed to ensure the election of independent members to boards. And these are only a few of the good practices which have been introduced in Colombia's markets.[1] Corporate governance, for example, goes a long way towards inculcating the independence markets require to properly address conflicts of interest, manage operational and reputational risks, and ensure robust control systems are in place.

Another advantage of the individual saving system is the existence of voluntary pension funds. The comprehensive and flexible architecture of individualized pension schemes provides an entire spectrum of retirement investment alternatives for clients searching for a convenient online way to accrue more retirement via a single account-holder profile. In terms of scale and scope, the assets currently under management in voluntary pension savings currently total COP 20 million, which have been deposited by nearly 900,000 Colombians.

We should also note that the individual savings scheme is constantly evolving. The number of retiree pensioners has been growing fairly rapidly, with Colombia reaching annual rates above 30%. To date, more than 44,000 old-age pensioners are in the system. If we add survivor benefits and disability pensions to this number, the figure soars to 132,000. Clearly, Colombia is no longer limited to the constraints of the accumulation phase. Payouts have begun and we are making good on our commitments to all of our enrollees.

Pension administrators are also subject to shifts in consumption and savings behaviors. Data shows that a significant proportion of account holders in Colombia is comprised of young, working-aged individuals: 83% of the system's 15 million participants are under the age of 44. This dynamic means

1 *Financial Superintendency, Republic of Colombia, OECD recognizes progress made by Colombia on issue of corporate governance, July 11, 2017.*

that the pension sector has some serious challenges ahead of it in terms of financial education: stimulating a culture of savings; improving the customer service model; services related to new technology and digital options which allow account holders and administrators to track work history, contribution history and projected payouts; and, clarity regarding the growth of each savings account held by individual clients.

In terms of keeping account holders apprised of their future pension levels, fund administrators in Colombia have delivered nearly 65,000 payout projections during the 24 months since the two-fold advising strategy was introduced. These advising services have given account holders the data necessary to make more-informed decisions regarding switching between the two public and private schemes currently available in Colombia. A great concern for the leadership of both schemes is the movement of certain individuals for whom a scheme switch is a decidedly bad option. The private sector will continue doing everything within its power to ensure that these individuals make the right decision for their retirement future.

Those of us who serve the public within the pension sector are very clear about our responsibility to each of our individual account holders. As a result we wish to extend an invitation to each and every one of them to visit their respective fund administrator offices and clarify any remaining doubts, or perform any paperwork we can help out with. And on this point it is of paramount importance to clarify that there is no absolutely need for the services of intermediaries. As many of us are aware, these individuals attempt to insinuate themselves into a situation and charge fees for services which are completely manageable by the administrator and account holder.

Lastly, an especially laudable aspect of the individual savings scheme is the existence of the solidarity pillar. This pension floor is funded through the support of higher-income workers. And while the solidarity pillar is not funded through public outlays, it still allows individuals who fail to accumulate the necessary capital to retire to receive a pension in our nation via the *Fondo de Garantía de Pensión Mínima (Minimum Pension Guarantee Fund*). This fund is paid out to any individual meeting its criteria. To date, it has provided pensions to nearly 10,000 citizens.

The benefits of having private-sector pension funds are manifold. And yet, we must never of the inefficiencies generated by our insistence on maintaining of two, separate – yet parallel – pension schemes. Both schemes are operating in spite of the fact that this duality contributes to lower coverage rates, inequities, and an anemic culture of savings in our society; not to mention, it is simply financially unsustainable. It is time for a change, and time for decisions to be made: the scientific data and realities of everyday life could not be clearer or more irrefutable.

According to our National Administrative Department of Statistics (DANE), currently only 36% of Colombia's working class actively contributes to a pension. This indicates a level of informality within the labor market. It also shows pensions involve a very low level of coverage. Both of these issues are completely unsustainable, even in the short term. To be extremely clear on this point, we refer here to nearly 14 million workers who are currently not accruing pensions.[2] This paradigm needs to change immediately. Colombia needs to put forth fund solutions that address this most pressing of issues.

In addition to the preceding dynamic, it must be recalled that, as of 2018, the public scheme currently represents a COP 41 billion outlay by the federal government. And nearly 80% of subsidies provided within this system wind up in the hands of our nation's highest-earning individuals. This dynamic of social and economic injustice needs to stop immediately, whereas it is completely illogical. Colombia is currently undergoing a series of social and demographic changes which need to be addressed by the pension system with an eye to ensuring future viability.

Advances in medicine, technology and quality of life levels have progressively increased life expectancy. Colombia is no exception. In 1920, the national life expectancy was 40. By 1950, this figure had risen to 48. As of 2018, life expectancy in Colombia is 73 years. This means that by 2050, we will be living nearly 87 years; i.e., in just under three decades we will see a 26% increase for women and 23.5% increase for men in life expectancy. Colombia can ill-afford to ignore trends such as these.

If one takes into account the fact that the population pyramid is flatter with every passing year, the horizon seems even more complex. During the 1950s, there were 11 individuals within the economically-active population (EAP) for

2 *National Administrative Department of Statistics (DANE), Informal Employment and Social Security – Historical data.*

every older adult over 65 years of age. Currently, there are only seven. By 2030, we are on track to be down to only four. The issue which exacerbates this troubling trend is the fact that, as informality rates have increased, contribution density has fallen. In other words, the older adult population of Colombia will almost triple by 2055, rising from 5.5 million to 14.9 million. This is an increase of 170% vis-à-vis an overall population increase of only 11%. As a result, the future sustainability of pension systems correlates directly to our ability to make decisions today. And to be clear, we must never allow the debate to devolve into a battle between schemes – or a showdown between COLPENSIONES and the pension-fund sector.[3]

The issue should be perceived as the responsibility of the public *and* private sectors, and as it opportunity for each entity/actor to contribute based Upon their expertise and strengths. The goal is to achieve a system which, at the end of the day, is financially sustainable, equitable and increases coverage; i.e., a framework which evolves into a system which offers more and better pensions, to more Colombians, and which contributes to the wider fiscal stability of the nation.

We need to leverage the proven strengths of the individual saving system with an eye to capitalizing upon potential synergies between the two systems, and move towards a scheme focused on providing subsidies to the most vulnerable. This future framework must also possess the capacity to stimulate supports being contributed by formal-sector workers in proportion to what they actually earn, and incentivize additional voluntary savings among individuals who have the capacity to do so. In summary, we seek a strategy eliminates any the nonproductive competition which exists between the two schemes, even as it removes asymmetries.

Our current role obligates us to ask the really tough questions and, above all else, deliver practicable answers. What type of nation do we expect to live in if we are incapable or unwilling to effectuate immediate change? What is going to happen to individuals who are currently accruing retirement savings?

The longer we wait to address this issue, the more difficult it will be to arrive at a solution. And yet, we still have time to achieve success.

3 *Administradora Colombiana de Pensiones (COLPENSIONES) is the public defined-benefit provider in Colombia.*

The incoming administration has a tremendous responsibility in terms of the future of Colombia: social equality; economic stability; solutions which need to be implemented immediately. The nation also needs to make a commitment to long-term goals. This is to say, it needs to think beyond the current administration. It needs to be conscientious of the fact that its decisions will have a major impact upon the dignity with which 45 million Colombians, who are currently economically active, will live out their lives upon reaching retirement age.

We need to achieve a well-fitted solution which addresses current, as well as future, problems; and it needs to be developed by all actors within the pension sector. An optimal solution will not be the result of reactionary measures which lack the necessary technical and statistical bases required to ensure they take into account any concomitant social and economic consequences. Reforms must be made vis-à-vis the everyday realities of life in Colombia. At ASOFONDOS, we are fully committed to putting forth concrete proposals based on a well-founded, diagnostic consensus regarding the current state of affairs within the Colombian general pension system. These proposals seek to increase pension coverage, control the scale of public outlays on pensions, and correct the regressive nature of same.

In order to achieve these ends, it is of paramount importance to implement adjustments within the general pension system which allow us to structure a more integrated old-age protection system which includes three models: a contributive pension model, for formal-sector workers; a semi-contributive contingency for workers limited to low-density contributions, who fail to accrue enough assets for an old-age pension; and a third, solidarity pillar for the most vulnerable sector within society. If we pursue this type of strategy, it will undoubtedly result in a reform package which renews the entire general pension system framework, such that the public funded scheme and the individual saving scheme are no longer alternatives which individuals must choose between. They can then begin to mutually support one another in fulfilling the objectives of pensions in society and allow both schemes to operate under the same rules of play. At the same time, it will be necessary to expand the scope of non-contributive, old-age, economic support mechanisms such as the *Colombia Mayor* program, as well as the *Periodic Economic Benefits* (BEPS) program.

Among these parameters, a contingency must be included to continue incentivizing voluntary deposits through tax incentives. We should also never relent with regard to stimulating a culture of savings as a compliment to the mandatory pension scheme. Our hope is that this initial framework, which we will speak at length about during this event, will serve as the basis for the incoming administration here in Colombia. It is our sincerest hope that it will serve as a catalyst to the long awaited pension reform being submitted to Congress with an eye to solving the more observable problems – as well as underlying systemic issues – that exist within our current system.

Along these same lines, there are changes which we can achieve by leveraging the potential of both systems: such as the formalization of job markets; the activation of the annuities market; and, a clarification of legal parameters in order to ensure that rulings by the constitutional courts – on civil-rights cases involving individuals failing to meet basic pension criteria – do not undermine the future viability of the entire pension system. [4]

Above all else, we must fully commit to developing a solid public awareness and education strategy designed to inculcate a culture of savings among young adults, in order to ensure that, as they began their working lives, new entries into the labor market are fully aware of the factors which impact an individual's ability to accrue sufficient savings for retirement. Additionally, we need to view financial education as the primary means for encouraging more Colombians to begin saving now for their future. At ASOFONDOS, we wish to take this opportunity to commend the federal regulatory and oversight entities for their receptivity to initiatives put forth by the sector in its search for a viable long-term plan. Particularly during 2017, this posture is what allowed the nation to introduce a series of adjustments to our programmed withdrawal plan, which is an option available to account holders within the pension system. These reforms included a change to the investment regime and improvements to the calculation variables, inter alia.

This has all been made possible through the independent, yet collaborative, work undertaken by ASOFONDOS and the rest of the sector in association with the Ministry of the Treasury and Public Credit, the Financial Superintendency, and the Financial Regulation Unit, to whom we would like to express our thanks for their open-mindedness and expertise. We are pleased to see such an outstanding turnout to this event and point out that all of you will be treated

4 *Acción de tutela: See Article 86, Constitution of Colombia.*

to an outstanding series of speakers: Klaus Schmidt-Hebbel and Ricardo Hausmann, who will be sharing their perspectives on the macroeconomic dynamics at work within the region; Xavier Sala-i-Martin, who will be sharing remarks on competitivity and pensions; Claudio Sapelli, who will be speaking about the future of work; as well as a host of others who will be addressing issues of great interest to us all.

I cannot close my remarks without extending special thanks to everyone at FIAP and ASOFONDOS, each of the pension fund administrators, as well as all of the other individuals who helped make this event and forum a reality through their hard work and commitment. We hope that it provides an opportunity for everyone here to do believe reflect upon the issues at hand. Never forget that, as a nation, it is time for us to make some difficult decisions regarding the pension sector – responsible decision-making, which takes into account every Colombian and seeks to achieve the best future possible for our nation.

Thank you, and welcome to the event.

Juan David Correa
Chairman, Board of Directors
Colombian Association of Pension and Unemployment Fund Administrators (ASOFONDOS)
CEO, Protección S.A.

INTERNATIONAL FEDERATION OF PENSION FUND ADMINISTRATORS (FIAP)

The International Federation of Pension Funds Administrators, FIAP, is an international agency incorporated in Uruguay, bringing together the trade associations of pension fund managers from 13 countries (Bolivia, Colombia, Costa Rica, Curaçao, Chile, El Salvador, Spain, Kazakhstan, Mexico, Peru, the Dominican Republic, Ukraine and Uruguay). The workers represented by FIAP member associations and institutes total more than 108 million as of June 2018, and have accumulated more than USD 584 thousand million in their respective individual accounts.

FIAP endeavors to contribute to the improvement and strengthening of private pension systems, in order to offer the best possible pensions to its members, via financially sustainable systems. For this purpose, it seeks to be a meeting place for the exchange of experiences between countries that have adopted pension systems based on privately managed individually-funded savings, and by providing information and support for the improvement of systems. In order to further these objectives, FIAP has organized 15 international seminars.

The Federation also brings together 14 “collaborating members”, which are predominantly companies that provide services and products to the pension fund management industry and currently include: ALFI (Association of the Luxembourg Fund Industry); Amundi Asset Management; BNY Mellon; Brown Brothers Harriman & Co; Compass Group Global Advisors; GAM (Luxembourg) S.A. Spanish branch; Inversiones Security; Jupiter Asset Management; M&G Investments; Pictet & Cie (Europe) S.A., Spanish branch; Principal Financial Group; S&P Dow Jones Indices; State Street Global Advisors and SURA Asset Management.

Recently, FIAP has also organized seminars on "Alternative Assets" and "Voluntary Pension Savings," which were attended by experts and regulators from all of the FIAP member countries. FIAP maintains open channels of communication with pension-sector regulators within FIAP member countries, as well as international agencies concerned with pension issues (OECD, ILO, IDB, IMF and the World Bank).

Lastly, FIAP carries out research on the issue of individually-funded systems, and compiles statistics which may be of use to member countries. Sent data is available online at: www.fiapinternacional.org. FIAP’s publications include Pension Notes, which are brief documents addressing different matters of interest in the area of pensions. Titles include: “Demographic reality forces European countries to introduce individually-funded pension systems”; “The role of technology and behavioral economics in increasing pension savings: recent experiences in Chile, Colombia, Mexico and Peru”; and “Unsustainability of public PAYGO systems: The cases of Colombia, Argentina and Brazil”.

INTRODUCTORY LECTURE

COLOMBIAN PENSION SYSTEM: REMARKS FROM THE REGULATOR

JORGE CASTAÑO [1]

1 *Jorge Castaño is a graduate of Universidad Externado de Colombia, having majored in financial and stock market law. He then received an LLM from Universidad Carlos III in Madrid. Mr Castaño has served as the Financial Superintendent of Colombia since 2017.*

The primary reason for my addressing this audience is to share the perspective of the Financial Superintendency of Colombia with regard to topics which might come up during the public debate on our nation's pension system. Should they come up at this event or at another forum in the near future, we wished to clarify the regulator's stance on those that fall within our purview.

Data: foundation of pension system

Our mission at the Financial Superintendency is to preserve public confidence and the overall stability of our nation's financial system; maintain the integrity, efficiency and transparency of the Colombian stock market and other financial assets; and, exercise oversight with an eye to ensuring the rights of financial-services consumers are protected.

The professionals at the Superintendency work constantly to ensure that, as we attempt to address the nation's broader macroeconomic issues, we do not miss important details which can also play a major role. As a result, the following constitutes a fairly comprehensive summary. It should also be pointed out that our team wholeheartedly supports a vigorous, public debate on what needs to be done to reform our national pension system. We also back the recent assertion made by ASOFONDOS that it is imperative to ensure sustainability and viability drive the relevant decision-making processes.

Financial system data: potential to improve pension system service delivery

Accurate data is an issue which can be linked to every item on our agenda here at this forum. At the end of the day, we can safely say that it comprises the very foundation of the pension system. The entities which directly or indirectly contribute to society's efforts to provide pensions, however, currently lack the data access which they need to fulfill their obligations.

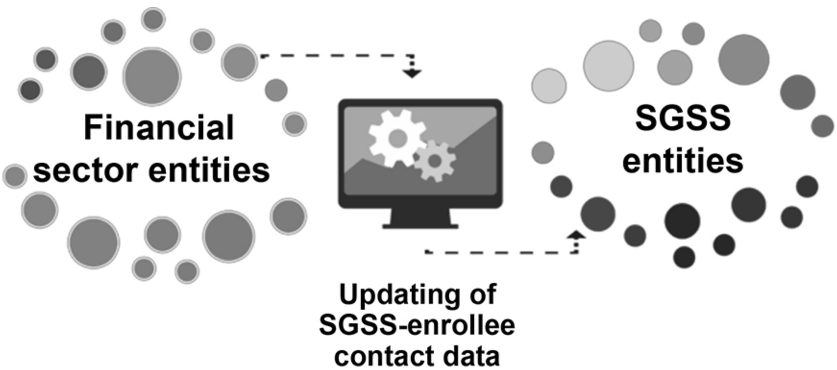
In terms of limited access to enrollee data, the primary issue is that system participants are not involved enough with data collection and maintenance. This factor only serves to exacerbate the situation when pension providers attempt to contact individuals. At first glance, this area may appear to be an issue of secondary importance. But as we analyze this dynamic a bit more deeply, advances in data integrity, accuracy and collection would pay lasting and valuable dividends for every actor within the pension sector.

Higher-quality enrollee data has the potential to generate benefits in a variety of areas:

- *Benefits-approval system:* programs for pre-retirees result in timelier, more efficient approval of benefits (i.e., data collection of work history occurs prior to retirement).
- *Payment of full or partial benefits:* data provided to enrollees regarding their pension accounts.
- *Enrollee advising:* enrollees are better apprised through alerts advising of age requirements being met, and ability to transfer between schemes. Accessibility to Multifondos scheme data.
- *Contribution tracking:* enrollees receive notices when employers fail to comply with withholding regulations.

As Figure 1 demonstrates, an issue such as the accuracy of Sistema General de Seguridad Social (SGSS) data is an excellent barometer in terms of assessing the efficiency of interactions between the financial sector and SGSS entities. When an individual transfers between schemes, for example, all of the actors involved need to be advised of this change. Therefore, it is vital that each possesses up-to-date information. Optimizing data systems also ensures that individuals receive important notices regarding benefits approval, and in a timelier fashion.

FIGURE 1



SOURCE: AUTHOR.

Another issue relates to the ability to perform the complex task of standardizing and universalizing the participant data which is so vital to the efficient operation of social security systems across the globe. Advances in this area will improve the operational efficiency of the variety of entities charged with maintaining these systems.

As a result, at the Superintendency we pay special attention to data processing issues which, in the case of Colombia, are vital if we are to achieve progress in the pension sector.

What do we expect from pension systems and their participants?

The population of individuals enrolled within pension systems requires open and accessible communication channels. This is because time is of the essence where proper decision-making is concerned. Private pension fund administrators also need to possess the right tools if they are to make good on their commitment to educate clients and disseminate relevant information. Under normal circumstances, the only time an individual visits the fund provider is when enrolling, experiencing problems or when they reach retirement age.

Unfortunately, public-sector entities are often unaware of the individual context of each enrollee within a given system. Traditionally, this problem has not been perceived as a priority issue. However, a brief analysis shows that any progress made in this area has the potential to pay huge dividends to the involved entities, not to mention the society which they serve. If we achieve headway in terms of improving the systems involved, we will have a much clearer picture of what is occurring in each individual's life, as well as what needs to be done to help them along their way. Should we fail to properly address this problem, it will be impossible to implement a system in which decisions are properly made with regard to the physical and economic state of the individuals involved. Success, on the other hand, will enable us to provide better advice and tailored solutions to system participants; not to mention, increase the role of fund participants in the financial decision-making which impacts their retirement savings.

Improvements in information systems may also prove of value in terms of inculcating a culture of personal responsibility among participants. Society gains when individuals are more conscience of the future of value of their respective retirement accounts. If we possess more information about individuals, retirement-sector actors can then contribute to solutions which decrease the number of individuals who are unaware of – and therefore surprised by – their payout amounts. Better information will go a long way in helping sector actors to encourage a more proactive stance among participants at the beginning of the work lifecycle. If society seeks to demand more personal responsibility from participants, we must ensure they receive timely notification of relevant issues during their work life.

Data centralization: potential to generate benefits and costs savings for pension systems

The Superintendency hopes that database unification will have a place on every discussion agenda. For now, it may seem a bit out of our reach, but failure is not an option. Therefore, the issue needs to be included in every single forum in which system reform is being discussed.

Should we fail to consolidate social security databases via the technology which is currently available, we will never be able to perform something approaching a truly objective assessment of the system.

In Colombia, a comprehensive unification strategy will include data from the following sources: national pension system, pension fund administrators (AFPs), UGPP[2] and the *Oficina de Bonos Pensionales*, the entity charged with delivering pension checks. The current scenario begs two major questions. Does an individual's

2 *Unidad Administrativa Especial de Gestión Pensional y Parafiscales (UGPP): federal agency charged with, inter alia, making decisions in terms of pension and disability benefits being awarded to individuals.*

data match in each of these databases? Do authorities and medical professionals have access to said data when making decisions regarding an individual's future (e.g., medical or work history)? In terms of the SGSS, it is critical that we ensure that data is accurate across the entire spectrum of databases and entities. This means that, when one database changes, data sets across the broader network of databases are also duly updated.

In terms of data integrity, we are convinced that data access can be provided without a sacrifice in terms of privacy. The best way to ensure we are on the right path is to never forget that beneficiaries, fund participants and citizens have a right to real-time data access. Our aim should be to accomplish this goal in a manner which ensures that the entities serving the public also have access to accurate information.

Additionally, participants are not the only potential beneficiaries of this new synergy. The entire sector has the option of being a bit more ambitious in terms of capitalizing upon the potential utility of personal data. For example, why don't we also incorporate medical histories into the unified database? We also might consider including the affiliations an individual has within the various other social security schemes.

In light of the foregoing, the Superintendency believes that any truly comprehensive discussion of the pension issue in Colombia will address the unification of all our databases. Along these lines, I would to share some anecdotal evidence. For several years, the Superintendency has been trying unsuccessfully to gain access to another federal agency's database – in order to comply with our duty to provide oversight on a given issue. The failure to gain access is not the result of unwillingness on the part of the other agency to provide said data. Rather, it is simply due to regulatory restrictions regarding the sharing of data. This shows that a paradigm shift is necessary to overcome the barriers which are currently impeding our efforts to optimize decision-making processes.

The fact that this issue is not addressed by legislation in many nations demonstrates that it constitutes an excellent area of opportunity in terms of tangible improvements within both the public and private pension sectors. A paradigm shift would also provide a strategy for doing away with the traditional perception of the federal regulator, and the respective entity or individual, as being located on opposite ends of the spectrum. If we are able to overcome this way of looking at things, we can work together to address the general parameters of the systems involved.

To date, it is the small, easily-addressed issues which are tripping us up in Colombia. Even though we possess a world-class system, if it takes 2 to 3 years for a geographically-decentralized entity to execute a benefit payout, it is the beneficiary who suffers. This type of situation only serves to damage taxpayer confidence in the precepts which underpin the entire system. It is also exactly the type of outcome that we are not trying to achieve; especially due to the fact that such a dynamic would simply increase the probabilities of retirees suspecting that they have somehow been cheated out of a larger pension. Clearly, irrational expectations exist on the part of a pensioner, in terms of their expected payout level, only serve to exacerbate this situation.

There is also an entire spectrum of possible improvements which are well within our grasp in terms of benefits-approval boards, online certifications, work histories and public entities.

In terms of private-sector pension fund administrators – known as AFPs throughout Latin America – we have begun a process of IT improvements in Colombia. The technology is available and has the potential to be game-changing. The managing director of a pension fund recently mentioned that once his firm has access to the appropriate data, it will be possible to grant a pension within a matter of minutes, instead of weeks. The regulations which are currently in force involve a four-week horizon. But, clearly, Colombia's pension funds already possess the capacity to manage all of the necessary processes extremely efficiently.

De-accumulation phase needs to be coordinated among all actors within sector

In 1993, Colombia launched its *Sistema de Seguridad Social Integral* (SSSI). This fully integrated social security system was enacted via Law 100/1993. This legislation defines the system as comprising "the totality of institutions, regulations and procedures created to ensure that Colombians, as individuals and as a society, have access to quality of life through the progressive fulfillment of the plans and programs which the State and society undertake in order to provide integrated coverage for life's contingencies, especially in terms of issues impacting the health and economic capacity of individuals residing within Colombia, and with an eye to achieving the well-being of individuals and integration of the broader community."[3]

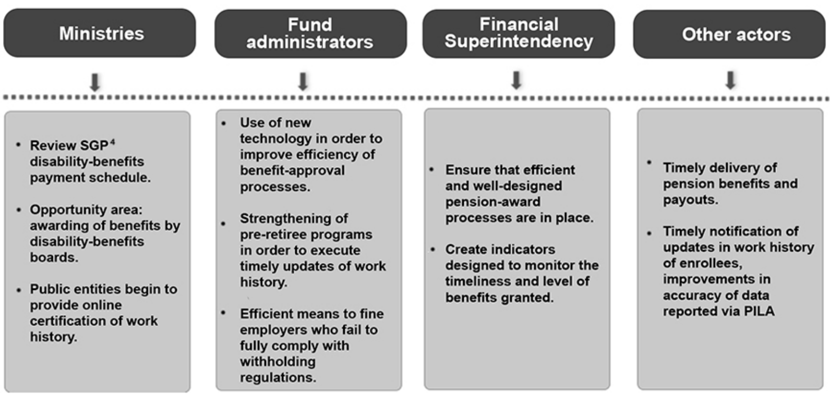
The system has matured greatly since its launch 1993, but further improvements need to be made. Many instances of regulatory inflexibilities are still in place which constrain our decision-making processes and often force us to forego needed action. A bit more flexibility needs to be introduced in order that reforms begin to more accurately reflect everyday realities. It would be optimal to achieve a higher degree of consensus on the subject of empowering entities to adjust for real-world constraints.

3 *Ley 100 de 1993: Social security, pension and public health legislation. Contains other provisions.*

The Financial Superintendency has been reforming the scheme with increasing frequency. The goal in this instance is to begin the de-accumulation phase by creating indicators which are not, for example, necessarily a function of what occurs in either one of the two schemes. The Superintendency must now possess the capacity to monitor the awarding of benefits, as well as the amount of benefits awarded (see Figure 2).

FIGURE 2

COORDINATING SECTOR ACTORS DURING DE-ACCUMULATION PHASE



SOURCE: AUTHOR.

The main point here is that we can always remain focused on the very public debates regarding the pros and cons of a given framework. However, if this occurs at the price of failing to address the smaller – and very achievable – issues which continue to elude us, it is completely irrational to expect we are going to achieve any real headway in terms of our broader goals.

Rethinking use of insurance schemes within system

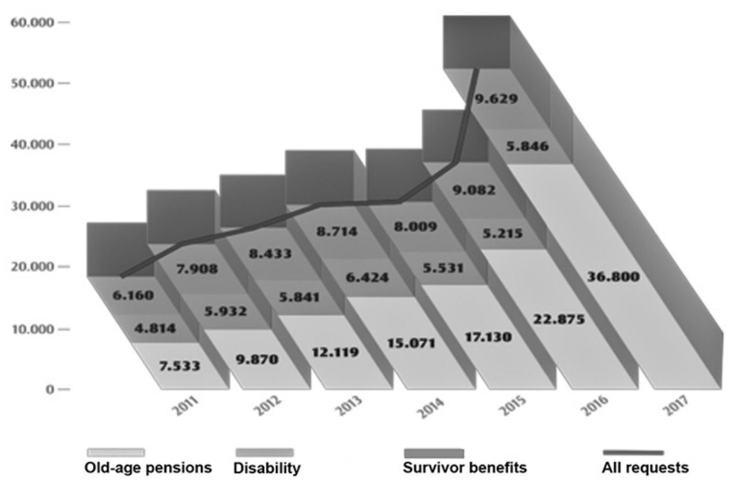
Another issue which we must address is the existence of insurance mechanisms within the current pension framework. This will not be easy to achieve, due to the issues mentioned during the opening remarks to this event, as well as those covered

4 *Sistema General de Participaciones: mechanism through which federal tax revenues are transferred to regions.*

by Dr. Juan David Correa. Clearly, however, the issue is of paramount importance given the limitations of our current system.

We also need to begin considering what types of schemes need to be introduced to address the de-accumulation of the RAIS[5] scheme, with an eye to protecting participants from the risks of extra longevity and investments. Graph 1 contains figures indicating the evolution of requests for pension coverage during the last few years. As can be seen, Colombia is currently experiencing an important increase in the number of requests filed with private pension fund administrators. However, the other side of the equation – where one would expect to see a similar number of pensions being *granted* – appears to be completely divergent.

GRAPH 1
EVOLUTION OF REQUESTS FOR PENSION COVERAGE



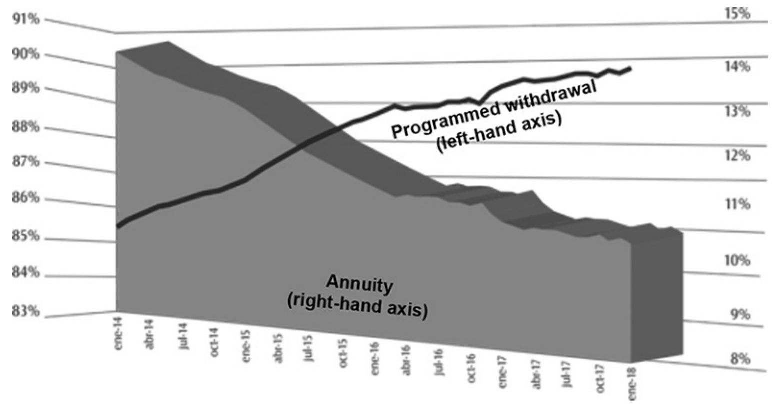
While an annuity scheme is in place, it is an increasingly less popular option for individuals who are consistently opting for the programmed withdrawal alternative. Regardless of the general parameters a particular actor within the sector may be

5 *Régimen de Ahorro Individual con Solidaridad: Individual saving scheme which contains social protection floor.*

advocating for, this is an alarming situation. Therefore, it should be of concern to all involved.

Despite efforts by the federal government in Colombia to reactivate the annuities market through the minimum fund performance mechanism and the omission of 30-year Treasury bonds, to date the insurers have failed to reactivate this market. As illustrated in Graph 2, the appetite for longevity risk within the local market and the programmed withdrawal option are not appropriate alternatives for the majority of participants. Should trends continue as expected, there is going to be a great need to consider tactics which go far beyond what has been attempted to date. There is no intent here to engage in value judgments. Instead, we aim to simply state that Colombia currently lacks a market which is willing to cover the risks of additional longevity, including the related issue of investment risk.

GRAPH 2
OLD-AGE PENSION OPTIONS



The Financial Superintendency, the Regulatory Unit of the Treasury Ministry, the industry and insurance companies are constantly meeting to discuss what strategy needs to be pursued. However, it would seem that we have reached an impasse until the broader issue of reforming the current set of de-accumulation schemes is addressed. In spite of repeated efforts, little tangible headway has been made on the issue of increasing appetite for risk. Additionally, other risks exist which do not fall within the purview of the Superintendency, whereas they are much longer-term issues.

A possible alternative for solving this scenario is the resource-management fund sector. Although this type of measure would require legislation to introduce, it would definitely provide better risk pooling and ensure that the full range of potential benefits generated by annuities remain available.

This is an option which we strongly support. Of course, it would need to be fully reviewed in a public forum before moving ahead. This issue seems to fall squarely within the purview of the Financial Superintendency, and we feel that it is rational to expect that resource management schemes can be designed to address the de-accumulation phase, at no sacrifice to the potential benefits of annuities. To achieve this, clearly defined resource-management guidelines (asset flow, remuneration parameters) need to be put into place, so that these funds generate the same type of positive externalities as annuities.

Common fund scheme for the management of de-accumulation phase resources:

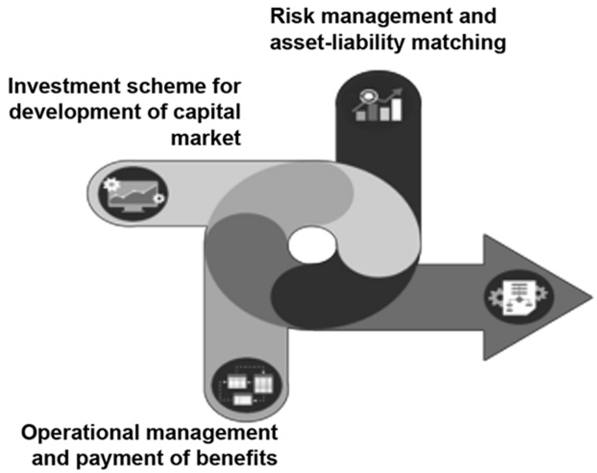
- Common resource management fund
- Open-bid process for resource management providers
- Possible coverage provided for certain types of risk

What type of result are we after here? The ideal solution would be a common fund (similar to FONPET[6]) which includes an open bid process for resource management providers, and possesses an administrative framework capable of handling operations and benefit payments.

What will occur if we fail to improve management of the risks associated with these resources, or fail to optimize asset and liability matching? The result can clearly be seen in Figure 3. We have the ability to delineate clear guidelines of how these resources should be managed. At the beginning, we will need to identify a strategy for bridging the transition which will address the root of the problem. This is neither the only nor best solution. However, we wish to put forth viable proposals which can then be analyzed in terms of, inter alia, feasibility and complexity level.

6 *Fondo Nacional de Pensiones de las Entidades Territoriales: obligatory withholding system that funds pensions granted by regional entities, and which is managed by the Ministry of the Treasury and Public Credit.*

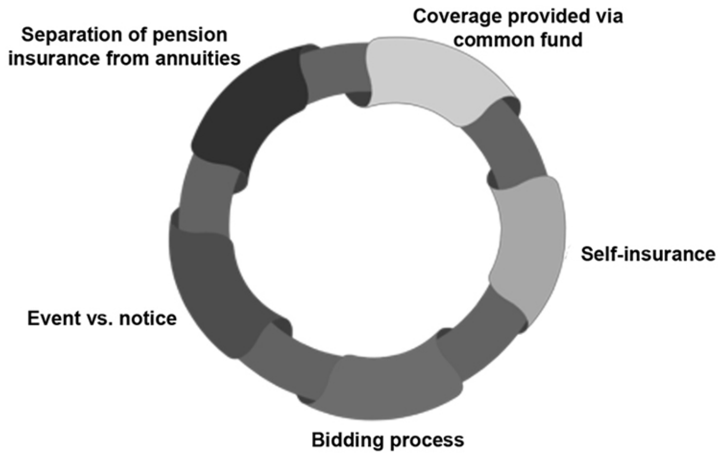
FIGURE 3



SOURCE: AUTHOR.

The lack of appetite among insurers for providing retirement insurance has resulted in private pension funds implementing alternative insurance schemes. If Colombia fails to implement such a measure, or something which proves even more innovative, we are going to remain in the loop illustrated in Graph 3. This is to say, a situation in which we are simply relegated to putting one fire out after another. In that scenario, criticism from the Superintendency would be appropriate whereas the pension sector would be authorizing an activity which is not technically within its purview.

GRAPH 3
DISABILITY AND SURVIVOR-BENEFITS RISK INSURANCE



We are trying to put an effective mechanism into place which ensures that the participant, who is the priority in this case, also enjoys a degree of protection. At the end of the day, the goal is to escape the loop.

The lack of appetite within the insurer sector is due to:

- Court rulings which generate instability within legal system.
- Combination of short-term (additional payouts) and long-term risks (annuity guarantees).
- The size of the largest AFPs in Colombia decreases the number of local insurers with sufficient assets to cover such liabilities.

It is very important to clarify that the Superintendency completely respects the rulings and authority of the courts. The courts are referenced solely in order to point out that in some cases their decisions have economic consequences which impact the normal functioning of the market. Therefore, it is important to attempt to correct, align or implement additional elements which create an environment in which rulings strengthen the marketplace and/or generate additional stability within the legal system.

The combination of short-term and long-term risks is an issue of vital importance when making a determination of appetite-for-risk levels within the insurance sector. As a society, we also need to discuss the issue of our national pension fund sector being so highly concentrated into two very large funds.

All of the foregoing factors tend to complicate efforts of a given insurance firm to provide coverage. Clearly, the amounts involved are no small affair, and Colombia has yet to address the issue of determining what level of assets will be required to generate such levels of coverage. In this sense, we also need to consider how we are going to diversify and optimize the potential of insurance firms in order to drive balance and equilibrium.

Redesign of investment-management framework

The third major issue we need to address is investment management. To date, debate on this question has largely centered on the issues of profitability and administrator fees.

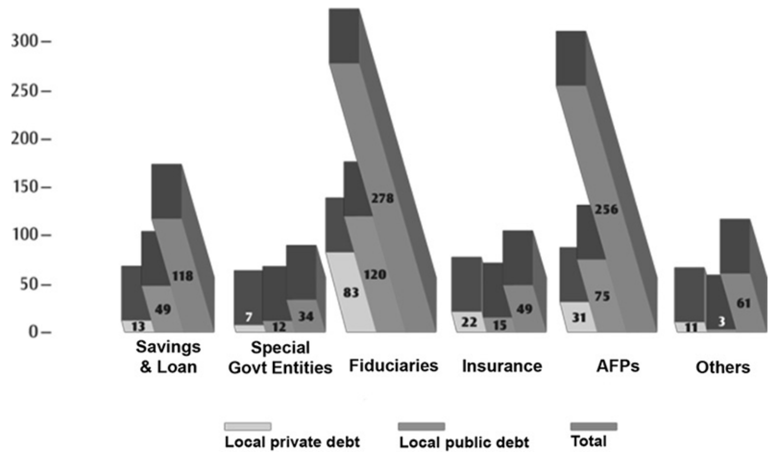
It is time to begin analyzing this issue in terms of viability. If we limit the analysis to the issue of profitability, it is highly unlikely that we will achieve any tangible progress with regard to improving replacement rates. Investment management can continue improving if and when we implement additional elements designed to improve capital enough to, in turn, optimize replacement rates.

Another important issue is the current size of obligatory pension funds in relation to local markets. This factor is impeding the potential stimulus these funds might otherwise provide.

The Financial Superintendency does, however, believe that pension funds fulfill a fundamental role within capital markets. Graph 4 illustrates the relative importance of a wide variety of assets, as well as the participation of the pension fund sector within local markets.

GRAPH 4

INVESTMENT PORTFOLIO - FINANCIAL INSTITUTIONS
(IN BILLIONS OF COLOMBIAN PESOS)



SOURCE: FINANCIAL SUPERINTENDENCY — INFORME ACTUALIDAD DEL SISTEMA FINANCIERO, JANUARY 2018.

Investment-management reforms designed to stimulate local capital market

Delegate management of certain asset types to third-party experts

Colombia eventually needs to address the issue of how and when we might consider bringing in experts to simplify life. Specifically, in what context might it be feasible to delegate the management of certain asset types, which may not necessarily fall within our particular area of expertise? In Colombia, this option would definitely inculcate a highly specialized degree of professionalism, even as it would help us to engender a culture of solid corporate governance.

Delegating responsibilities to experts would also serve to decrease costs related to due diligence, whereas it has become increasingly difficult to achieve the critical mass of assets required to launch a pension fund within capital markets. Therefore, this option is best defined as a natural evolution of the market in terms of an issuance. How so? Initial fund issuances, which have grown larger over time, do not necessarily gain momentum at the same rate. As a result, we have set an initial issuance cap in order to make these funds more attractive to investors. The capital market also needs to be stimulated and an excellent area of opportunity would be lowering due diligence costs. Opting for a greater degree of expertise within this scenario is a reasonable outcome, whereas asset administrators cannot be experts in absolutely every asset class.

In terms of how to execute this strategy, it is not yet completely clear which alternative is best. In one option, individuals would be hired to work within an organization and perform these duties. Of course, another option would be to have an independent, third-party group of experts who work off-site at their own firm. One thing is clear though, if come up with a responsible solution to this challenge, we could significantly increase the number of investments on offer.

Reform of investment regime

In terms of reform, the goal in this instance is to ensure that investment parameters are clearly delineated in terms of exposure to risk and the value of issuer liabilities. To clarify, reforms should not be solely focused on fund issuances or assets, per se. It is also important to set investment limits as a function of risk, and view reform as an opportunity to introduce parameters vis-à-vis the value of issuer liabilities. Our current methods of addressing risk also merit review, because our current risk-management strategies are falling short. Lastly, there is a necessity to decide how we are going to move ahead in terms of optimizing the concomitant management processes.

In short, the main point here is that obligatory pension funds possess the potential to stimulate Colombia's capital markets. Future reforms to minimum fund-performance levels and the investment regime which are enacted will need to generate real changes which translate into tangible benefits for the individuals enrolled in these pension schemes.

Progress made

To date, Colombia has achieved some progress in terms of methodological adjustments. The idea is to now analyze them in a public forum. While the Superintendency acknowledges that they are not yet optimal, it is important note that they *have* played a significant role in driving the broader debate on structural reform. Of course, one also hopes that they might be of use to the nations represented here at this forum.

The legislation entitled *Decreto* 059 de 2018 enacted a new methodology for programmed withdrawal which includes ex ante weighting, eliminates the pairing component, and functions in correlation to the performance of a number of market indices. The legislation also addresses the publication of portfolios, ensuring a greater degree of transparency within the marketplace through the publication of fund investments, including details on each asset.

> "With regard to methodology utilized to calculate minimum fund performance, as well as permissible caps and investments, the Special Programmed Withdrawal Fund is currently regulated under provisions applicable to the Conservative Fund. Whereas it is necessary to account for the profiles of individual pension participants, a special set of guidelines shall be defined for said Fund. In terms of the investment regime, the fund is permitted to invest in new assets to achieve better performance and improve asset-liability matching. A percentage of the fund's total assets may be valued at amortized cost in order to reduce volatility. A methodology for the calculation of minimum fund performance shall be delineated vis-à-vis an index which is representative of the Treasury Securities (known as TES in Colombia) market in Real Value Units, as well as variable-revenue indexes.
>
> A standardized method for calculating minimum fund performance, in the case of mandatory pension funds as well as the long-term unemployment portfolio, shall be established in order to provide the Financial Superintendency of Colombia a unified definition for a fixed-revenue market index which may be used as a reference for said funds and portfolio." [7]

Future discussions

The first issue which needs to be addressed is the minimum fund-performance schedule for accumulation funds. The link between minimum-performance and regulated-performance parameters needs to be broken, such that the framework permits:

- Alignment of fund-administrator objectives with participant risk profiles.
- Differentiation in management approaches.
- Removal of regulations that incentivize herd mentality.
- Improvement of replacement rates.

Although this issue will not be analyzed in further detail here, a report prepared by the Commission of Experts – many of whom are with us at this event – states that we need to make progress on breaking the link between minimum fund performance and the limit set by regulators. It should be noted that the aim is to orient all factors

7 *Available online: Decreto 059 de 2018.*

towards the primary objective: prioritizing the needs of fund participants. If this link is not broken, all other reform measures in this area will be fruitless.

The second issue involves appointing a commission to monitor fund performance. This task needs to be undertaken with an eye to achieving performance levels which maximize the probabilities of fund participants receiving decent pensions. The commission should focus on the consistency and quality of a fund's investment-portfolio management within a risk-appetite framework constructed vis-à-vis the profile of fund participants. Individuals appointed to the commission, as well as its purview and regulatory framework, is currently still under analysis. However, as long as we remain constrained by a scheme wherein regulated minimums drive fund administrator decision-making in terms of asset allocation, we will never achieve improved performance and the resulting improved pensions for individual enrollees.

Inculcating a culture of voluntary saving

Any rational approach to strategies designed to foment a lasting culture of voluntary savings within a society must include, inter alia, measures to improve the conditions of individuals who opt to participate in these types of voluntary schemes. In the case of Colombia, the investment regime of our voluntary savings options has not been addressed since 1993. Clearly, if we are going to discuss sector reform, something must be done to ensure all of the relevant actors are actively involved in the process. In some instances, the voluntary framework is even more restrictive than the mandatory pension sector, impeding the entry of certain types of financial products. Additionally, the scheme has failed to take into account advances made in the broader financial system in terms of corporate governance and investment portfolio management. As is to be expected, all of these factors contribute to higher administration costs.

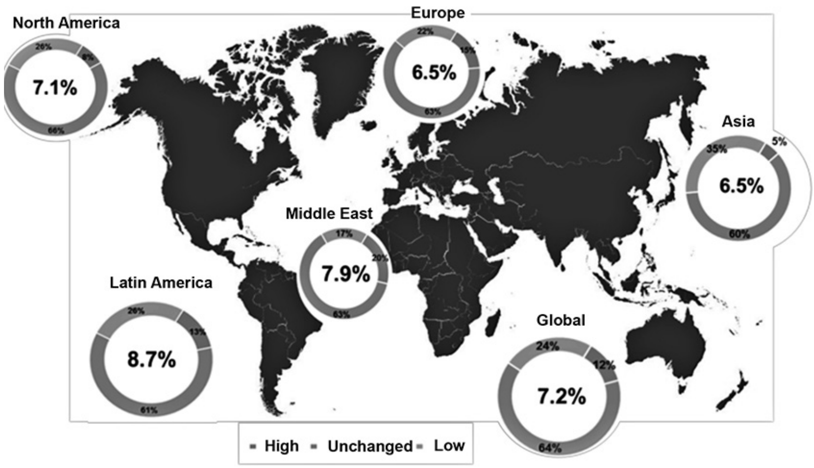
AFPs have their own set of challenges

There are also a number of opportunity areas open to pension fund administrators. The remarks by the General Director of the *Banco de la República* at this forum make it very clear that Colombia is increasingly exposed to external, international risks which it has no control over; most notably, with regard to low interest rates.

The majority of global, institutional investors believe that the decade of low interest rates, low volatility and high returns on investment may be coming to an and in 2018. This is in line with what the International Monetary Fund, among others, has indicated.

Many also believe that the risks are comprised of the following factors: geopolitical events, stock bubbles, rising interest rates, and a generalized context of low returns. Possible concomitant impacts of this dynamic include increased volatility and a potential rupture of the correlations in portfolio diversification.

PROJECTED LONG-TERM RETURN



Strategic allocation of assets

In this scenario, investment processes will become increasingly relevant in terms of generating returns. Regardless of the type of fund involved, a coherent strategic allocation of assets (SAA) model will address the characteristics of both participants and pensioners as follows:

- Operation of the programmed withdrawal fund must be redesigned vis-à-vis the inherent risks of such funds.
- Minimum fund performance may be utilized as a measure to constrain the model, but should never define the broader investment aims of fund.
- Investment horizon must be long-term.
- Optimization models should address risk factors and include input from experts.

For its part, a successful corporate governance strategy will include the following:

- Clearly-written Declaration of Investment Policies.
- Involvement of Board of Directors in approval and monitoring.
- Inclusion of third-party experts on risk and investment committees.
- Early-alert governance.

In terms of investment and risk management, we should pursue:

- Effective inclusion of stress tests in SAA and investment portfolio management.
- Implementation of performance attribution models.
- Early-alert tracking.

The Financial Superintendency recently issued External Bulletin 004 (2018) containing "directives concerning investment procedures and strategic allocation of assets on the part of mandatory pension funds and the unemployment fund's long-term portfolio". [8] The bulletin aims to strengthen SAA processes among Colombia's pension fund administrators, generate points of comparison (between funds, AFPs and other industries), execute preventive oversight, as well as optimize and focus regulator resources. Preventive oversight is a task which we pursue through the lens of portfolio management and allows us to properly focus our oversight resources.

AFPs should consider new investment instruments and strategies

Society needs to begin contemplating the use of new strategies and better forms of investing with regard to the resources under management by pension fund administrators. It should be noted that this does not necessarily entail higher or lower levels of risk. What we need is a more integrated approach to reaching a more proactive stance vis-à-vis opportunities. The cycle of low volatility seems to be coming to an end. As a result, asset class-based portfolio management needs to become more risk factor-focused.

Proactive management is increasingly popular whereas it provides a higher probability of achieving investment goals via:

- Stronger protection against market drops.
- Exposure to non-correlated asset classes.
- An opportunity to capitalize upon short-term movements within markets.

8 *External Bulletin 004 (2018), available at:*
https://www.superfinanciera.gov.co/descargas/institucional/pubFile1030414/ce004_18.doc

Passive management, for its part, is simple and cost-effective in markets which are highly efficient. It provides an opportunity for the rapid and efficient execution of certain types of investment strategies.

The overall objective here is to increase diversification via exposure to a wider variety of risk factors and investment strategies. Strategic asset allocation prioritizes investment in alternative assets. However, this does not mean that fund managers are participating in every single asset class available within efficient markets. There are also some very important challenges in terms of diversification. In fact, even the investment philosophy employed by pension funds needs to be reviewed. Diversification and investment philosophy need to be discussed at length in a very public way, to ensure that they are subjected to a truly in-depth analysis.

AFPs need to strengthen due-diligence processes

In terms of opportunities to strengthen pension fund due-diligence processes, a high degree of expertise is necessary to correctly manage the risks of investing in alternative assets.

The primary issue is how to properly evaluate these risks. This process requires the services of a professional due-diligence provider with a proven track record, a team of professionals, key experts and the alignment of interests. Given what we have observed to date from our oversight vantage point, the Superintendency is convinced that the delegation of due diligence to third-party experts may serve to optimize the efficiency with which this duty is carried out. Therefore, delegation should never be viewed as a means to shift responsibility outside a fund. A successful strategy will involve a provider which possesses a team that includes at least one subject-matter expert per alternative asset class. Clearly, any scenario involving a single individual or team managing a single asset type makes the issue of corporate governance exponentially relevant.

Said asset-class experts will have the responsibility of analyzing the fund with regard to its terms, corporate governance, investment processes, accounting practices and valuation methodologies. These individuals also need to ensure that a potential investment complies with the pension fund's overall strategy, investment alignment, and broader market environment. They would also need to ensure that a mechanism was in place to control for possible underlying risks.

Future regulatory reforms

Regulatory reforms currently underway

At the Superintendency, regulatory proposals are always a very important issue. We undertake them in direct consultation with the sector, and endeavor to be extremely open-minded in terms of what we are proposing; not only in terms of oversight, but in terms of the regulatory reforms within our direct purview.

Policy extracts

The Superintendency is currently working to ensure that our policy extracts contain clearly-written texts which can be understood by the majority of system enrollees regarding their pension savings and work history. These extracts are intended to generate value-added benefits in terms of the information provided to financial-sector consumers. As part of this effort, we reviewed our past extracts to ascertain how intelligible they were.

Speaking for myself, while I eventually deciphered what was being said, it was not an easy task. Therefore, this begs the question regarding how rational it is to expect that the average citizen enrolled in the system is going to fully comprehend the major issues at play here. Given the fact that the information involved appears to be fairly complex, we are currently working towards providing clearer indications of what the current state of the Colombian pension sector is. The Superintendency is prioritizing this effort to ensure that the public is receiving information that they can process and internalize with regard to an individual's enrollment in a given pension system. Of course, individuals involved in more sophisticated funds, or those wishing to receive more in depth information regarding their participation in a fund, can always contact their respective pension funds directly.

The basic strategy being employed in this instance involves developing general guidelines which standardize the manner in which we deliver important notices to future retirees. The plan is to provide very straightforward information at the outset, because fund participants always have the option to request further details from their administrator in the event they need more information regarding available options. In the end, the goal is to deliver concrete data which participants can utilize when making decisions regarding their retirement planning.

Elimination of Reference Portfolio for pension and unemployment plans

We are currently preparing a draft of a legal extract which would delineate regulations pursuant to *Decreto* 059 de 2018, which is a decree regulating programmed withdrawal plans. The immediate objective here is to replace our current synthetic portfolio – i.e., the portfolio of reference defined by the Financial Superintendency of Colombia – with a local fixed-revenue index.

Solvency margin (Decreto 415 de 2018)

This measure is designed to regulate the inclusion of the following factors into AFP solvency: risk-weighted assets and market risk. The regulation also modifies the treatment of operational risk. Pension fund administrators have put forth some concrete proposals, which the Superintendency has attempted to incorporate on to the work agenda. These proposals will be duly published within the near future and serve as the framework for regulator discussions with the sector.

Updating admissible costs

When reviewing the current schedule of admissible costs, the Superintendency will be taking into account the new operational requirements of certain investment types. It is important to note that the current schedule includes several costs which, in the case of other types of fund administrators, can be transferred to fund participants. In this instance, a determination must be made as to whether pension fund administrators will cover these costs or – in light of possible concomitant value-added benefits – said costs will be covered by fund fees.

Filing AFP paperwork is free, requires no intermediary

The Superintendency has been evaluating the regulatory framework in order to determine whether or not everything is being done to ensure that our citizens do not erroneously assume that filing paperwork with their fund administrator requires the services of an attorney. In the past, certain documents did in fact require such help. Although the situation has been since rectified, many Colombians continue under the impression that legal counsel is required to perform certain tasks. In certain instances, class-action suits have served as the pretext for unethical practices which resulted in fund participants paying unwarranted retainer fees.

While the Superintendency clearly has no issue with well-founded class-action suits and the possibility of individual citizens recurring to the courts for a clear delineation of certain aspects of the private pension fund sector, we do have a problem with situations wherein individuals are roped into suits via unethical practices.

CHARTER I

ECONOMIC OUTLOOK

KLAUS SCHMIDT-HEBBEL. Global economic outlook and the future of multi-pillar pension systems.
RICARDO HAUSMANN. The future of the Latin American economy.

GLOBAL ECONOMIC OUTLOOK AND THE FUTURE OF MULTI-PILLAR PENSION SYSTEMS

KLAUS SCHMIDT-HEBBEL[1]

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In this brief text, I will be addressing global economic outlooks and the future of multi-pillar pension systems via three major issues. Firstly, the current state of affairs in terms of risk profiles. Secondly, the manner in which said risks might potentially impact parameter spectrum, as well as global multi-pillar pension systems. In the case of the former, special attention shall be paid to the Latin American context. Thirdly, reform strategies which need to be undertaken by multi-pillar pension systems in order to address the challenges brought about by the current global economic scenario in terms of enrollment, contribution rates, profitability, system administration, as well as political resistance generated by the relatively low pension payouts both within and without of the Latin American region.

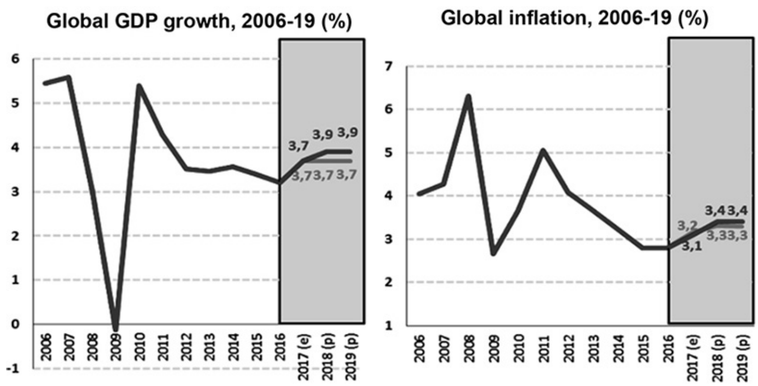
I. Global economic outlook: generally favorable scenario characterized by increased growth and moderate inflation

In generalized terms, the world is currently in a highly favorable scenario. Figure 1 illustrates the International Monetary Fund (IMF) projections for growth during 2019. The current feeling is that global growth will reach 3.9% (weighted average at PPP); if achieved, this projection would equal the highest level of growth observed within the global economy since 2011. In other words, it will comprise our best results in over seven years. This is outstanding news for every open economy on the globe; which is to say, the majority. It is also constitute welcome news in terms of exchange rates, and the prices of the all-important commodities produced within, and exported by, our respective Latin American economies.

All of this is occurring within the context of extremely moderate inflation, a factor which is also illustrated in Figure 1. Inflation, in terms of being a persistent challenge to economies problem, has virtually disappeared throughout the world. As central banks often phrase it, we are currently enjoying generalized price stability. For its part, inflation has remained relatively low at 2% within non-industrialized nations and 3% within their developed counterparts. Columbia is currently on track, after a few problematic years, to achieving mastery over its inflation-related challenges. It should also be noted that, in terms of the totality of human history, its issues have occurred on a fairly manageable scale.

FIGURE 1

CURRENT GLOBAL ECONOMIC OUTLOOK: INCREASED GROWTH, MODERATE INFLATION



SOURCE: WORLD ECONOMIC OUTLOOK, IMF; JANUARY 2018 (RED LINE: OCT. 2017).

One major exception, in terms of global inflation levels, is the nation of Venezuela. According to the latest IMF projections, it is on track to reach an inflation rate of between 10,000% and 20,000% during 2018.

Despite the preponderance of generally-favorable conditions, a framework of risks exists which is more than capable of resulting in growth rates below the aforementioned growth projection of 3.9%.

In short, although we are currently enjoying a very favorable overall outlook, risk levels have increased. The vast majority of projections are, in fact, negative both in the short and medium term, whereas adverse conditions outweigh favorable. What factors characterize these risks? To begin with, they are present within the short and medium term, and the following portion of text summarizes their general characteristics.

1. Short-term risks (i.e., 2018, 2019 and 2020)

Risk 1: Trade wars

In early April 2018, every major newspaper on the planet ran stories regarding the

United States intention to impose a 25% tariff on steel and 10% tariff on aluminum imported by the European Union, Canada and Mexico. The headlines reported that the tariff would be enforced as of June 1, 2018.

On April 3, President Trump announced another measure which comprised a 25% tariff on all imports entering the US from China. Previous to these two rounds of new tariffs, Trump had canceled the *Trans-Pacific Partnership y Transatlantic Trade and Investment Partnership* (between the EU and US), after announcing his new version of NAFTA. All of the foregoing ostensibly points to a fundamentally populist president who, in the lexicon of economics, is exercising leadership from a fundamentally inward-looking stance. This is to say, he is not a proponent of international trade integration – both in terms of financial markets and general trade. Logically, he is also not a fan of globalization within the US context either. This stance can be interpreted as one part ignorance and one part pure populism vis-à-vis the average American voter who backed him during his 2016 election campaign.

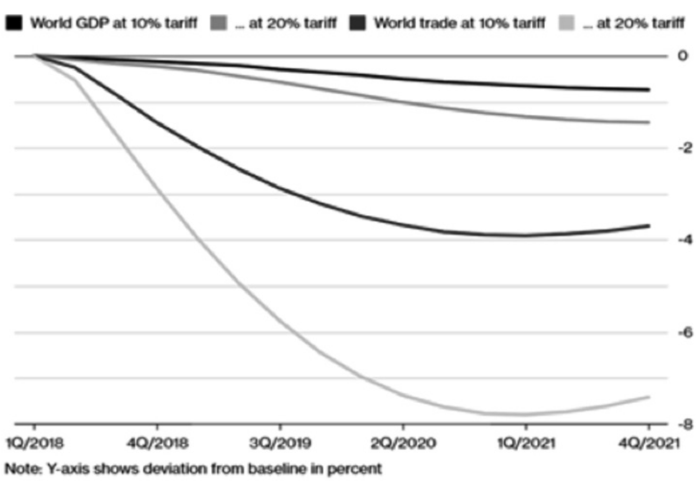
While the tariff barrier raised by President Trump was the wrong way forward, his diagnosis of the situation does have a basis in reality. With every passing day, China becomes an increasingly key trading partner in every market on the planet. Unfortunately, it does not play by the same rules as other nations and has repeatedly been involved in huge levels of dumping, to include the aforementioned commodity – aluminum. Any other nations have also raised tariff barriers against Chinese steel imports during the period comprising September 2017 to April 2018. Furthermore, China has also made its own rules in terms of investments via massive subsidies and cheap credit. While a problem does exist in terms of China's respect for market rules and competition, to date President Trump has failed to generate responses to these issues.

In response to President Trump's policies, the Chinese leadership published a list of 106 products on April 4, 2018. All items on the list – including standouts such as soy, chemical products and automobiles – will now be subject to a 25% import tariff.

In light of the foregoing, international trade is on track towards two possible scenarios. On the one hand, a limited bilateral trade war – which, for all intents and purposes, is already underway – may escalate. Should it continue apace, the China-US trade war will have dire consequences in terms of GDP and international trade. The second possible scenario involves the escalation of the current bilateral trade war into a global phenomenon. While such an escalation would have a devastating impact on all of our respective economies, it is thankfully a highly improbable outcome given the current circumstances; especially in light of what we have seen from important economies such as the EU and Japan, among others, during the week of April 15, 2018.

Such a market increase in tariffs will surely result in a significant drop in GDP, such as the one seen in the upper trajectory included in Graph 1. As can be seen, the scenario is projected to result in a 0.8% drop in GDP by year 2021. Were a 20% tariff to be introduced, current estimates project and up to 3.9% drop in GDP; i.e., it would land most economies in a recession. However, while this dynamic does represent a potential risk, the probability of this scenario materializing is highly improbable vis-à-vis current conditions.

GRAPH 1
GLOBAL TRADE WARS: SIMULATED EFFECTS

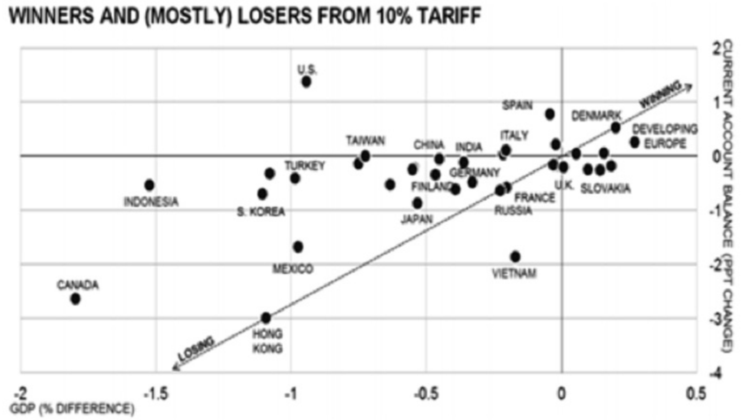


Source: Murray, J. y T. Orlik: "Trump Trade War May Cost $470 Billion by 2020", Bloomberg Economics, 2018.

A trade war of these proportions would also have a huge redistributive impact. Some nations may initially come out ahead, but even the number of such short-term winners will more than likely be extremely limited. The vast majority of economies would come out on the losing end in terms of overall impact over there exports and trade balance, as well as in terms of GDP (see Graph 2). The net effect would be a marked contraction of international trade.

GRAPH 2

GLOBAL TRADE WARS: WINNERS AND LOSERS

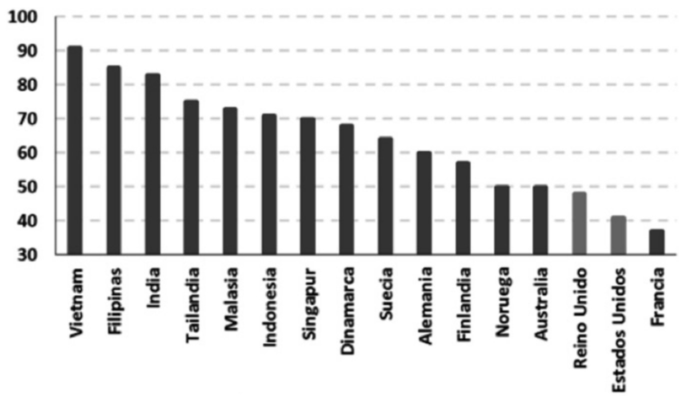


Source: Murray, J. y T. Orlik: "Trump Trade War May Cost $470 Billion by 2020", Bloomberg Economics, 2018.

Clearly, the relative degree of probability involved in this scenario correlates inversely to the popularity of globalization (see Graph 3). The popularity of globalization (i.e., the percentage of individuals who view globalization as a force for good in markets) is especially low in developed or industrialized nations, where the negative impacts of globalization tend to be higher. This dynamic is especially true in cases involving unskilled labor, a group comprised of individuals who have lost the most within their respective societies in terms of relative wage levels.

GRAPH 3

POPULARITY OF GLOBALIZATION: HIGHER IN ASIA, LOWER IN DEVELOPED NATIONS
% OF INDIVIDUALS WHO VIEW GLOBALIZATION AS FORCE FOR GOOD



Source: World Economic Forum, Deutsche Bank.

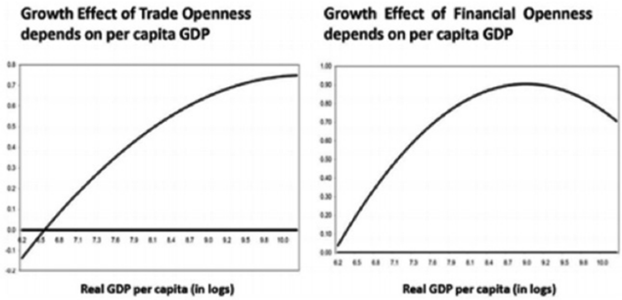
Globalization experiences especially low levels of popularity in nations such as France, the United Kingdom and the US, among others. For example, in the United States only 40% of the population is pro-globalization. Conversely, nations who have benefited from these policies such as Vietnam, the Philippines, India, Thailand and Malaysia, are home to populations which strongly support free trade and global integration.

In a study recently published in Contemporary Economic Policy by author Orley Ashenfelter and Nobel Prize winners Robert Engle and Daniel McFadden, we performed a general review of the relevant literature currently available on the effects of globalization upon economic growth.

Figure 2 demonstrates the manner in which GDP is determinant in terms of the scale of impact, in terms of national growth, caused by trade openness and financial openness. Figure 2 clearly illustrates that the effect upon growth is positive in both instances. The effect on growth volatility (GV) is also positive, however financial openness has an adverse effect. In each case, the degree of impact correlates to the respective degree of trade and/or financial openness in a given economy. Financial-sector shocks (capital account), as well as real shocks (terms of trade, total product growth), have a positive impact in both instances (growth, growth volatility).

FIGURE 2

DETRIMENTS OF GLOBALIZATION



			Growth	Volatility
Openness	Trade		+	+
	Financial		+	−
Shocks	Real	ToT	+	+
		TP growth	+	+
	Financial	Capital inflows	+	+

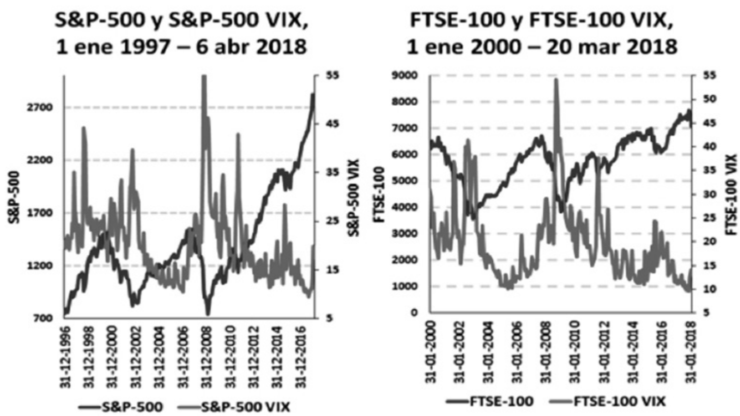
Source : O. Ashenfelter, R. F. Engle, D. L. McFadden y K. Schmidt-Hebbel: "Globalization: Contents and Discontents", Contemporary Economic Policy, 36 (1): 29-43, 2018.

Risk 2: High volatility and end of boom

The second risk refers to the risk of high volatility and the ending of the boom in terms of the profitability potential of variable-income capital markets throughout the world. The left-hand side of figure 3 illustrates S&P 500 growth during a fairly large amount of time. It is fairly easy to ascertain that the index has experienced a fairly high degree of volatility during the period. The right-hand side of the figure contains the results of the FTSE 100.

While the S&P 500 has decreased by 10%, the VIX has nearly doubled from 10 to approximately 20. At times it has even reached nearly 35. During the most tumultuous days of early February 2018, the S&P dipped to its lowest levels. Clearly, we are living in interesting times in terms of international variable-income markets, and nothing currently indicates that this will not continue to be the case in the coming days, weeks and months.

FIGURE 3



Source : Bloomberg.

If we analyze the history of the largest and best documented market in history, the NYSE, it becomes clear that we are currently experiencing the fifth-largest expansion in the history of the S&P 500; which is to say, since the 1920s (see Graph 4). During the last 100 years, this cycle of expansion has occurred approximately every nine years and the current cycle involves a fairly significant accumulation of 384%. This is a remarkable recovery when analyzed vis-à-vis the extremely depressed levels of 5 March 2009, a date which marked the lowest level of said global financial crisis.

GRAPH 4

Source : First Trust Advisors L.P., Morningstar.

Risk 3: Geopolitical tension

The third major risk is geopolitical tension caused by eternally-appointed regimes based on dictatorial power. When these quasi-democracies morph into single-party dictatorships, or operate via central committee decrees, they constitute a geopolitical threat to neighboring nations and the world as a whole.

This is the case of Xi Jinping, who seized power and became what may be best described as permanent general secretary of the Communist Party of China. Another case is that of Vladimir Putin in Russia. And clearly, many other smaller-scale examples exist throughout the world.

When one also takes into account the current trend towards populism in democracies, the situation becomes even more complex. Leaders such as Donald Trump, Berlusconi and candidates such as Le Pen demonstrate a growing penchant among voters for populist rhetoric. Given the incidence of full-scale war zones in several regions, including the Middle East and especially Syria, it is easy to ascertain why we need to be extremely alert in terms of what is occurring on the geopolitical front. The conflict in Afghanistan and the state of affairs within Israel are going to make the world a much more dangerous place in terms of what occurred before 2018.

Again, while these issues taken individually might be seen as manageable, the totality of same implies an overall increased level of insecurity, tension, economic volatility and financial-sector unpredictability throughout the world.

Risk 4: Latin America

Risk number four involves the nations of Latin America. Given their relatively small scale and lack of political clout in international forums, the nations of Latin America constitute a significant risk to the rest of the planet. Should we failed to correctly manage regional dynamics, all of our respective economies will be impacted by any negative outcomes which are generated, whereas each of us has a significant presence within every market within Latin America. This is especially the case in nations such as Chile, Argentina, Colombia and Mexico who have maintained a very high level of interdependence in terms of trade for many years.

Although in strictly geographic terms the challenge is fairly limited, the overall complexity of this risk is quite significant given the enormous level of regional heterogeneity. Our nations have historically pursued very distinct political agendas and have achieved extremely diverse results within their respective economies. Clearly, generating an overall regional strategy which is workable even in the near-term is going to constitute a significant challenge.

For example, a shadow has crept over many of our nations within the region during recent times. While many have escaped the beguilement of populism, many of our societies have fallen victim at least temporarily to its spell. And even though many populist leaders are dead and gone, imprisoned, or out of power, one has the sense that the shadow remains.

Another challenge which our nations face is the issue of corruption, which exists to one degree or another in every nation within Latin America. Success in terms of mitigating or completely eradicating corruption will go a long way in terms of reducing the scale of this fourth risk class. Issues such as the current poverty level, high concentration of wealth, opportunity disparity and low growth also need to be addressed if we are to live in a stable region.

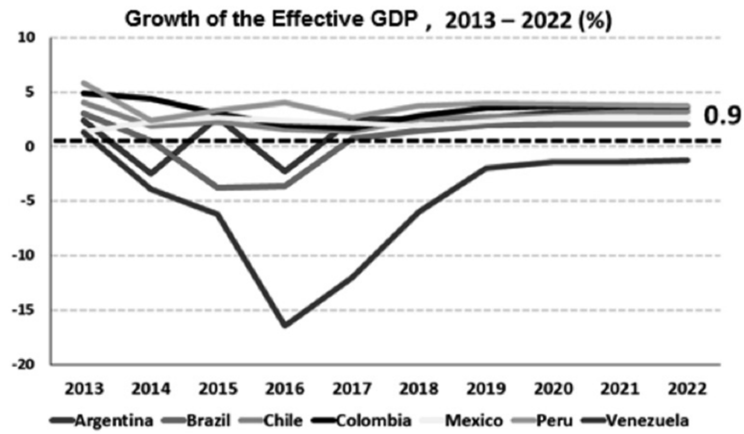
Fortunately, Latin America also has cause for celebrating its achievements. For instance, one of its greatest achievements of late has been the Pacific Alliance. It is the first successful integration effort within the Americas since the campaigns of Simon Bolivar. After 200 years of rhetoric, we finally have an Inter-American integration accord. The results, thus far, have been truly notable; especially in light of the fact that they have been achieved in a fairly short amount of time. The alliance is currently comprised of four nations: Chile, Colombia, Mexico and Peru.

Clearly, one would hope that other nations within the Americas join us in this effort which has been so long in materializing, especially our brother nations from throughout Latin America. Although many of the server nations from throughout the world are on board, it is vital that more members from within the region commit to the Alliance agenda of full trade, societal (i.e., issues such as worker status) and financial-sector integration within the Americas.

Another aspect of the Alliance is an accord which was recently signed in Santiago Chile during March 2018. Although President Trump did not allow the United States to join, the accord remains a tangible asset in terms of the continued development of the 11 Pacific nations which make up the Alliance. The instrument signed in Santiago is admirable in both scope and ambition, whereas it endeavors to expand and strengthen the ties between its signatories.

In many ways, Latin America is a region which is both stagnant and unstable. In terms of stagnation, it currently confronts a variety of issues. The region experienced an average growth rate of 0.9% during the period comprising 2013 to 2017. Furthermore, IMF projections for 2018-2022 indicate that Latin America will experience growth rates which track similarly to other regions throughout the planet (see Graph 5). These results are impacted by this situation in Venezuela. Were we to factor out said nation, Latin American growth would be 1.2%. However, 1.2% GDP growth translates into 0% GDP growth per capita in other regions. The relevance of this issue cannot be overstated. Latin America is the only major region on the globe where, in addition to failing to close the gap in terms of per capita income (as is occurring in the developed world), the gap is actually on track to increase during 2012-2022. Therefore, it will comprise another decade of loss following the commodity super cycle of 2006-2012.

GRAPH 5



Dotted line: Average growth of the region 2013-2017
Source: WEO, Jan. 2018

Risk 5: Procyclical policy in the United States

The US is currently within the highest phase of the economic cycle. For instance, there is a dynamic of natural overemployment coupled with an effective unemployment rate of 4.5%, which is on the rise. While the GDP is above the potential level, monetary policy remains expansive. The tendency to raise rates in the United States – which is to say, its penchant for this extremely conservative posture – has resulted in US real interest rates (which were negative during the last 10 years) recently going positive; although only a bit, where as they have hovered around 0%.

The fiscal policy chosen to address the highest phase of the cycle has involved President Trump passing a tax reform package which failed to have a significant effect on increased deficit spending. As a result, fiscal policy has been and remains extremely expensive. This dynamic has only served to deepen this phase of the cycle and, as a result, will magnify the inevitable impact of the pendulum when it begins to move in the opposite direction.

Unfortunately, the United States is committing the same textbook errors it pursued via its fiscal policy of 2002-2006: dereliction of duty on the part of a series of Secretaries of the Treasury; inaction on the part of Alan Greenspan; delayed reaction by Bernanke to 2005-2006 scenario; low interest rates; and a growing deficit. Washington is committing the selfsame errors observed during the administration of George W. Bush.

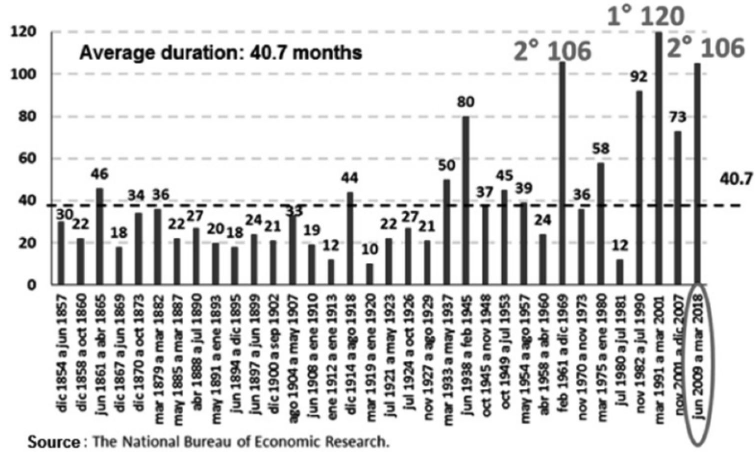
As a result, the US is fomenting continuation of the expansionary cycle. Although the scale of continuation involved here is fairly limited, when said cycle comes to an end, the adjustment is going to be a hard pill to swallow.

Risk 6: End of growth boom cycle

The next risks is associated with Risk 5 and involves, as can be expected, the end of the growth boom. It is interesting to analyze this expansion utilizing US data, whereas said nation possesses the largest database of quarterly and annual figures on its economic and growth cycle. According to ***NBER*** statistics, which have been gathered since 1854, the current expansion is the second largest in US history (see Graph 6). Clearly, this scenario constitutes a real risk given the inevitable repercussions which will flow in the opposite direction.

GRAPH 6

US PERIODS OF GDP GROWTH: DECEMBER 1854-MARCH 2018 (IN MONTHS)

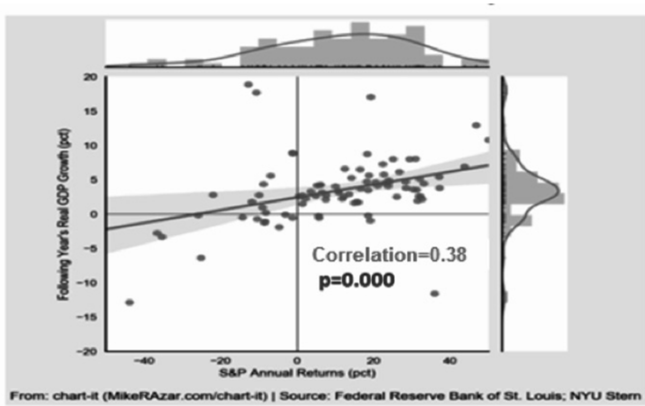


Source: The National Bureau of Economic Research.

Unfortunately, real risks and financial risks tend to correlate very highly. The simple correlation between the financial cycle (Dow Jones index) and the US GDP economic cycle is still a .38%, with a p-value of zero (see Graph 7). This correlation is significant but fairly limited; i.e., it is not 0.7% or 0.8%. The latter would be cause for major concern. But perhaps we should not analyze this correlation in strictly modern terms. Logic dictates that the financial markets of the previous real economic cycle may serve as an excellent predictor of future events.

GRAPH 7

ANNUAL S&P 500 RETURNS VS. ANNUAL REAL GDP GROWTH



Source: Azar, M.: "The Stock Market is Not The Economy, Or Is It?", Chart-it, 2018.

How valuable is this data in terms of predicting GDP behavior? All the available literature – which is to say, the latest as well as the oldest studies performed on the subject – indicate that variable-income prices are a very useful predictor of the economic cycle during a period of approximately 12 months after the close thereof; i.e., 3-5 quarters depending upon the study involved (see Table 1).

TABLE 1

STUDIES ON USE OF STOCK PRICES AS PREDICTOR OF GDP

Study	Data set	Measurement	Results
Huang and Kracaw (1984)	1962-1978	Quarterly	Stock prices predict GDP during four quarters
Comincioli (1996)	1970-1984	Quarterly	Granger stock prices cause GDP lag during a period between 1 to 3 quarters
Otoo (1999)	1980-1999	Monthly	Stock prices are leading indicator of GDP

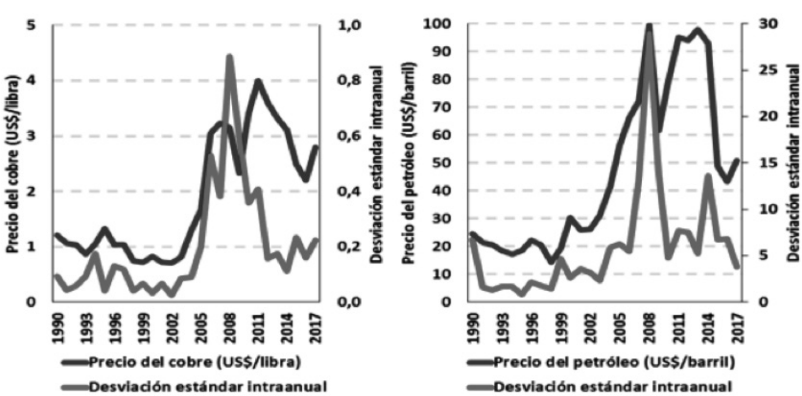
SOURCE: AUTHOR.

Risk 7: Commodity-price volatility

The last short-term risk involves volatility levels in commodity prices. Nearly two decades of volatility have occurred within the commodity sector. Since 1990, these prices have risen significantly. Figure 4 includes an excellent barometer of what is currently occurring within the sector. Although the relevance of copper and petroleum is self-evident in the case of Chile and Colombia, these two nations' respective primary commodities are an excellent indicator of how many commodities behave. As can be seen, the current level of volatility is much higher than in the past.

FIGURE 4

PRICE AND VOLATILITY OF COPPER/PETROLEUM, 1990-2017



SOURCE: CENTRAL BANK OF CHILE.

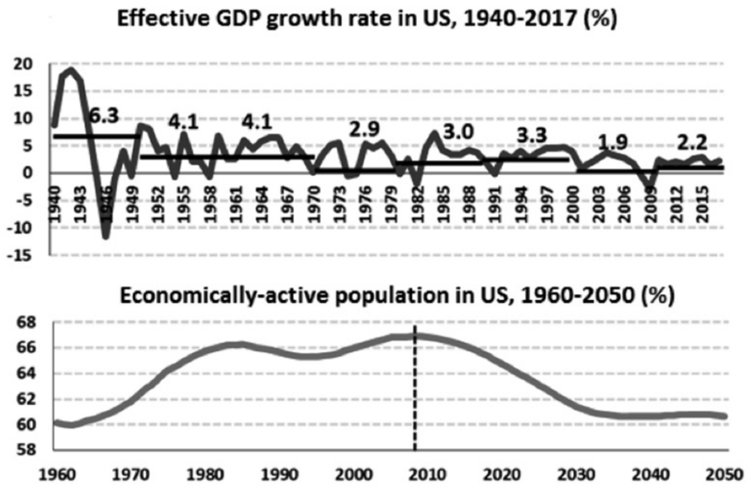
2. Long-term risks (2020-2040)

Risk 8: Secular stagnation

Larry Summers, along with several co-authors, has worked with a number of colleagues to bring the notion of secular stagnation back into the lexicon of economics. The issue constitutes our eighth risk, whereas the US growth rate has fallen from 6% to 2% during the last seventy years. Another factor which contributes to said stagnation is the fact that the economically-active population of Americans has consistently decreased during said period of time, whereas retirement ages have failed to keep pace with life expectancy (see Figure 5).[2]

2 *U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound. Business Economics (2014) 49, 65–73.*

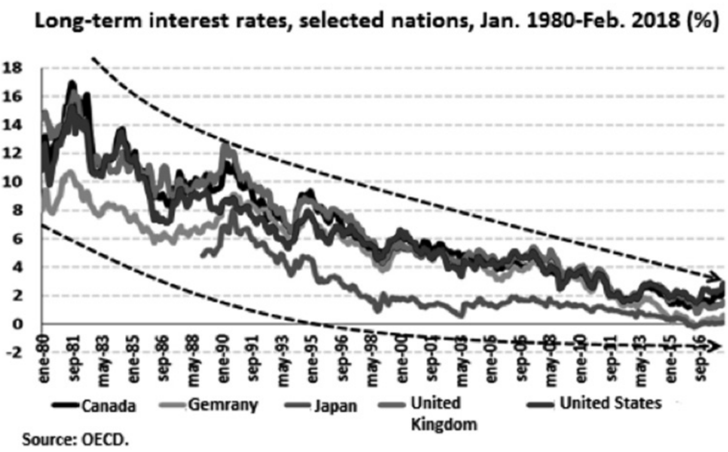
FIGURE 5



Source: World Bank and OECD.

The foregoing scenario has occurred within a context of very low rates within both the short and long term (see Graph 8). The long-term rates within the five leading nations of the industrialized world are converging at values near zero for ten-year Treasury bills; that is, in terms of real rates measured vis-à-vis past performance.

GRAPH 8



"The disappointing recovery of the US and other advanced economies since the global financial crisis, in addition to a tendency towards periods of low growth involving unstable financial conditions, has resurrected interest in the notion of secular stagnation."[3] According to Summers and his co-authors, this scenario correlates to a higher propensity for saving and a lower propensity to invest, which in turn leads to fewer opportunities for investment. Additionally, this dynamic leads to higher probabilities (among both corporations and individuals) for increases in global savings levels due to heightened levels of caution within national markets. In the case of individuals, another contributing factor is, inter alia, increased life expectancy.

As a result of the foregoing, the overall real equilibrium interest rate falls. Interest rates reach their lower bounds, thus restricting the previous natural equilibrium or what it should have been. Additionally, the depressed aggregate demand causes low growth, below-target inflation and high levels of underemployment and unemployment.

3 *Eggertsson, Mehrotra, Singh & Summers, 2016. "A Contagious Malady? Open Economy Dimensions of Secular Stagnation", IMF Economic Review, Palgrave Macmillan; International Monetary Fund, vol. 64(4), pages 581-634, November.*

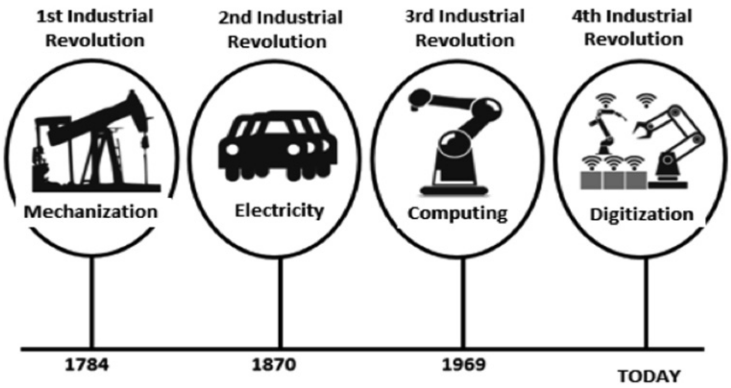
Two arguments exist which refute this hypothesis. Some critics assert that a fifty-year secular trend is being confused with the slow cyclical recovery of 2009-2018, especially in the case of the United States. Another argument asserts that lower growth in the United States and high-income nations is congruent with the hypothesis of per-capita GDP convergence: since 2000, growth rates within developing nations have been higher than those of their developed counterparts.

In general terms, this dynamic is very positive, whereas poor nations grow more rapidly than wealthy nations. But this scenario takes 100 years to produce said convergence. In these terms, the twentieth century was a complete loss for developing and developed regions of the world.

Risk 9: The fourth Industrial Revolution

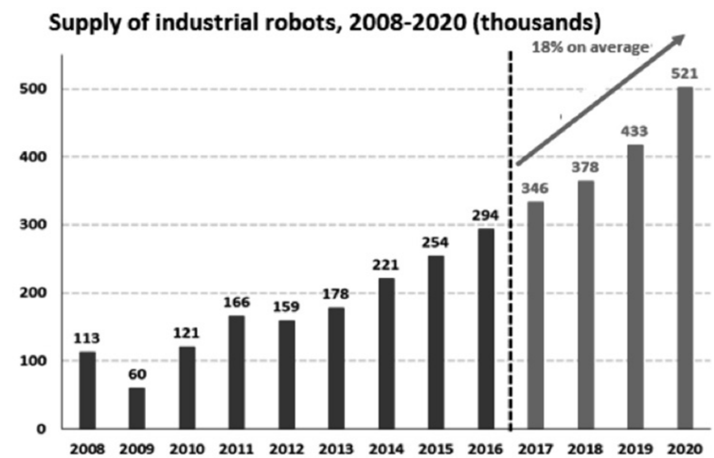
Three industrial revolutions have occurred in human history and the fourth is best characterized as characterized having generated the digital age (Figure 6). We are clearly right in the middle of this force industrial revolution and the number of robots has increased exponentially during the last decade (see Graph 9). Additionally, this trend has no end in sight; at least within the short term.

FIGURE 6



SOURCE: AUTHOR.

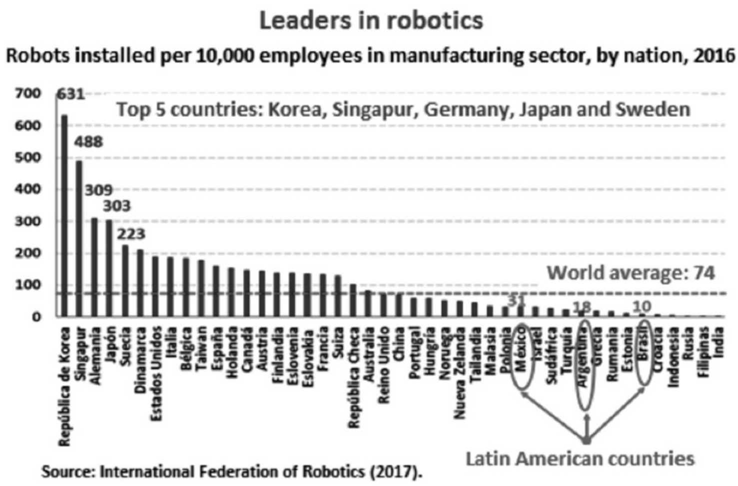
GRAPH 9



Source: International Federation of Robotics (2017).

In terms of robots installed per every 10,000 workers, the five major leaders on the planet are Korea, Singapore, Germany, Japan and Sweden; i.e., the developed nations. Graph 10 shows the progress of the developing world in terms of robots. The international average is seventy-four robots per 10,000 workers. In Latin America, we are far below average at, for example: 31 in Mexico; 18 in Argentina; and ten in Brazil.

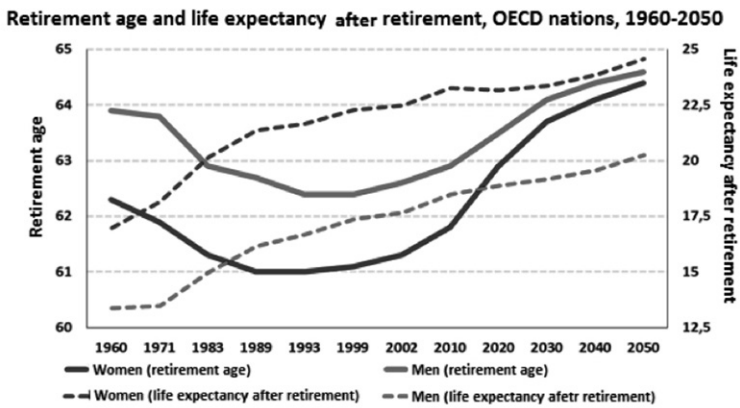
GRAPH 10



Risk 10: Population aging

This tenth risk is as relevant as it is inevitable. The risky aspect of this issue involves the manner in which the curves on Graph 11 begin to change during the period 2018-2050. We know with a great deal of certainty that the world is aging. While this is welcome news in terms of increased life expectancy among our parents and grandparents who are living increasingly healthy lives, it also means that – despite the fact that neither contribution rates nor retirement ages have been adjusted – society must finance said individuals' pensions for longer periods of time. For example, in Latin America contribution rates and retirement ages have not changed during the last three decades.

GRAPH 11

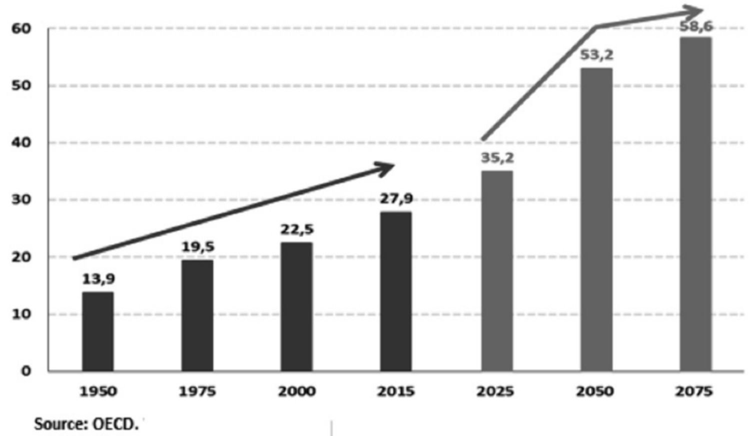


Source: OECD.

In Graph 12, it is fairly easy to discern the trajectory of the older-adult population. According to OECD projections, the old-age dependency rates which nearly doubled during the period 1950-2015, are on track to experience the same level of growth during the next 60-year period (i.e., 28% to 59%).

GRAPH 12

OLD-AGE DEPENDENCY RATIO, OECD, 1950-2075

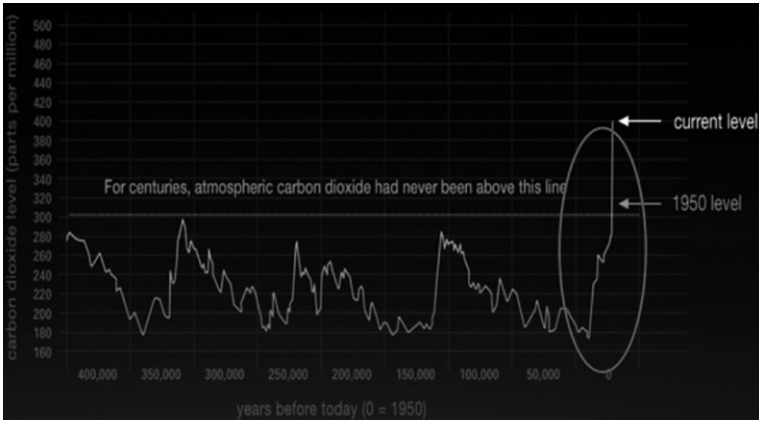


Risk 11: Climate change

Climate change is a brutal reality with no end in sight, at least during the short and midterm. As illustrated in graph thirteen, the problem is rooted in the accumulation of carbon dioxide within the Earth's atmosphere. This risk has placed human life, as well as many other species, at risk. It is also causing disruptions within societies, triggering huge immigration trends and has had a significant economic impact on many sectors of our respective economies. The breadth of this issue is almost without precedence in human history.

GRAPH 13

EVIDENCE: CARBON DIOXIDE LEVELS, 400,000 BC – 2018 AD

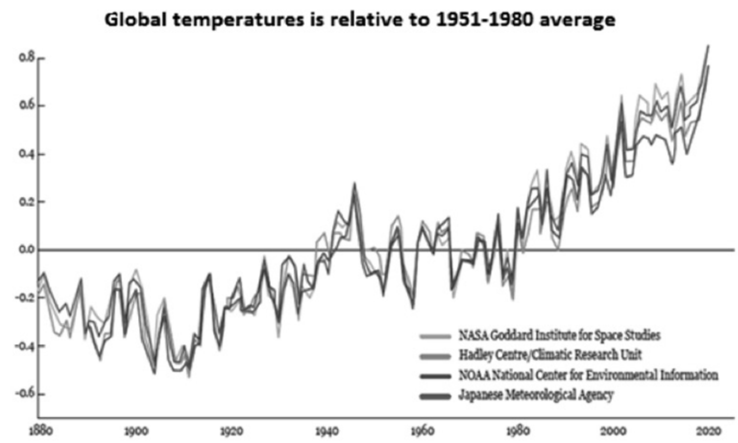


SOURCE: NASA.

Though surprisingly controversial, fortunately all sides agree that an approximately 1°C increase has occurred in the average annual temperature vis-à-vis data available on the 20th century (see Graph 14). While this moderate change has had enormous impacts on nearly every aspect of the environment, the chain of events is only just beginning, whereas the rate is set to accelerate exponentially from here on out.

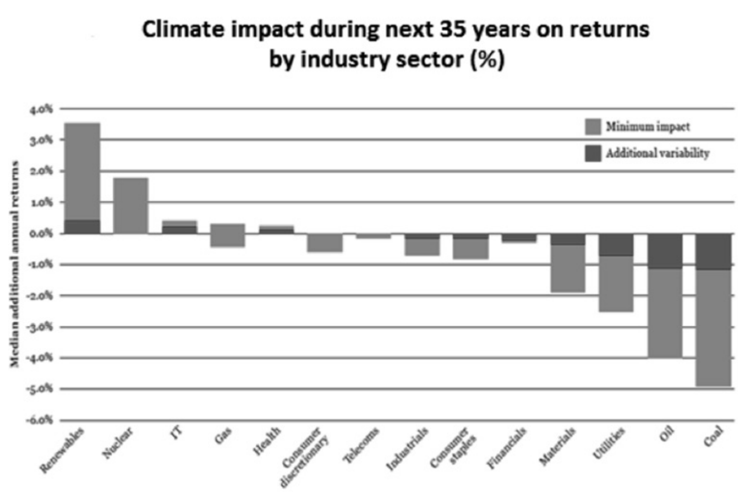
In strictly economic terms, climate change does however mean that we will necessarily see winners and losers (see Graph 15). For instance, certain sectors such as renewable energy will come out ahead. Opportunities also clearly exist for the nuclear power, IT and natural gas segments of our economies. Others such as petroleum, coal and industrial supplies and raw material must undergo game-changing overhauls if we are to have even a small impact on this risk. In the case of Colombia, a potential massive decrease in demand for, and production of, petroleum will clearly have a lasting impact on the economy.

GRAPH 14



Source: Pensions and Lifetime Savings Association (2017).

GRAPH 15



Source: Pensions and Lifetime Savings Association (2017).

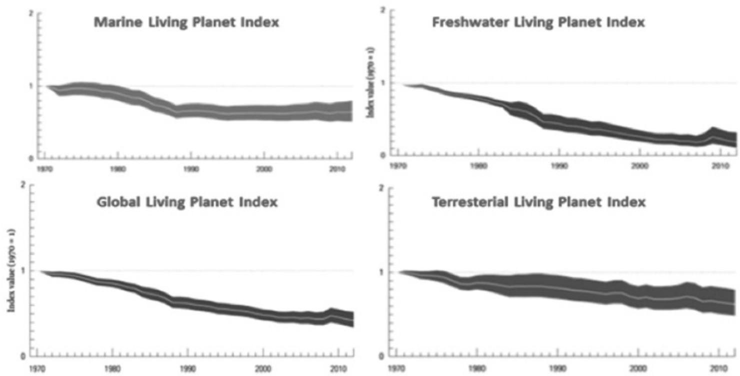
Risk 12: Enormous loss of biodiversity

The last long-term risk which will have an impact upon the manner in which pension funds are administered is the issue of the huge drop in biodiversity on the planet. In fact, the biodiversity issue will impact nearly every parameter within the sector.

Mankind has destroyed 55% of all species since 1970 (Figure 7), either by rising pollution levels, poor land-use, or the refuse, toxic waste and plastic which has collapsed garbage dumps throughout the world. And everything indicates that the worst is yet to come.

FIGURE 7

Living Planet Index for a variety of species, 1970-2012
(Index value: 1970=1)

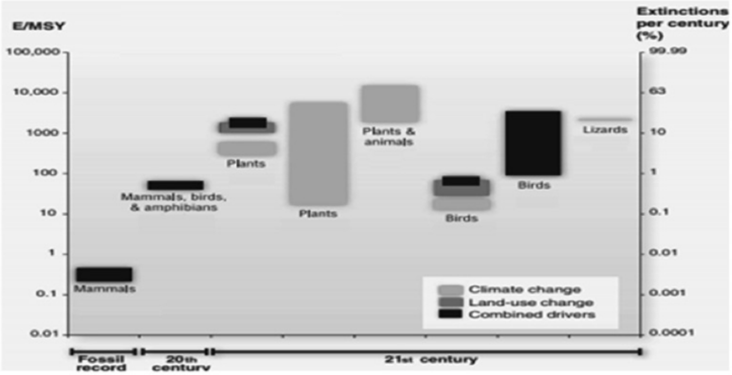


Source: Living Planet Report (2017).

Graph 16 illustrates how Homo sapiens has destroyed many large species. But what occurred during the 20th century has had repercussions in terms of what is occurring during our current century: the inertia and impact of these actions will only continue to grow over time. The loss of species will have a devastating impact on the ecological equilibrium of the planet and, consequently, upon the general well-being of humans. Clearly, this type of broad-spectrum problem will impact our collective ability to provide decent pensions.

GRAPH 16

Number of extinctions per million years of species and extinctions per century



Observation: E/MSY represents the number of extinctions per million species years.
Source: Pereira et al. (2010): "Scenarios for Global Diversity in the 21st Century", **Science, 330: 1496-1501.**

II. Effects of long-term and short-term materialized risks upon pension-system key variables

Tables 2 and 3 detail the macro economic effects of the foregoing short and long-term risks upon pension systems.

TABLE 2
EFFECTS OF SHORT-TERM MATERIALIZED RISKS UPON PENSION SYSTEMS

Risk	Macroeconomic impact	Impact on pension systems
1. Trade wars	Reduction of international trade, GDP and employment	Decreased returns: variable income, contributions and pensions
2. High volatility and end of boom	Drops in stock market, decreased profitability and growth	Decreased returns and pensions
3. Geopolitical tension	Decreased confidence, investment, growth	Decreased returns: variable income, contributions and pensions
4. Latin America	Low growth, capital-flow reversals, political risks and uncertainty	Lower returns, higher investment risks for LATAM investment vehicles. Portfolio diversification.
5. Procyclical policy in the US	Increased macro-financial volatility and cyclical intensity both in US and abroad	Increased risk in variable income sector.
6. End of growth boom	Recessionary adjustment, lower GDP growth and international crisis	Decreased returns: variable income, contributions and pensions
7. Volatility and adjustment of commodity prices	Decreased growth and increased volatility among exporters	Lower returns, higher investment risks for LATAM investment vehicles. Portfolio diversification.

SOURCE: AUTHOR.

TABLE 3

EFFECTS OF LONG-TERM MATERIALIZED RISKS UPON PENSION SYSTEMS

Risk	Macroeconomic effects	Impact on pension systems
8. Secular stagnation	**Lower GDP growth, less investment, lower employment, deflationary pressure**	**Lower contributions, returns and pensions.**
9. Fourth Industrial Revolution	**Increased unemployment and informality. Revolutions?**	**Lower contributions from displaced workers, smaller pensions.**
10. Population aging	**Smaller labor force, reduction in long-term GDP growth.**	**Lower contributions, smaller pensions.**
11. Climate change; and, 12. Massive loss of biodiversity	**Lower GDP, increase in cost of conventional energy, higher levels of poverty in regions of highest impact, population displacement.**	**Lower returns, higher levels of uncertainty, lower contributions, decreased portfolio diversification and lower pensions.**

SOURCE: AUTHOR.

In terms of the aforementioned long-term risks, the question is: what effects do these five issues have upon society and the economy? As we know, all short-term and long-term risks generate negative effects on a variety of macroeconomic factors such as growth, GDP, investment, employment, salaries, and informality, inter alia. In turn, this situation has a concomitant impact on pension-system – which are by definition, formal systems – inputs in terms of lower contribution rates and the resulting lower returns. In short, they translate into lower pension payouts due to decreased labor market participation, lower growth or lower return of capital (ROC).

Are any of the risks favorable? Definitely. Sometimes a potential negative outcome fails to occur. Another factor which can contribute to positive outcomes is when the world's economy outperforms what economists had predicted in the IMF base scenario. However, the probability of a given risk generating positive outcomes is fairly low.

III. Imperative multi-pillar system reforms

Low replacement rates

What is a reasonable pension? According to the results of a recent survey performed in Chile, many individuals aspire to a pension which equates to 94% of their past earnings. In my judgment, this is a less than reasonable expectation whereas international parameters – such as the benchmark put forth by the OECD – indicate that individuals within those nations expect something along the lines of a 60-70% replacement rate.

Previous surveys performed across the globe indicate that two-thirds is a rational pension-adequacy benchmark in terms of our average earnings or salary during the last five years of our work history. Clearly, this replacement rate aligns almost exactly with the results of the results of the OECD survey.

FIGURE 8

GROSS PENSION REPLACEMENT RATES BY EARNINGS, OECD COUNTRIES, 2017

	0,5	1	1,5		0,5	1,0	1,5
OECD members				**OECD members** *(cont.)*			
Australia	82,8 *(80.0)*	32,2 *(29.4)*	32,1 *(29.3)*	New Zealand	80,0	40,0	26,7
Austria	78,4	78,4	78,4	Norway	63,6	45,1	36,5
Belgium	47,7	46,7	36,4	Poland	31,6 *(30.0)*	31,6 *(27.9)*	31,6 *(27.9)*
Canada	54,1	41,0	28,5	Portugal	75,5	74,0	72,6
Chile	39,1 *(36.9)*	33,5 *(30.3)*	33,6 *(30.4)*	Slovak Republic	72,3	64,3	62,2
Czech Republic	74,1	45,8	36,4	Slovenia	44,0 *(46.3)*	38,1 *(40.1)*	36,3 *(38.2)*
Denmark	123,4	86,4	79,5	Spain	72,3	72,3	72,3
Estonia	62,0	49,7	45,6	Sweden	55,8	55,8	64,5
Finland	56,6	56,6	56,6	Switzerland	56,0 *(55.4)*	42,1 *(41.8)*	28,5 *(28.2)*
France	60,5	60,5	54,8	Turkey	69,9 *(67.0)*	69,9 *(67.0)*	69,9 *(67.0)*
Germany	38,2	38,2	38,2	United Kingdom	44,3	22,1	14,8
Greece	67,4	53,7	49,2	United States	48,3	38,3	31,7
Hungary	58,7	58,7	58,7	***OECD***	***64,6 (64.1)***	***52,9 (52.3)***	***48,4 (47.9)***
Iceland	77,6	69,0	67,9				
Ireland	68,2	34,1	22,7	Argentina	81,7 *(74.0)*	71,6 *(64.3)*	68,2 *(61.1)*
Israel	99,4 *(89.7)*	67,8 *(60.0)*	45,2 *(40.0)*	Brazil	85,0	69,5 *(52.9)*	69,5 *(52.9)*
Italy	83,1	83,1	83,1	China	96,0 *(82.6)*	76,0 *(65.1)*	69,4 *(59.2)*
Japan	47,8	34,6	30,2	India	87,4 *(83.1)*	87,4 *(83.1)*	87,4 *(83.1)*
Korea	58,5	39,3	28,7	Indonesia	62,1 *(57.8)*	62,1 *(57.8)*	62,1 *(57.8)*
Latvia	47,5	47,5	47,5	Russian Federation	46,1 *(41.0)*	33,7 *(28.6)*	29,1 *(24.1)*
Luxembourg	89,5	76,7	72,5	Saudi Arabia	59,6	59,6	59,6
Mexico	34,7	26,4 *(24.8)*	25,1 *(23.5)*	South Africa	32,1	16,0	10,7
Netherlands	98,1	96,9	96,5				

NOTE: REPLACEMENT RATES OF WOMEN INCLUDED IN PARENTHESIS WHERE APPLICABLE.
SOURCE: PENSIONS AT A GLANCE 2017, OECD. HTTP://DX.DOI.ORG/10.1787/888933633888

According to the publication *Pensions at a Glance* 2017, the average replacement rate for the lower income group (50% of average salary) in 2017, in terms of OECD-nation income levels for said period of time, was 64.4% in the case of men and 64.1% in the case of women (see Figure 8). As a result, individuals earning near or at the average salary achieve a replacement rate of 52.9% (men) and 52.3% (women). Individuals generating 1.5 times the average salary during the last five years of work achieve a replacement rate of 48.4% in the case of men and 47.9% in the case of women.

Therefore, we can safely say that pension systems within the OECD, which are primarily funded although exceptions to the rule do exist (in Australia, Chile, Mexico and New Zealand, individual capitalization is dominant), possess a redistributive component based upon redistributive pensions. This scenario, in principle, is desirable.

FIGURE 9

REPLACEMENT RATES FOR LATIN AMERICAN NATIONS, 2017

Latin American nations, OECD members

	0.5	1.0	1.5
Chile	39.1 (36.9)	33.5 (30.3)	33.6 (30.4)
Mexico	34.7	26.4 (24.8)	25.1 (23.5)

Latin American nations, OECD non-members

	0.5	1.0	2.0
Colombia	102.6	70.8 (64.1)	70.8 (64.1)
Costa Rica	87.7	79.4	79.4
El Salvador	93.1	46.6	29.2 (23.3)
Peru	16.8	70.6	35.3
Dominican Republic	22.8	22.8	22.8
Uruguay	52.5	52.5	63.3

SOURCE: PENSIONS AT A GLANCE 2017, OECD (DATA FROM CHILE AND MEXICO); GOMEZ AND SOSA, 2017 (OTHER NATIONS).

The Latin American context (see Figure 9) contains two OECD members, Chile and Mexico. For the purposes of this analysis, we have also included six non-members. The non-member group contains replacement rates which surpassed even the OECD average.

In Colombia, the replacement rates are especially high despite the fact that the cited figure does not include all Colombians who received pensions. In nations such as Peru and Chile, the replacement rates are fairly modest, tracking about 35% on average.

With every passing day, however, replacement rates are dropping further due to the negative dynamic involving current demographic and economic trends, which will be further exacerbated by the probable materialization of the aforementioned adverse risks. As a result, action needs to be taken in order to address demands for better pensions. Viable strategies will include an effort to implement well-designed, profound reforms which generate better pensions and sustainable frameworks. In strictly political terms, these types of efforts are going to be costly. In addition to losing valuable time that might be spent improving pensions, every day that societies put off introducing the necessary reforms only serves to exponentially increase the eventual political cost of implementing such measures.

This is exactly what has happened in Chile, where we have truly mastered the art of procrastination in terms of addressing our pension-system sector issues. In the previous administration of President Bachelet, as well as the first administration of Sebastian Piñera, we basically made no progress on the issue. And we will not even get into what occurred during the previous democratically-elected governments.

As a result, it is no surprise that the current administration, led Sebastian Piñera in office for a second time, is pushing strongly for a reform which we hope will be reasonable and deliver sustainable pensions within a multi-pillar scheme.

Practicable pension reform: principles

What are the components which make up a solid, workable pension reform package? I want to pay special attention to this issue and be somewhat categorical in my opinion that a very specific set of good practices exists. Lessons can definitely be learned from the societies – in both developing and developed nations– who have been fortunate enough to generate success stories.

There are eight principles which must be adhered to when undertaking pension reform.

1. **Strengthen efficiency, fairness and complementarity of each of the three pillars within multi-pillar system.**
2. **Increase coverage provided by solidarity pillar benefits via a strategy which provides financing from general tax revenues, thereby minimizing negative impact on savings and employment.**

Frequently, demands for better pensions are generated within the most vulnerable sectors of society's who, in absolute terms, receive very low pensions. But how are we to finance this increase in demand? To begin with, the worst reaction possible in these circumstances is for governments to attempt financing through a tax on other workers; i.e., via a funded system. In the words of hundreds of academics and sector experts who have published their empirical in theoretical findings in hundreds more publications, the funded-system alternative is a categorically unfair and inefficient option.

Placing another tax burden on the backs of working men and women – in order to finance pensions for individuals who are neither family members nor even casual acquaintances – to finance measures from which they will never benefit is unfair on several levels. Firstly, workers are charged instead of capital in order to immediately generate better pensions. This type of strategy is also extremely inefficient whereas it promotes higher levels of informality and unemployment, even as it puts a damper on net salaries for the very workers charged with financing the entire scheme.

How, then, is society to approach this challenge? If the goal is to redouble our efforts to provide a solidarity pillar: I am all for it, as are most thinking men and women within society. Older adults living in poverty, as well as their economically-active counterparts who have no prospects of even a rudimentary pension when they are no longer able to work, do not have the luxury to put these issues off until tomorrow. However, we must never forget that these efforts must be funded utilizing tax revenues generated from capital gains taxes, corporations, businesses, value-added taxes – and, above all else, these types of measures must be financed using revenues taken from the general tax pool. If our aim is to provide better pensions immediately to individuals in dire need, we have two options: either we raise taxes or reduce spending. The question really is that simple. Something needs to occur in terms of adjusting our fiscal state of affairs if we are to ensure these recourse resources get into the hands of our nations' most needy inhabitants.

3. **Adopt second-pillar, parametric reforms (mandatory contributions to individual accounts managed by private-sector firms) vis-à-vis demographic and economic trends and with an eye to minimizing negative impact on employment and savings.**

During the last three decades, Latin America has been unable to muster the political will necessary to introduce parametric reforms. This needs to change, and retirement ages, along with contribution rates, must increase if the region is to achieve the pension levels within the OECD.

Why do OECD nations possess such high replacement rates? This is the case because the contribution rate within the respective capitalization or funded contexts (or the aggregate thereof) within the OECD is 19.7%. In Latin America, the contribution rate only reaches five, six, ten or 12% in the case of capitalization schemes. As a result, there is a world of difference between OECD results and the pensions being generated within Latin America. Our pensions tend to be about half or a bit more than in the OECD. This is due to the exceptional performance of Latin American pension funds, which have far outstripped their funded-system counterparts.

4. **Adopt measures which incentivize voluntary pension savings within third pillar.**
5. **Reduce uncertainties in terms of returns (before and after retirement) and living longer lives.**

In the current programmed withdrawal scenario, many individuals end up at 85 with no resources. Societies need to begin to seriously consider mandating that individuals carry a deferred annuity which pays out when they are 80 or 85 years old.

6. **Utilize suitable regulatory frameworks and incentives to bolster the skill sets of the pension-services provider sector (insurance companies, pension funds).**
7. **Strengthen the flexibility of labor markets, and foment formality.**

Pension-contribution gaps exist because our labor markets are so tightly regulated, inflexible and employ taxes which target the work factor, including funded contributions. Taken together, these factors constitute a major incentive to informality within a given economy.

8. **Improve financial education made available to fund and system participants.**

Integrated approaches to pension-sector reform in Chile: a report by the pension advisory committee of the Chilean Confederation of Production and Commerce[4]

In closing this portion of text, I wish to share some brief remarks regarding the best reform package put forth in Latin America during the last two decades.

4 *http://www.cpc.cl/wp-content/uploads/2017/01/Informe-Pensiones-CPC-FINAL.pdf*

Whereas the proposal was generated by the Chilean Confederation of Production and Commerce (CPC) to address the current state of affairs in Chile, it primarily addresses capitalization systems. The CPC Pension Advisory Commission is comprised of 12 individuals drawn from throughout the entire political spectrum. However, we all possess a fair degree of expertise in terms of the Chilean model, as well as pension systems throughout the world.

Within only three months, we were able to generate a coherent reform strategy designed to strengthen the solidarity pillar, improve the parametric involved, and strengthen the contributive pillar. The proposal also includes which will incentivize voluntary retirement savings, and I truly believe it to be the best proposal put forth thus far in Latin America; particularly, in terms of addressing a specific national context.

TABLE 4

PROPOSALS FOR REFORM OF CHILEAN PENSION SYSTEM PENSION ADVISORY COMMISSION, CHILEAN CONFEDERATION OF PRODUCTION AND COMMERCE

N°	Proposal	Expected impact upon pensions
1.1	Increase mandatory contribution rate by three percentage point	[+] 30% increase in payout levels for cases involving 40 years of labor force participation.
1.2	New mechanism to promote collective voluntary savings (2%+1%).	[+] 30% increase in payout levels individuals with 40 years of labor force participation involved in said savings activity.
1.3	Increase in retirement ages.	[+] Women 65 years: pension increases by 48%. 67 years: pension increases by 65%. Men 67 years: pension increases by 17%.
1.4	Permanent entity to perform periodic review of pension-system parameters.	[+] Increase in pension payouts due to parametric adjustments made vis-à-vis changing conditions.
1.5	Increase flexibility of voluntary-savings regulatory framework.	[+] Higher pension payouts due to increase in voluntary savings.
1.6	Gradual incorporation of self-employed into pension into pension system.	[+]Pensions generated by self-employed workers would increase significantly.
1.7	Improved oversight with regard to pension-system contributions.	[+] When the proper regulatory framework is in place, contribution rates will rise and fewer incentives to invasion will exist.

1.8	Limit nontaxable components of income.	[+] Pensions increased in proportion to increase in contribution amounts.
1.9	Reduce pension gaps due to periods of unemployment.	[+] Increases in pensions correlate to increased savings due to fewer pension gaps.
2.1	Increases in *Pensión Básica Solidaria* (PBS) and *Pensión Máxima con Aporte Solidario* (PMAS).	[+] Higher pensions for beneficiaries of solidarity pillar.
2.2	Eliminate disincentives to optimal retirement-savings contribution rates generated by social program.	[+] Pensions increase in proportion to increased retirement savings.
2.3	Standardize procedure utilized to calculate disability and old-age *Aporte Previsional Solidario* (APS)	[+] Increase in pensions received by beneficiaries of disability APS (solidarity retirement benefit).
3.1	Longevity pension included in solidarity pillar.	[+] Pension increased vis-à-vis 85-year fixed life expectancy [+] Guaranteed pension upon reaching 85.
4.1	Supplemental economic benefit added to pensions for women.	[+] Increase in pensions paid to female beneficiaries of solidarity pillar.
5.1	Review pension-fund administrator commission fees schedule.	[+] Impact on pensions if current commission fee leads to increased contribution levels.
5.2	Create committees comprised of individuals selected by fund participants, in order to exercise oversight at each pension fund.	No direct impact on pensions.
5.3	Deliver fund information in simpler format. Educate fund participants regarding sector issues.	No direct impact on pensions.
6.1	Increase work schedule/site flexibility.	[+] Pensions increased due to increased labor market participation which, in turn, leads to increased retirement saving levels.

6.2	Childcare mechanism designed to combat discrimination and increase coverage.	[+] Pensions increased due to increased labor market participation which, in turn, leads to increased retirement saving levels.
6.3	Permit older adults who desire to remain within workforce to do so at no loss of social benefits.	[+] Pensions increased due to increase retirement savings levels.
6.4	Improved articulation between training sector and productive sector in terms of human capital.	Indirect impact on pensions.
6.5	Rationalization of public training and employment programs.	Indirect impact on pensions.

SOURCE: CPC PENSION ADVISORY COMMITTEE (2016).

IV. Conclusions

To conclude, the current international economic outlook is very favorable, at least in the short term. In fact, it is the best we have seen in eight years. However, major short and long-term risks exist which society needs to be cognizant of.

In terms of the ramifications for multi-pillar pension systems, the effects of the general scenario upon the pension sector are very positive. As stated, effects related to the materialization of the aforementioned adverse risks are potentially extremely unfavorable.

Consequently, profound and well-designed multi-pillar pension system reforms need to be undertaken in order to meet the rising demand for better pensions, as well as improve system efficiency and equity, in order to ensure systems are more resistant to risk scenarios.

References

Ashenfelter, O., Engle, R., McFadden, D. y K. Schmidt-Hebbel: "Globalization: Contents and Discontents", **Contemporary Economic Policy**, 36 (1): 29-43, 2018.

Azar, M.: "The Stock Market is Not The Economy, Or Is It?", **Chart-it**, 2018.

Comincioli, B.: "The stock market as a leading indicator: An application of Granger causality", **The University Avenue Journal of Economics**, Sample Issue, 1996.

Eggertsson, G., Mehrotra, N. and L. Summers: "Secular Stagnation in the Open Economy", **American Economic Review**, 106 (5): 503-07, 2016.

Foresti, P.: "Testing for Granger Causality Between Stock Prices and Economic Growth", MPRA Paper, 2962, 2007.

Huang, R. and W. Kracaw : "Stock Market Returns and Real Activity: A Note", **Journal of Finance**, 39 (1): 267-73, 1984.

Mendelsohn, R., Morrison, W., Schlesinger, M. and N. Andronova: "Country-Specific Market Impacts of Climate Change", **Climate Change**, 45 (3-4): 553-69, 2000.

Mendelsohn, R., Schlesinger, M. and L. Williams: "Comparing impacts across climate models", **Integrated Assessment**, 1 (1): 37-48, 2000.

Murray, J. and T. Orlik: "Trump Trade War May Cost $470 Billion by 2020", **Bloomberg Economics**, 2018.

Otoo, M.: "Consumer Sentiment and the Stock Market", **Board of Governors of the Federal Reserve System**, 1999.

Pereira et al. (2010): "Scenarios for Global Diversity in the 21st Century", **Science, 330: 1496-1501.**

Pensions and Lifetime Savings Association: "More Light, Less Heat: A Framework for Pension Fund Action on Climate Change", **Pensions and Lifetime Savings Association and Client Earth**, 2017.

Schroders: "Climate change: calibrating the thermometer", **Schroders,** 2017.

Stern, N.: "Report on the Economics of Climate Change", **Cambridge University Press**, 2006.

Summers, L.: "U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound", **Business Economics**, 49 (2): 65-73, 2014.

World Wildlife Fund: "Living Planet Report 2016", **WWF**, 2016.

World Wildlife Fund: "Wildlife in a warming world", **WWF,** 2018.

THE FUTURE OF THE LATIN AMERICAN ECONOMY

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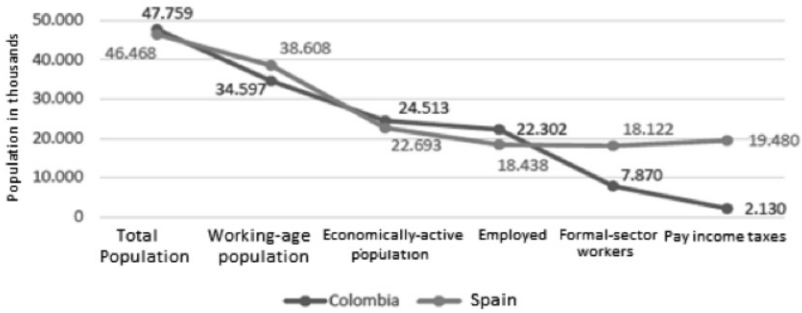
Rather than limit this discussion to the issue of social security, or the current state of macroeconomic affairs in Latin America, I wish to share some remarks on issues which are presumably of paramount importance in terms of our ability to fully comprehend the future of social security within said region. They may also prove useful in terms of our ability to optimize the processes we use to prepare for future events within the pension sector.

Latin America is relatively young. Logic dictates that this dynamic should facilitate the region's ability to address its pension-sector challenges. Unfortunately, Latin America is also beset by informality, given the fact that while many individuals work, few contribute to formal social security systems. In these circumstances, funded systems containing a universal-coverage component tend to age prematurely. This very issue was addressed by Santiago Montenegro in a study published in 2017. The following graph was included in said publication, and it is included here because it truly gave me pause for thought.

GRAPH 1

DEMOGRAPHICS AND LABOR MARKETS: COLOMBIA AND SPAIN



SOURCE: COLOMBIA: DANE-SFC-DIAN; ESPAÑA: INE – AGENCIA TRIBUTARIA DEL GOBIERNO.

As one can see, the determining factor here is the number of individuals who contribute; i.e., as opposed to the number of individuals within the job market. As a result, individuals participating in capitalization systems frequently end their working years with very low pensions. This is due to a fairly simple dynamic: high levels of informality often generate scenarios in which many individuals fail to accrue enough retirement savings to fund a decent pension. The first time that economists began to observe evidence of such a phenomenon in a Latin American context was when Chile, the first nation within the region to introduce individual capitalization accounts, began to see workers reaching retirement without having accumulated enough capital to fund adequate pensions.

As we can see, the issue of informality is central to the continued viability of all pension systems. As a result, I wish to share a theory on what drives informality. It might also be of help as we seek to combat informal-sector growth. When one analyzes Graph 1, it is clear that many parallels exist between Spain and Colombia; at least in terms of their respective demographics. The two nations are home to approximately the same number of inhabitants. They also possess similar working-age populations. Their economically-active populations are very similar; although Colombia has a bit more individuals within said demographic than Spain. In terms of their respective formal-sector job markets, Spain has one and a half times more formal workers then Colombia. However, the last issue is where the similarity and. In terms of individuals paying income tax, Colombia tracks at about 10% the level observed in Spain.

In the case of Spain, formality is more or less generalized, whereas in the case of Colombia the informal sector comprises approximately 1/3 of the national labor force. This tremendous divergence impacts every parameter within the Colombian pension-fund sector, as well as those within the broader social security sector. Unfortunately, this dynamic is not limited to the Colombian context. It is a reality in the majority of Latin American nations.

All of the foregoing begs the question regarding why informality is so widespread throughout the region. My theory is that informality is not the primary determinant of informal-sector scale. Theories which focus too much on this issue are, in my judgment, a bit limited.

Informality: The accepted theory

To begin with, I would like to review the major points of the accepted theory. According to the dominant viewpoint, informality is rooted in labor market distortions. It asserts that certain aspects of political economy exist which served to distort the labor market, and that the minimum wage is fairly elevated vis-à-vis the median salary. Accepted theory also states that if an individual holds formal employment, they will earn a wage that outpaces productivity within a variety of sectors.

Another factor involves high income tax rates; i.e., revenues which are used to finance social programs, public health, pensions, and unemployment funds. In terms of issues related to specific national context, Colombian workers are subject to an occupational-training income tax which is levied by the National Training Service (SENA). Whereas the formal sector is relatively small-scale throughout Latin America, governments often generate social programs which end up subsidizing informal-sector growth or individuals who work within said sector. As a result, individuals employed within the informal sector receive social benefits at no cost, where as their formal-sector counterparts are obliged to pay for same. Clearly, this dynamic drives informality, even as it constitutes a formidable obstacle to formalization. Additionally, it permits inefficient firms within the informal economy to survive – i.e., maintain an available labor pool – whereas they do not face the same labor costs as their counterparts within the formal sector.

It is important to reiterate that this dynamic in no way implies that these informal-sector firms are more productive. On the contrary, they are categorically less productive. They survive due to lower taxes and lower overhead. This translates into a poor allocation of labor throughout many sectors, with the workers ending up at businesses which fail to reach acceptable productivity levels. Of course, this also means that fewer workers are available to firms which operate at higher levels of productivity.

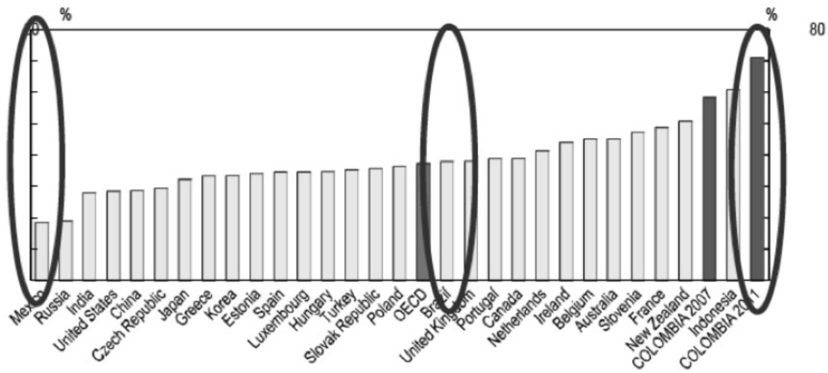
In general terms, this is the assertion made by the dominant theory of informality. In fact, the theory is what led to a reform package put forth by Minister Cardenas when he was appointed to office. The net effect of these initiatives has been a sharp drop in formal-sector growth.

When Mauricio Cardenas began his term as Minister of the Treasury, Colombia's minimum wage-to-median wage ratio was higher than any other nation in the sample included in Graph 2. This might at least partially explain why informality was so marked in Colombia: minimum wages are particularly restrictive in terms of employment growth. However, it is undeniable that Colombia has the highest level on the graph, Brazil is at OECD average, and Mexico has the lowest. The graph fails to indicate that Mexico and Brazil had extremely high rates of informality. Therefore, although the dominant theory addresses a great deal, it fails to explain why informality rates are so high in nations where minimum wages do not constitute significant restrictions. Accepted theory is falling short, whereas cases exist which combine low minimum wages with large-scale informal sectors.

Conversely, developed nations which have minimum wages that are similar to or greater than those in Latin America, have much lower informality rates.

GRAPH 2

COEFFICIENT BETWEEN MINIMUM AND MEDIAN WAGE, 2011



SOURCE: PISSARIDES (2013).

An underlying variable exists which is also important to understanding what drives informality. In order to understand the entire dynamic at work here, we must go beyond fiscal variables and wage regulations. To better understand why this informality gap exists, it is necessary to visualize what we term as informality as a way to organize production. Additionally, it is necessary to conceptualize formality as an *alternative* method for organizing production. Lastly, it is very important to understand how the two differ from one another.

For example, the following photo (see Image 1) of an Ecuadorian family shows the agricultural products they produce for the family table. The family is organized vis-à-vis the family farm. They understand how to produce these products and their dependence on the marketplace is very limited. In general terms, they possess the know-how necessary to produce their own food. Any surplus is bartered in order to obtain cooking utensils or other items which they may need. As stated, their interaction with the marketplace is fairly limited. Therefore, this photo is an excellent analogy for the informal sector.

IMAGE 1

Additionally, one can also imagine that the individuals in the following photo (see Image 2) might also be described as falling into the category of informal-sector participants. It is easy to see how they might be self-employed; the proverbial butcher, baker and candlestick maker. And although they might run their own small business and possess a very specific skill set, they cannot be classified as completely self-sufficient. For example, in order to produce a hamburger the butcher would need bread. He will have to speak to the baker in order to exchange a product, if he wishes to produce the aforementioned hamburger. Within his field of production, he is relatively self-sufficient. He is able to produce either on his own, or in a small family business. Therefore, the photo might be categorized as a representation of informal production.

IMAGE 2

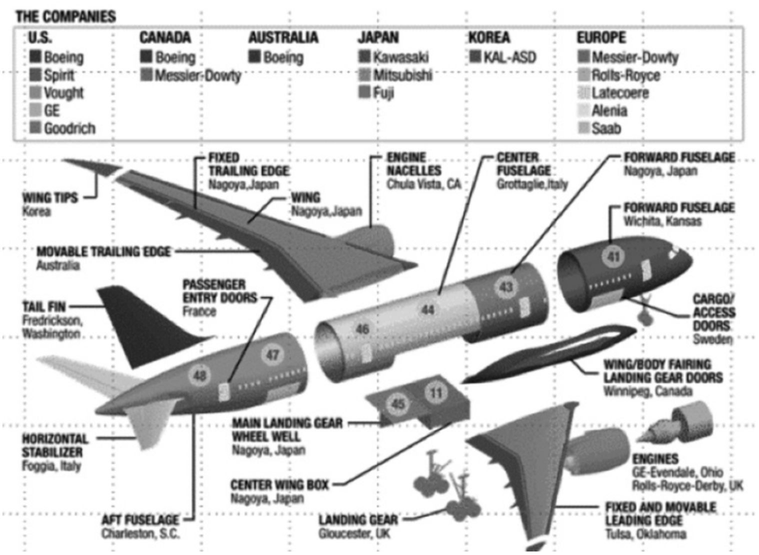
Butcher Baker Candlestick maker

However, there is not a family business on earth capable of producing the products which appear in the following photo (see Image 3). A small-scale, family business just does not possess the means to produce at this level.

IMAGE 3

These types of businesses would also be incapable of producing what is shown in the next photo (see Image 4). Production of an airliner requires a wide variety of firms, who possess a variety of unique skill sets, and who collaborate to bring such a complex product to the marketplace. Production on this scale requires enormous networks of human cooperation based on stable commercial relationships.

IMAGE 4



Therefore, producing this type of good requires what may best be described as formality. Production on this scale requires standardized, stable contracts of a much larger duration between organizations which involve a more complex internal division of labor. In a large-scale business enterprise, professionals are hired who specialize in purchasing, human resources, operations, sales, marketing, finance, taxes or contracts. Typically, a single individual does not know how to accomplish all these tasks on their own. As a result, a group of professionals must be hired who possess the various skill sets required to produce such a good and bring it to the marketplace. Clearly, these types of professionals traditionally operate within the formal sector.

However, an individual, self-employed professional operating within the job market is incapable of operating a commercial aircraft. This is simply untenable whereas the operation of a commercial airliner requires an entire team interacting to get the plane off the ground (cabin crew, ground crew, air traffic controllers, etc.).

The Scrabble theory of development economics

In light of the foregoing, we can define informality as production processes which involve very small units of production. Given the fact that these are very small units of production, they require a very small scale division of know-how. Whereas they require a very low division of know-how, they tend to produce very specific and unique items. Therefore, a fundamental difference exists between the formal and informal sector in terms of the type of goods which each is capable of producing.

Fortunately, a very useful metaphor exists which can help anyone understand the basics of how an economy operates. We can approach the subject as if it were a game of Scrabble. The words in Scrabble are analogous to products, while the titles are analogous to know-how. The tiles (units of human knowledge) need to be arranged in a certain manner in order to form the words (products) we place on the board (marketplace). In my judgment, Scrabble is the ideal analogy whereas even if one only possesses a single letter, a word can be generated on the board through the use of that single tile. However, if a player has three letters, they have the capability of spelling out four different, three-letter words. If they draw four titles, they possess the ability to spell out nine, four-letter words. This dynamic grows exponentially and a player with 10 tiles as the possibility of spelling out 595 words on the Scrabble board. If I am holding all 26 letters, I possess the capability to spell out any word in the dictionary.

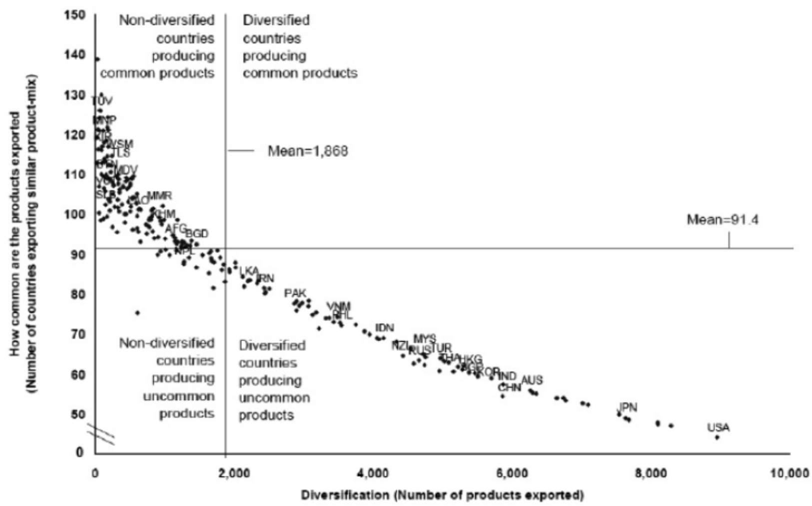
Therefore, the acquisition of letters generates, inter alia, two outcomes: our ability to spell out a greater quantity of words increases; and, our capacity to string together larger and more-complex terms also increases. One extremely functional method for determining how difficult it is to generate a single word is to ask ourselves how many individual tiles are required to spell it out. This is to say, how many separate production sites are needed to generate that single product. These are two easy ways to measure how many different goods an individual produces, as well as how many other sites possess the know-how required to produce said products.

Ubiquity versus diversification

Diversity of production and ubiquity of production are two sides of the same coin. Therefore, if a word is large, there is a lower probability that several production sites will possess all of the tiles necessary to spell it out. If we mapped out the world in terms of how many tiles each production center possesses, something akin to the following graph is generated (see Graph 3).

GRAPH 3

UBIQUITY VERSUS DIVERSITY

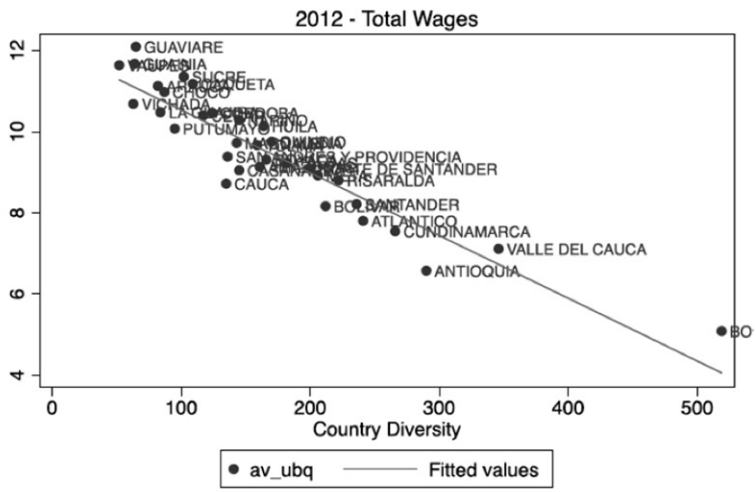


SOURCE: AUTHOR, 2009.

The horizontal axis in Graph 3 is an attempt to illustrate how diversified the production of a given nation can be. The vertical axis represents the number of other nations who possess the selfsame production know-how. Wealthy nations are located below and to the right, whereas they possess production skill sets which are fairly unique in the world. Conversely, poor nations are located above and to the left, because they produce a fairly limited variety of goods which are easily produced throughout the rest of the world. This dynamic is also observed at the regional level within Colombia (see Graph 4). In fact it is a universal truth, whereas it can be seen in municipal context within Chile, the districts of Panama and throughout the entire world.

GRAPH 4

DEPARTMENTS WITHIN COLOMBIA, UBIQUITY VERSUS DIVERSITY



SOURCE: AUTHOR, 2009.

What explains differences in productivity levels?

There is a fairly straightforward method for understanding the difference between formal-sector and informal-sector production. In the following photograph (see Image 5), the man on the left is producing a word comprised of a single letter. This is to say, he is running a fairly self-contained operation wherein he produces his own seed and fertilizer, repairs his own tools and maintains his own ox. This farmer is producing within the confines of his production knowledge.

IMAGE 5

Although the individual on the right may not necessarily possess more agricultural know-how than his counterpart behind the plow, he knows how to operate a combine. In fact, this individual probably possesses very little knowledge of the production processes utilized to fabricate the tools which she requires to be a successful farmer: the farm machinery, the fuel on which it runs, genetically-modified seed, industrial fertilizer and insecticides.

At the end of the day, the second individual is helping to spell out a long word. He comprises a single tile, which is then combined with other letters in order to maximize productive output. He is not necessarily a genius, just an individual specialist in his respective area of the economy. This dynamic allows this value chain to materialize.

Therefore, we can generalize and state that the principal demarcation between the informal and formal sector is fairly straightforward: the informal sector is categorized by its fairly limited production capacity capable of producing short words comprised of one or two tiles, because self-employed individuals are limited to their respective small-scale production units. For its part, the formal sector involves a division of labor and knowledge which is much more complex. In the end, this is the factor which allows it to utilize much more advanced technology and be much more productive than the informal sector.

Growth projections

I would now like to employ the Scrabble context to share some remarks on future growth. We are currently rolling out our projections for international growth to year 2026 based on this theory of development. The growth projections are based on two basic principles. In Graph 5, the horizontal axis represents the number of tiles a given nation possesses, while the vertical axis indicates its level of wealth. As we can see, everything points to a direct correlation between the quantity of letters an economy possesses and the level of wealth it generates.

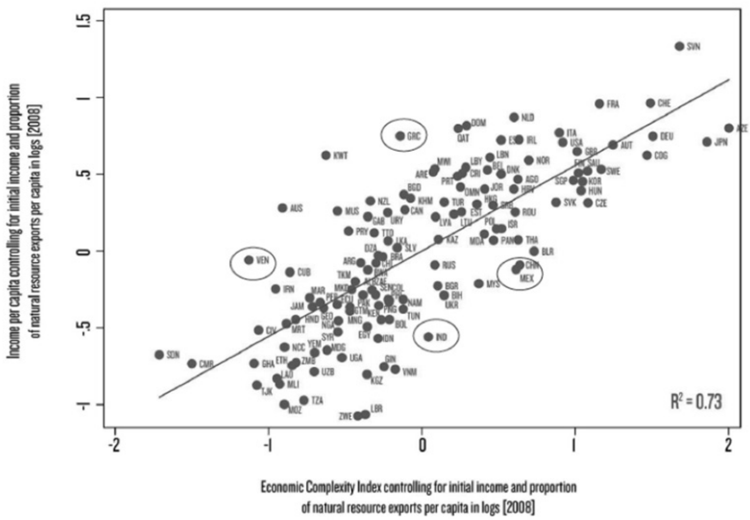
However, not every nation is positioned on or near the regression line. For example, the outlier circled below the line is India. Given the quantity of tiles that its economy possesses, India should be above the regression line; i.e., it should be wealthier. This may explain why India is the fastest-growing, large-scale economy on the planet. Our research has demonstrated that these deviations, in terms of the regression line, comprise an excellent indicator of future growth.

On the other hand, we have exceptions such as Greece. Although it is located above the regression line, it does not possess many letters. The question is how Greece became so wealthy. The answer is that Greece is on its way back to where it belongs on the graph. If it wants to counteract this downward shift, it will need to accumulate more tiles.

The Scrabble analogy, therefore, can also be employed to perform a comparative analysis of Mexico and Venezuela. Mexico possesses many more letters than Venezuela. This factor should position Mexico in the same area of the graph as India, whereas Venezuela should end up alongside Greece.

GRAPH 5

ECONOMIC COMPLEXITY INDEX



SOURCE: AUTHOR.

The second part of the theory is the notion that the manner in which nations undertake diversification is anything but random. A highly effective way of conceptualizing the role technology plays in this process is what we term the *product space*, where each circle represents a specific product (see Figure 1).

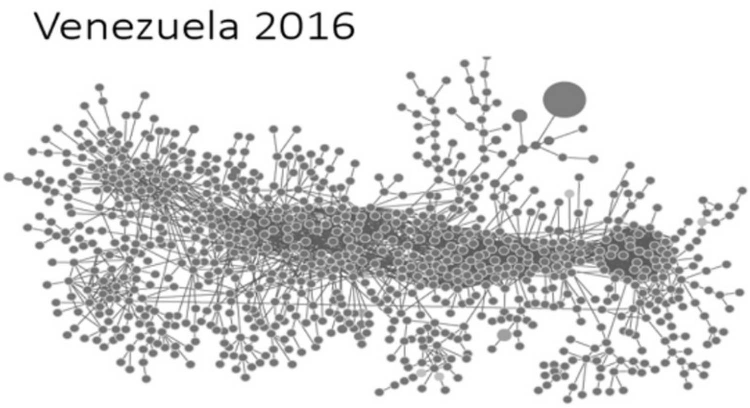
The blue zone within the product space represents machinery, while the purple denotes chemicals and pharmaceuticals. The light blue area symbolizes electronics, and the big black circle located in the upper part of the map fittingly represents petroleum. The most advantageous aspect of this approach is that it allows us to easily comprehend the facility with which a given economy can navigate through the product space; which is to say, the ease with which it can access a given product sector. The map also gives us a very practicable way to predict probabilities in terms of a nation's ability to successfully initiate a new production activity.

Clearly, some nations are better positioned to adopt a given sector, while others appear to be much less capable to do so, given their relative distance from said production sector.

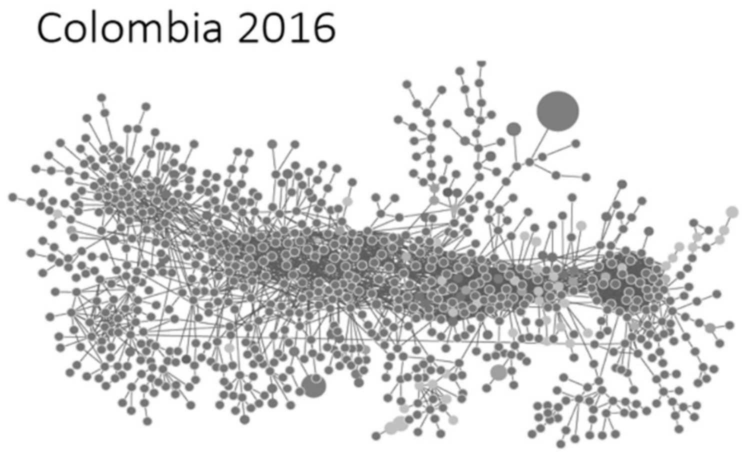
FIGURE 1

We can utilize the product space to analyze the case of Venezuela. Graph 6 demonstrates the fact that Venezuela lacks the productive capacity necessary to participate in the vast majority of sectors, which appear in grey. The colored circles, here again, indicate sectors in which Venezuela possesses sufficient productive capacity to be an exporter. The size of the circles is proportional to the export capacity of Venezuela in terms of the product in question. The enormous black circle, obviously, represents its petroleum exports. When we use product space mapping to compare Venezuela with Colombia, the scenario generated in Graph 7 demonstrates the degree to which the two nations can be categorized as polar opposites.

GRAPH 6



GRAPH 7



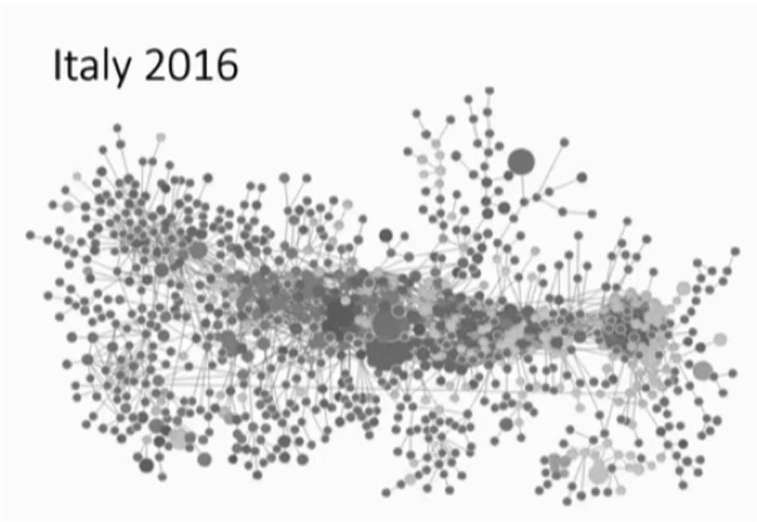
One can easily ascertain that Colombia is active in a much wider variety of production sectors than Venezuela. In other words, Colombia possesses much more letters than its neighbor. As a result, it is also capable of stringing together a wider variety of words, as well as much longer words.

When analyzed vis-à-vis these other cases, the production capacity mapped out in Graph 8 takes on deeper meaning. We are now no longer limited to making any determination of the productive capacity of Mexico. Product space mapping provides us with the context needed to conclude that Mexico far outstrips the previous two nations in terms of the quantity of tiles it possesses, as well as its ability to string together larger and more complex terms using said letters. The product space model also makes it easier to determine Mexico's relative position in the world in terms of potential for growth.

GRAPH 8

The last case I wish to review is Italy. Graph 9 demonstrates its enormous production capacity in terms of both variety and scale. Italy holds an enormous amount of tiles, which allows it to operate within nearly every zone within the product space.

GRAPH 9



All of the foregoing points beg the following question: How is one to determine the ease with which a nation can accumulate more technology and produce a wider variety of products? This dynamic depends upon the proximity of its current production activities to those which it desires to undertake. This very issue, in fact, comprises my second barometer capable of determining how well a given nation is situated within the product space. Graph 10 demonstrates how the quantity of letters a nation possesses correlates very strongly to its probability for acquiring more. The graph's horizontal axis shows us how many tiles a given economy currently possesses. This is to say, how many different production activities it is capable of performing, as well as how many other nations possess this production capacity. The horizontal access also provides us an excellent method for determining the ease with which a nation might acquire more letters; i.e., how close the nation is to an, as yet, untapped production sector. In addition to observing a number of poorer nations that possess a very small quantity of tiles on the graph, one can also see that they are situated very far from the products which they may wish to produce.

Conversely, there are many wealthier nations such as Italy, which are capable of undertaking production activities within an extremely wide spectrum of sectors; i.e., they are wealthy nations that possess an enormous amount of Scrabble tiles.

However, these nations do not have the luxury of simply imitating products which are already available within the global marketplace. In order to continue growing, they must foment the appearance of new product sectors within the global marketplace. Their primary challenge therefore, is to continuously innovate and create.

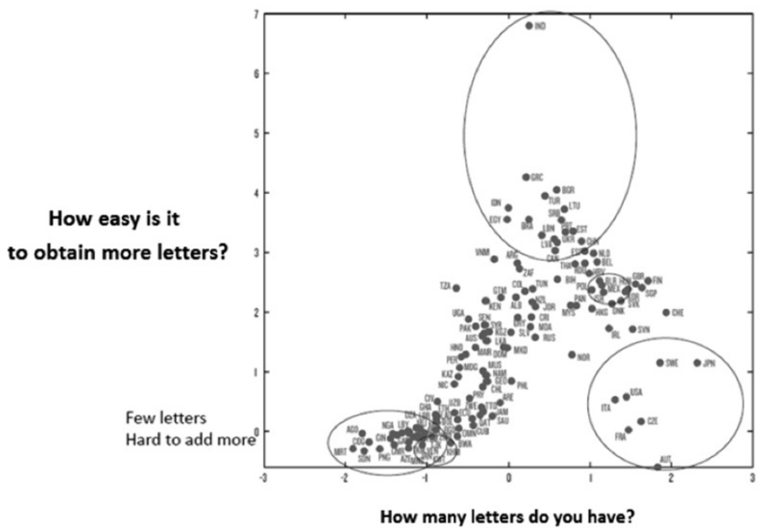
In the center of Graph 10, a group of nations exists which possesses an intermediate quantity of letters. In addition to possessing the capacity to operate within many of the sectors which comprise the product space, they are also situated close to many sectors in which they are inexperienced. One might say, therefore, that these are clearly very attainable letters. Given their relative proximity to the target sector, we can determine that they possess the potential to execute successful transitions within the product space, whereas technology does not represent a major obstacle.

These are the two elements which we then plugged into an equation for growth. If one factors in another major factor – such as education, institutions, or financial-sector development, inter alia –growth predictability remains constant. This is the case because factors such as those just cited are, to a degree, an inherent part of a given nation's productive capacity.

Graph 10 provides a very clear and intelligible illustration of how nations can differ greatly in terms of these two dimensions. For example, while Venezuela is regrettably situated in the lower left-hand corner of the graph, Mexico is located on the far right-hand side. This dynamic is exactly what drives me to develop a theory which will help us to understand what factors are determinant in terms of a nation's capacity and facility for growth.

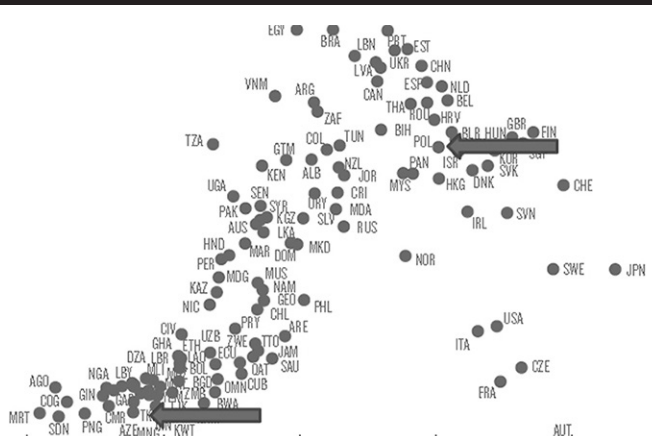
GRAPH 10

ECONOMIC COMPLEXITY INDEX – OPPORTUNITY COST



SOURCE: AUTHOR.

DETAIL OF GRAPH 10



SOURCE: AUTHOR.

To begin with, we began by situating nations along the horizontal access according to production capacity. For example, as noted India has an excess of tiles while Greece lacks letters. We then situated nations along the vertical axis according to their capacity to utilize technology to undertake production within new sectors. Nations quickly fell into four major categories: (i) nations with an excess of letters who possess technological capacity to acquire more; (ii) nations with an excess of letters who lack technological capacity to acquire more; (iii) nations which lack letters but possess technological capacity to acquire same; (iv) nations which lack both letters and the technological capacity to obtain same.

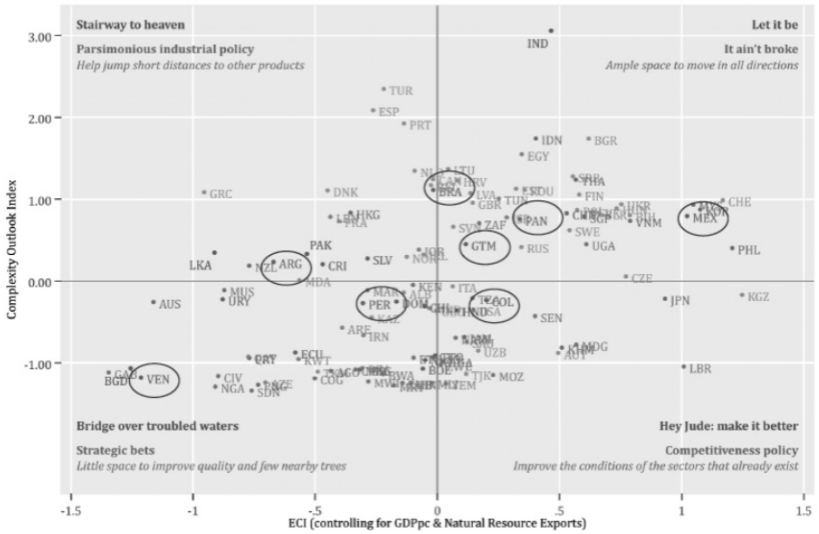
When we sorted all of this data empirically, our team achieved a whole new perspective on the issue. The end result of our efforts to calculate 2016 trade data is illustrated in Graph 11. As one can see, India is located on the upper right, which leads us to believe that this nation will lead the world in growth during the next 10 years; which is to say, the period comprising 2016-2026. In terms of Latin America, Mexico, Panama and Guatemala are situated within the quadrant containing nations which currently possess the production capacity necessary to move in any direction they so desire within the product space.

Brazil falls right along the axis dividing this quadrant and the upper, left-hand quadrant which contains nations where what we have coined *parsimonious* industrial policies stifle production capacity. Despite having the capacity to pursue new production activities, nations such as Argentina are so hobbled by regulatory restrictions that they are unable to cover even the shortest of distances. The good news is that a slight adjustment is all that is needed to propel these economies forward within the product space. With the slightest bit of inertia, they will ostensibly glide through new production challenges.

Columbia is currently situated in a challenging quadrant; i.e., lower, right-hand side. Although the political side of the equation is very much on track, the nation needs to work on its ability to efficiently absorb new technologies. Peru is in the most challenging sector of all on the graph, where distances and policy severely hamper a society's ability to traverse the product space: the lower, left-hand quadrant. Fortunately it is situated close to both axes, which means that a relatively limited amount of technological effort and political will are all that are required to overcome its challenges. The fact that Venezuela is located below and to the left of Peru demonstrates that its problems are of a far deeper nature.

GRAPH 11

COMPLEXITY QUADRANTS

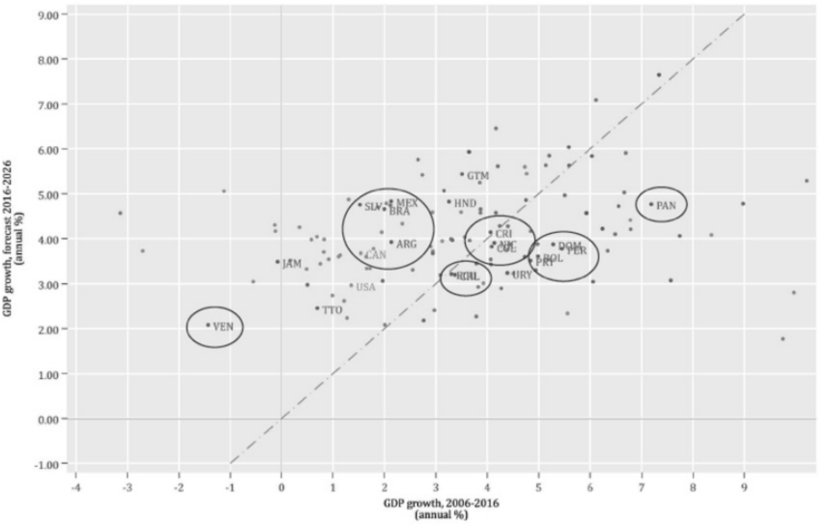


SOURCE: AUTHOR.

The process utilized to prepare the foregoing data served as the basis of our growth projections presented along the horizontal axis of Graph 12, which contains GDP growth for the period comprising 2006-2016. The vertical axis represents projected GDP growth for the same period of time. As you can see, Panama is situated far to the right and just below the dotted line, whereas it is the Latin American nation which achieved the highest grade of growth during 2006-2016. The graph employs an especially useful format, because it is fairly easy to ascertain that a nation situated above the dotted line ostensibly possess a higher probability of experiencing growth, while counterparts falling below said line have less probabilities of growth. Therefore, although Panama will probably continue to experience marked growth in the coming decade, we do not believe that it will keep pace with the rate experienced during 2006-2016.

GRAPH 12

GDP GROWTH VERSUS PROJECTED GDP GROWTH



SOURCE: CENTER FOR INTERNATIONAL DEVELOPMENT (CID), WORLD DEVELOPMENT INDICATORS (WDI), 2018.

The group of nations situated to the left of Panama is projected to achieve fairly solid growth rates during the coming decade. However, the economies involved – Bolivia, Paraguay, Peru and the Dominican Republic – are not expected to achieve the rates seen during 2006-2016. For their part, Colombia and Ecuador are expected to grow at approximately the same rate during 2016-2026 as that seen during the previous decade. Growth rates in Chile are expected to behave similarly, although they are expected to experience a slight drop. To clarify, we believe that the cycle of high growth within the Chilean economy has come to an end. It did not experience high levels of growth during 2006-2016, and we believe that it will continue to experience limited levels of growth into the foreseeable future. The last group of nations (Mexico, Brazil, Argentina and El Salvador) is projected to experience growth. The nation which experienced the lowest levels of growth within Latin America during the last decade, Venezuela, is currently on track to lead the region in terms of low growth during the *coming* decade. That is to say, this is the outlook based on the elements cited here.

At the end of the day, our approach to long-term growth can be summarized as follows: a society's ability to achieve growth correlates directly to its ability to produce a wider variety of products, and to do so more efficiently; i.e., to its ability to accumulate more tiles for the Scrabble board. The components which comprise the science – and art – of accumulating letters within the product space are what we utilized to generate our Latin American growth projections.

Why is informality so widespread?

At this juncture, I would like to share a few remarks regarding how we perceive production. Production involves stringing letters together. The difference between formal and informal contexts is that the former involves generating much larger words, whereas the latter is characterized by individuals – in self-employed or micro-enterprise settings – operating within the confines of a less complex "lexicon".

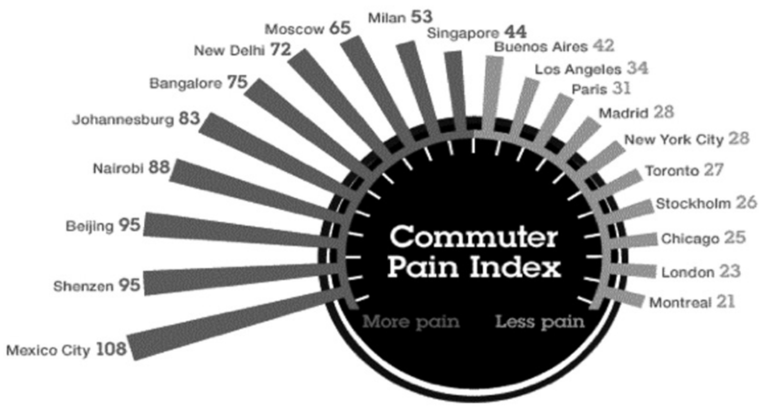
The supply of letters is located at one site, and then strung together at another; i.e., humans need to travel to the workplace. How can we identify all of the dynamics at work here? The film industry seems like the best metaphor available. When a movie ends, the credits roll across the screen and identify all the individuals involved in said production, as well as their respective job titles. Clearly, a huge team of specialists needs to be brought together if a producer is going to bring off a project of this magnitude. In my judgment, filled credits epitomize what occurs within the formal sector: one is required to string together a variety of letters in order to bring a product to the marketplace.

However, one issue immediately comes to mind as we consider why humans tend to congregate at production sites. Why is it that so many individuals endure the awful commutes that one often faces in modern day society? They do so because the act of stringing letters together generates a great deal of value. If they were to just sit at home, their probabilities for creating the same level of value would drop off dramatically.

Many nations are beginning to address commuter issues, and many have been fairly successful. For example, TransMilenio in Colombia is a laudable example within Latin America. However, much remains to be done. For instance, whereas it used to take two hours to reach downtown Bogotá, the bus trip now lasts 30 minutes. A frequently-heard quip in Colombia, however, states that the only trouble with these shorter trips is that you have to be at the bus stop 90 minutes early if you plan to get to work on time. The lines of people waiting to board are incredibly long.

A dynamic which distinguishes the developing world is that arriving to work often involves an astronomical amount of time. These endless commutes constitute a huge tax on the process of stringing together letters, whereas everyone involved in the process is subject to the truly diabolical transit-system issues. In most of these nations, the average commute to work involves a two-hour ride on a bus and/or train. Individuals work an eight hour day and then face the same two-hour trip home. Therefore, many workers throughout the world still work 12-hour days. Figure 2 illustrates the commuter pain index (CPI) for a variety of cities.

FIGURE 2
COMMUTER PAIN INDEX



SOURCE: IBM GLOBAL COMMUTER PAIN SURVEY

In many cases, the commute to and from work constitutes what can only be described as a 50% tax on labor, if one takes into account commuter costs. Many rational human beings living in a city with a high CPI choose to stay at home and launch a single-letter business within the informal sector, whereas they find the option preferable to wrestling with the prohibitive costs of a harrowing commute to work.

In a study underway at the Center for International Development, Michele Coscia, Frank Neffke and I are utilizing SISBEN[2] data provided by the Bogota Chamber of

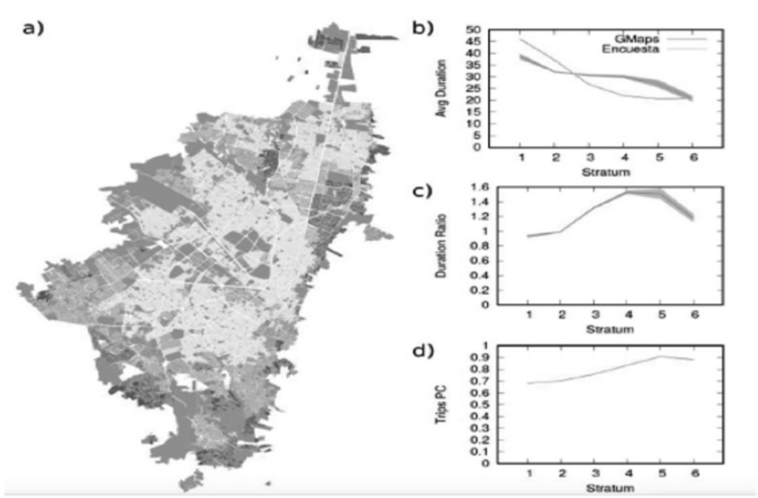
2 *Sistema de Selección de Beneficiarios para Programas Sociales, an entity which determines eligibility for social program benefits.*

Commerce – and information provided by the Mayor's office – in order to identify where formal-sector positions are located within the city. The telecommunications corporation Telefónica provided six months of cellular-phone data in order to determine where the phones were located at night, as well as which cell phone towers were pinged during the entire 24-hour cycle. We have successfully utilized this data in order to identify commuter patterns within the Bogotá Metroplex. Google Maps was also employed, in order to determine trip times. We also performed a commuter survey within the city proved useful in explaining informal-sector dynamics within Bogotá.

According to SISBEN data, Graph 13 maps out Bogotá according to socioeconomic stratum. On the one hand, we are able to ascertain where people live. We can also quickly determine where formal-sector jobs are using the data provided by the Bogotá Chamber of Commerce. Therefore, we faced no obstacles in terms of how well each sector of the city is situated in terms of access to formal-sector work. This determination was made and the results are clearly illustrated in Graph 14, which measures commute times to and from the various sectors of the metropolitan area.

GRAPH 13

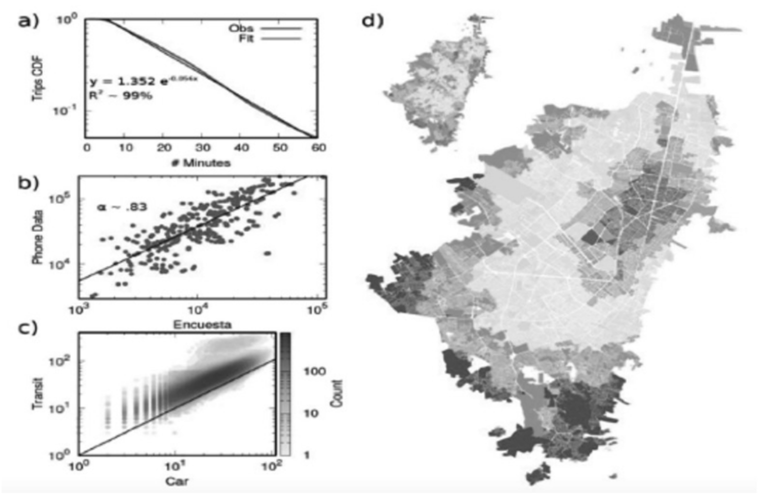
BOGOTÁ SOCIOECONOMIC STRATA



SOURCE: AUTHOR, UTILIZING SISBEN DATA.

GRAPH 14

ACCESSIBILITY TO FORMAL-SECTOR EMPLOYMENT, BY CITY SECTOR

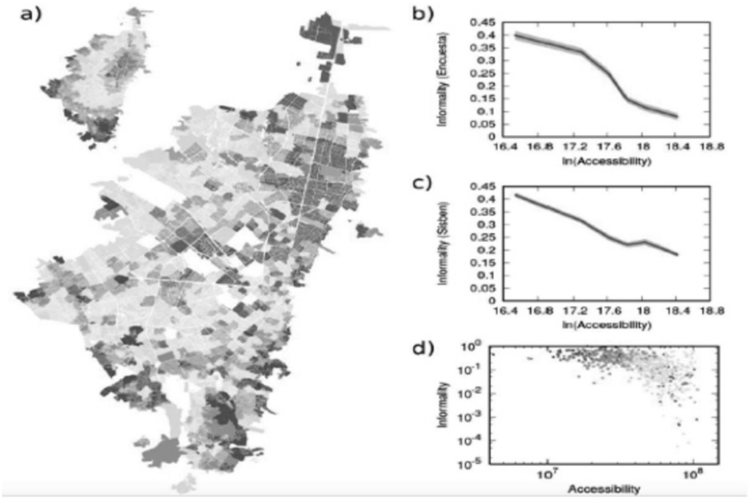


SOURCE: AUTHOR, UTILIZING SISBEN DATA.

As a result, we now possess a model capable of predicting if an individual prefers to commute to downtown Bogotá in order to pursue formal-sector jobs, or work at – or closer to – home in activities which require little to no other letters. Graph 15 demonstrates the strong correlation which exists between informality and accessibility to formal-sector employment.

GRAPH 15

INFORMALITY – ACCESSIBILITY CORRELATION

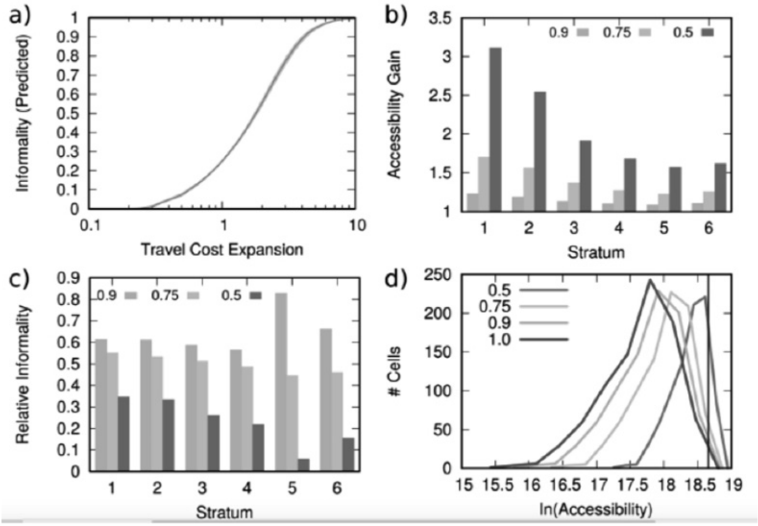


SOURCE: AUTHOR.

It is also possible to utilize this model in order to simulate what occurs, in terms of formal-sector dynamics, when societies lower commuter costs; which is to say, formal-sector employment becomes more accessible in terms of commutes. We found that improvements in transit systems correlate almost directly to decreases in informality. This dynamic is illustrated in the four panes which comprise Graph 16. The first, *16 a*), illustrates the relationship between projected informality and increases in transportation costs. The second, *16 b*), demonstrates the relationship between gains in accessibility and social stratum. The third pane, *16 c)*, describes the correlation between relative informality and stratum, while the fourth, 16 d), addresses the number of cell phones and the accessibility logarithm.

GRAPH 16

WHAT HAPPENS WHEN WE ADDRESS COMMUTER PROBLEMS?



SOURCE: AUTHOR.

Why are commuter costs so high? Nations have failed to invest adequately in infrastructure. But this only leads us to another question: What explains the dearth of investment in transportation infrastructure? We have failed to generate first-rate urban housing and development policy.

Colombia is an ideal case, whereas it involves an especially eccentric dynamic. Colombia divides the world into six strata. These strata are then physically disaggregated on the basis of location. This does not necessarily mean that a neighbor who lives on the first floor has a lower income or worse view than his neighbors – or that an individual living on the fifth floor lives on another social stratum. In Colombia, this policy simply translates into an entire building often being categorized as, for example, Stratum 3. In other instances, an entire sector of a city is categorized as falling within a specific stratum. As a result, human beings are physically segregated into separate sectors of the city, which only serves to exacerbate the challenges which Colombian society already faces in terms of stringing together the critical mass of letters required to achieve sustainable economic growth.

Furthermore, dividing our cities into sectors which are predominantly populated by laborers, only serves to strengthen the barriers which prevent this society from coalescing the necessary amount of letters. This is because it is fairly difficult to launch even a midscale business without the presence of a talented manager or finance professional on the team.

The INFONAVIT[3] in Mexico utilizes a policy which is quite similar to the Colombian scenario. It basically relegates the poorest individuals in society to low-value real estate. These sectors of Mexican cities are also the most disconnected from optimal commuter routes.

These types of policies lead to the lowest paid workers within a society paying the highest commuter costs. It is clear to see why individuals within such nations have such a high propensity for pursuing self-employment, regardless of whether it is at home or elsewhere. This trend, in turn, leads to an erosion of a society's ability to string together letters, and for its individual inhabitants to be involved in more productive enterprises.

The most efficient solution to the commuter problem is to situate workers closer to production centers. However, a long hard look needs to be taken at urban development, housing policy, and land-use in order to avoid the unnecessarily circuitous commuter routes which characterize so many nations within the region.

Why aren't our nations investing more in infrastructure? On the face of it, the primary cause is the fact that our fiscal situations are so constrained. Of course, one immediately asks why, in turn, this is the case. This scenario is ostensibly owing to the fact that the transport sector, unlike its telecommunications counterpart, is not a strictly private, formal-sector affair. This is why it has outstripped other sectors of the economy by leaps and bounds: cellular phone penetration in India is 200%, whereas drinking water is only 40%. In most nations, one needs a public budget and outlays to provide water. Clearly, this is not the case where cell phones are concerned.

Why haven't public-private partnerships proved more expedient in addressing our infrastructure issues? The answer is simple. Within most national regulatory contexts, they are complex undertakings. Another challenge is effectively utilizing pension fund resources to finance a nation's ability to arrive to work in the morning. Minister Cardenas has announced some ideas on how to utilize retirement fund savings to undertake public-private partnerships (PPPs). I think there are a number

3 *Instituto del Fondo Nacional de la Vivienda para los Trabajadores: federal entity charged with addressing work or housing issues in Mexico.*

of factors which have complicated the process. We have spent all of our time determining whether or not PPPs are the best way to finance highway construction, instead of simply breaking down the investment cycle into its component parts.

The first stage is the pre-investment phase, when one is essentially addressing the broader design aspects of the project, and issues such as feasibility studies. Although this stage involves costs, nations have no assurances that a given project will eventually be undertaken. Clearly, it will be impossible to attract investment unless an extremely high internal rate of return is made available; preferably along the lines of 20%.

The next phase involves engineering, procurement and construction (EPC). Public works projects executed on this scale normally last between 3 to 7 years, and involve a fairly high degree of construction risk such as geological risks, engineering risks and other extremely-variable factors which arguably merit an internal rate of return (IRR) of between 12% and 18%.

The last component is the operational stage, which involves concessions which can easily extend from between 20 or 40 years. Once a project reaches the operational stage it is capable of generating a fairly stable cash flow. Construction risks are no longer a factor, and geological risks have dropped off dramatically. Therefore, an IRR such as 5% to 7% is feasible.

The main obstacle to progress on the PPP front has been our penchant for seeking to privatize the entire process. The pre-investment phase is clearly much more difficult to privatize. Additionally, EPC contracts tend to be highly complex instruments. These two factors have generated bidding processes which usually and with investors proposing a litany of risk-sharing clauses to the respective treasury ministers throughout Latin America. This dynamic also impedes a firm's ability to close their books on a given project, which severely bogs down the entire process. Again, this has been a fairly common occurrence throughout our entire region.

In order to remediate this lack of efficiency, I propose we focus on a single issue and utilize PPPs to finance the operational phase of our infrastructure projects. This will allow us to undertake more infrastructure projects, as well as generate a great deal more pre-investment and EPC plans through the use of State-managed resources. Once the projects are ready for operations, a private firm can be appointed to operate the project. This type of strategy is more effective, whereas the funds received from the sale of a concession allow nations to recoup their entire investment, and then reinvest said resources in more infrastructure if they so desire. The general idea here is, rather than making a division between private-sector projects and publicly-funded projects, we simply assigned the pre-investment and EPC phases to the State, and the operational phase to the private sector.

Such a strategy will generate an asset which is much more easily understood, and which entails a far lesser degree of risk. This will make it an ideal option for long-term investors such as pension funds.

Conclusion

Latin America is informal because it possesses few letters. And although the majority of its production is performed by very small-scale firms, the cost of formality is fairly high. Additionally, commuter costs are extremely high due to a lack of investment in infrastructure and problematic housing policy, which only serves to impede its ability to string together said letters.

Efforts to undertake infrastructure projects via PPPs have been impeded by a tendency to privatize the pre-investment and EPC phases. The operational phase is best suited to the private sector and comprises an especially appropriate option for pension funds given its long-term, low¬-risk nature. We should capitalize upon the potential synergy of investing worker savings in projects which alleviate their commuter issues, thus freeing them up to pursue positions at the most productive firms within their respective economies.

CHARTER II

INVESTMENTS OF PENSION FUNDS

NEIL LLOYD. Behavioral finance and its effect on pension portfolios.

ANALYSIS PANEL: MANAGEMENT AND REGULATION OF LONG-TERM PORTFOLIOS: WHERE ARE WE GOING?
JUANA TÉLLEZ.
FELIPE LEGA.
OMAR RUEDA.

BEHAVIORAL FINANCE AND ITS EFFECT ON PENSION PORTFOLIOS

NEIL LLOYD[1]

1 *Neil Lloyd is Head US DC & Financial Wellness Research at Mercer. His focus is on Intellectual capital, innovation and research in the areas of Defined Contribution Plans as well as Financial Wellness strategies and solutions, primarily focused on the United States. He qualified as an actuary in 1990 and he also qualified as a Certified Financial Planner in South Africa in 1994. He has spent a significant portion of his career focused on investment consulting, and throughout his career he has been very involved with innovation and intellectual capital development. He plays an active role in the industry: Retirement Income Chair of the Executive Committee of the Defined Contribution Institutional Investment Association (DCIIA); DCIIA's Academic Forum Subcommittee; and Plan Sponsor Council of America's Retirement Industry Advisory Committee.*

The topic of this brief article is behavioral finance and its impact on pension portfolios. The reason which I think this is such an important topic is because it helps to explain how individuals engage – or choose *not* to engage – with pension fund portfolios. Behavioral finance can help those of us within the sector design more effective pension fund portfolios; particularly when it comes to defined-contribution systems. It can also enable us to understand why certain products – that we think people will utilize – do not sell, or fail to generate much interest.

Behavioral finance also helps explain why fiduciaries act in a given manner. This is an important issue since they are often our key clients and their success contributes to pension-sector sustainability. These theories also help us understand the behavior of investment professionals, which in turn can help us to capitalize on a variety of opportunities. On the one hand, we can potentially exploit these professionals' biases. Secondly, they comprise an opportunity to objectively analyze and then optimize our own systems and performance.

Behavioral economics

Allow me to begin with a brief introduction of the topic. I will begin by addressing how behavioral finance affects participant and fiduciary decision-making processes, but I am also going to share some remarks on the topic of investor decision-making.

Before we get started, I would like to share a bit about Mercer and its mission. In short, we endeavor to improve the health, wealth and lives of more than 110 million people worldwide. The key issue of this outlook is that it focuses on the individual investor. A solid understanding of the principles of behavioral finance is necessary when attempting to understand how an individual will react, and how they will engage.

As a student of economics, I was taught that classic economic theory defines individuals as free, rational and utility-maximizing entities who act in accordance with a given set of preferences, endowments or technologies. Does this sound like anyone who you have spoken to recently? I think most of us would agree that few humans are this robotic, either in terms of what drives them or how they react to their environment.

A possibly more realistic picture is the following: if we do not trust an individual who offers free hugs, instead we will probably opt to line up in a queue for luxury hugs. Or maybe we will drive for 20 minutes to get a 35% discount for an iPod worth $100. When we are offered a 3.5% discount on an iPad (worth $1000), we are often not willing to make that drive. We all know that $35 is the amount involved in both instances, and yet I am quite sure that I can see myself behaving in this manner and opting to make the 20-minute drive for the iPod.

At work, we often refer to what is known as the ultimatum game. It is a great launching point to share some of the basic concepts at play in behavioral decision-making. The game involves a one-time offer of $1000. A person gets a single opportunity to respond to the question. In the typical scenario, I get to choose what the other individual receives. If the person accepts the amount I offer, we both receive that allocation. If they refuse, we both receive nothing.

In the first scenario, the individual is offered $200 of the available $1000. How many of us would accept such an offer? Statistics indicate that only a small proportion of the population would take such an offer. But if we continue on with the game, and there is $450 on offer, we find that most people would accept the offer even though the other individual ends up with $550.

Let us move on to a third scenario. In this instance, the total amount involved has been increased to $100,000. Individuals are offered $20,000 and I keep the remaining $80,000. What percentage of the population would likely accept the offer? According to what I have seen, it is safe to say that most of us would accept the $20,000.

This game underscores the fact that the rational response is to accept any offer tendered; the rationale being that any offer extended is more than what is currently on the table – nothing. However, the reality of human nature is that we do not accept in every scenario. The factor which comes into play is the concept of fairness.

This experiment has been reproduced in nearly every society across the globe. And what we observe is that when the offer is below 20%, about half of the participants reject the offer. As the figure begins to approach what is perceived as being a fair number, the rejection rate begins to drop markedly. Additionally, as the scenario begins to involve significantly larger sums, people are more likely to accept the terms on offer. All the evidence indicates that while the concept of fairness has a large role to play, as the amount-involved increases, our aversion to injustice seems to decrease proportionately.

Behavioral biases

More will be said on this topic below. But to provide some immediate context, behavioral finance is not limited to the hypothetical. Thaler, Kahneman and Shiller have all earned Nobel prizes in this area of behavioral economics. In fact, Richard Thaler just received his last year, in 2017. In short, behavioral finance attempts to explain why an individual commits irrational errors within the marketplace. It also studies how others may attempt to capitalize upon these instances.

Endowment effect

I would like to start off with one of my favorite aspects, which is the endowment effect. This effect is best explained by using a simple example such as when a group of individuals is given an object such as a pen. We can then observe how each one values the asset they now possess. In this scenario, they receive the pen and are then offered a coffee mug. If they give up the pen, they are able to receive the mug. At this stage, we observe that only 10% of participants take the mug.

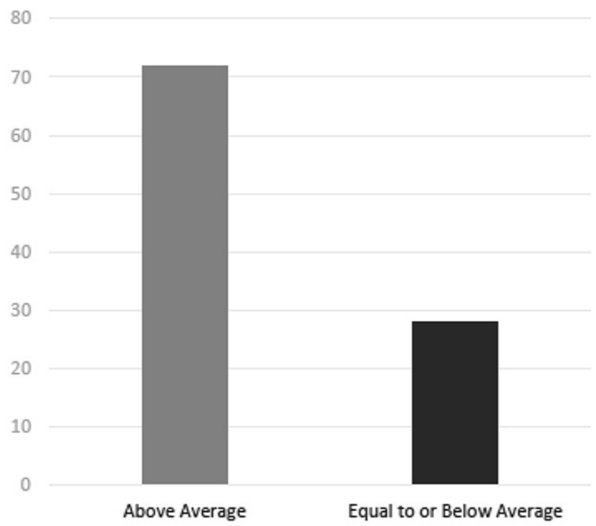
Then, we switch around the scenario and participants are given the mug first. When the experiment is conducted in this order, 12% take the pen. This demonstrates how individuals tend to hang on to what they have, regardless of its relative value. It also shows how we place a higher value on assets which we possess than those which we do not. When reviewing the subject of annuities below, we will see how this dynamic can play an important role in an individual's financial decision-making processes.

Overconfidence

Overconfidence is an interesting issue. It is also fairly easy to make a determination regarding its prevalence within a group. One only need ask how many individuals within a population believe they are above-average drivers. More than likely, approximately 70% of respondents would indicate that they belong to this category of drivers. Clearly, this is not the case, whereas logic dictates that it is highly improbable for 70% of a typical group to be above average at driving.

Along these same lines, Montier performed a study on fund managers (see Graph 1). Not surprisingly, 70% of these individuals also felt that they were above-average in terms of their abilities to manage their respective portfolios.

GRAPH 1
OVERCONFIDENCE AMONG FUND MANAGERS



SOURCE: MONTIER, JAMES (2006).

Hyperbolic discounting

The next issue to consider is hyperbolic discounting. While the phrase is a bit of a mouthful, it basically describes how humans tend to overvalue short-term rewards relative to what happens down the line. This is to say, most of us struggle with long term trade-offs. A simple example involves choosing between receiving $100 today and $105 seven days from now. Most individuals would opt for the $100, even though $105 represents a better offer.

However, responses change when we pose the following question: Which would you prefer, $100 in a year's time or $105 in a year and a week? People take the $105 offer. This is a very important issue, because it seems that individuals would rather spend now and save later. Therefore, their natural preference is to put off saving for retirement. This is an issue which we need to overcome as a society.

Prospect theory and loss aversion

A third area involves the issue of prospect theory and loss aversion. Kahneman, for instance, earned his Nobel Prize for his work on prospect theory. This aspect of behavioral economics addresses how humans value gains and losses differently. We make decisions on perceived gains rather than perceived losses. This translates into a tendency among investors to sell winners too quickly and keep losers too long. Their desire to make sure they lock in a win, and a tendency to avoid booking a loss, both contribute to this dynamic. I have also observed this phenomenon in fiduciaries, during situations in which they become extremely concerned about booking a loss. However, their primary concern should always be future performance.

Impact of behavioral finance on pension sector

As mentioned previously, behavioral finance impacts a number of issues within the pension sector. It affects participant and fiduciary decision-making, as well as investment management – an issue which will be addressed in depth below. However, it also has a significant impact upon the behavior of advisors, providers and other technical experts. We must never lose sight of this fact.

One of the great successes of the defined-contribution market has been inertia. Therefore, instead of inquiring as to whether or not an individual wishes to participate in a given fund, we auto-enroll them. Whereas individuals tend to remain within a system, this route to inculcating a culture of savings is much more effective in terms of getting people involved. Target date funds, which we will be addressing further below, employ a similar approach because they adjust the investment allocation automatically. Auto-escalation has been a highly successful technique. Individuals are brought into the system at a 3% contribution rate, which is then gradually increased each year. Due to the concept of inertia, people tend to not react and progressively begin to reach a very attractive contribution rate.

Save for tomorrow

Another example was put forth by Benartzi and Thaler in a strategy entitled “Save More Tomorrow”. They took into account the status quo bias – which is to say, the inertia effect – and analyzed strategies for overcoming the issue of hyperbolic discounting, which relates to our tendency to put off saving. The strategy they developed involves asking people to save using funds received from their next pay increase; i.e., when the next pay increase comes around, the contribution increase is implemented. An astounding 78% of participants adopted this strategy. Furthermore, 80% remained in the program even after their fourth pay raise.

This translated into average participant contributions undergoing a nearly 4-fold increases in a period of only three years. They increased from 3.5% to 13.6%, which had a major impact in terms of retirement adequacy.

Anchoring and framing

Anchoring and framing describes a process by which a fund provider, in this case, attempts to guide the decision-making process of participants. For example, participants are now able to choose their enrollment contribution rate through a simple mouse click.

In a scenario involving the following alternatives, what option do you think most respondents choose: 4, 6 or 8%? Based on personal experience, many professionals within the pension sector would tend to expect that 6% would be a typical choice. Now, what would occur if we change the options to 8, 10 or 12%? Most individuals tend to predict the middle answer would be the most attractive choice to respondents.

Unfortunately, the reality is that most choose the first – and lowest – rate among the three options. While we could debate the plethora of reasons why the lowest contribution rate is chosen, one thing is certain. If the pension sector wishes to make a concerted effort to promote individuals opting for a 6% contribution, we need to start framing the offer as follows: 6, 8 or 10%. This is our best hope of achieving the target 6% contribution rates.

Another example of framing involves the manner in which funds present a variety of investment mixes to participants. All of the available evidence suggests that an individual's choice of average equity allocation was made solely vis-à-vis the options which were in place at the time.

This is a fairly simple reason, so we definitely need to capitalize upon it in order to help individuals choose the most appropriate option. You will probably guess the option that most people chose: a 50-50 mix of the two funds.

There is an interesting anecdote involving Harry Markowitz that says a lot about how humans approach this decision. As many may know, he is considered the founder of modern portfolio theory. Markowitz, who received a Nobel Prize for his contributions to the field of economics, states that he was confronted with this very choice. He added that he knew he should put in the work and calculate covariances, as well as account for inefficient funds. However, in the end he too opted for an equal split between equities and bonds.

A study on this issue was later done by Chhabra (2005). In fact, it is a personal favorite of mine. Hhe talks about risks having three separate components. The paper offers the reader a more complex breakdown of the question than what we received in Markowitz. Personal assets, or personal risk, involve an individual's desire to protect their assets; i.e., capacity to ensure their standard of living does not fall below a given minimum. Market risk involves our attempts to ensure we possess assets which are, in turn, capable of keeping pace with those of our peers. Aspirational assets, or risks, refer to those which enable an individual to make a quantum leap vis-à-vis their peers in terms of success. This aspirational risk dynamic is what makes lotteries so popular.

I spend a great deal of time thinking about this issue as I review retirement investment products. It is interesting to note that the typical products are completely focused on managing personal risk only. The overall impression one comes away with is that they tend to be a bit dry and very unappealing. When products begin to address market-risk and aspirational aspects these products are more likely to be successful. In terms of attractiveness to participants, we have actually seen simpler products prove more popular than their better-designed counterparts merely on the basis of a willingness to incorporate aspirational and market risk into marketing campaigns.

Wealth effect

The wealth effect is another highly relevant issue. The wealth endowment dynamic, as well as its relationship to annuities, was mentioned earlier. Probably the best example of this involves an individual's ability to accrue wealth for retirement. As most of us know, all the surveys indicate that retirement income sufficiency is an important issue for everyone in society – but the desire for income is decidedly stronger among younger respondents. Ironically, as we grow older the relevancy of this issue actually appears to decrease. This is to say, our general affinity for taking out an annuity declines. One of the reasons is that we have finally generated a certain degree of wealth. In short, most of us are less likely to surrender control of this amount of accrued wealth.

In order to understand this dynamic more fully, we need to take into account how an individual perceives their accrued retirement wealth. In most instances, this retirement account constitutes the largest amount of wealth a person has ever generated, maybe $100,000. The idea of taking these funds and transferring them into an account under the control of another individual can be daunting. This is what makes the annuity outcome so unlikely. In my opinion, it is also one of the major reasons that the success of these instruments has been so limited.

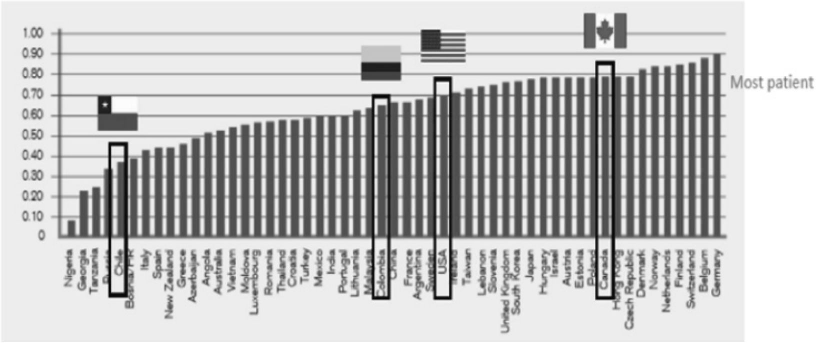
There is another issue which we are only just recently beginning to observe. The new dynamic involves the wealth effect of pension wealth tending to lead individuals to feel wealthier – and, as a result, increase spending levels. A study by Laibson et al (2017) states that in a specific study there was a correlation between automatic enrollment and increases in automobile and first-mortgage debt. The authors state that this effect is observable even after only three to four years of tenure. As people feel wealthier, they can potentially begin to spend more.

Some related research was performed in Australia during 2013. The study indicated the increase in pension assets under management within the Australian system was almost directly offset by the increase in debt occurring during the same time period. The report, prepared by CPA Australia (2013), provoked concern regarding the increasing tendency among individuals to finance higher standards of living as a seemingly indirect consequence of increased pension wealth.

This is an international conference, with many individuals from many nations, it is worth noting that behavioral tendencies do tend to vary according to national context. For example, Graph 2 demonstrates the degrees to which investors in different countries exhibit investment investor patience. The nations on the left-hand side of the graph are less patient, whereas those located on the right are more patient. Interestingly enough, Colombia and the US are located approximately at the middle of the group. Canada, where I live, is actually one of the most patient societies. Interestingly enough, Chile was one of the least patient.

GRAPH 2

INTERNATIONAL DIFFERENCES IN INVESTOR PATIENCE



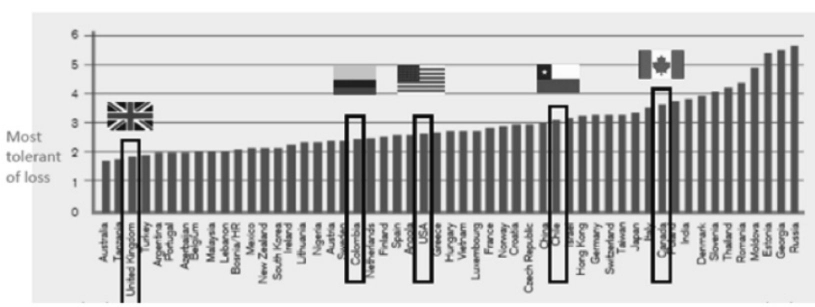
SOURCE: META, RENISA (2015).

I will not venture into trying to explain the underlying reasons for the presence of these tendencies within certain societies. The issue of why a nation is more or less patient is an interesting one, though. It would certainly provide good material for after-dinner conversation later this evening. And investor patience within a given society is clearly a highly relevant topic to all of us attending this conference.

The same study [(Meta, Renisa, (2015)] which provided this data on investor patience also analyzed international differences with regard to investor loss aversion. In Graph 3, higher levels of tolerance in terms of loss aversion are located on the left-hand side, while nations which are less tolerant to loss are located on the right. The scenario is similar to the previous graph in that Colombia and United States are in the center, Chileans tend to be less tolerant of loss, and Canadians were the least tolerant of losses. What I found most surprising was that the UK was the society which was most tolerant to loss. While I was born in the UK, I lived most of my life in South Africa – a nation which, incidentally, proved to be even more tolerant to loss than their British counterparts. But the fact that the UK had such a high level of tolerance was very interesting and fairly unexpected.

GRAPH 3

INTERNATIONAL DIFFERENCES IN INVESTOR LOSS AVERSION

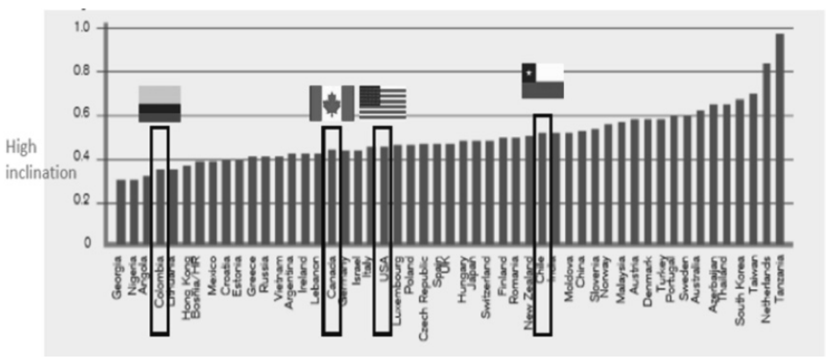


SOURCE: META, RENISA (2015).

To wrap this issue up, the study then took a close look at the inclination within these nations to bet on extremely unlikely events in hopes of a very positive outcome (see Graph 4). This is where the *aspirational* dynamic of this entire subject comes into play again. This is to say, how prone are individuals to bet on something which they might potentially reap a huge benefit from? The most fascinating outcome in this instance was the position of Colombia on the spectrum. Whereas Canada and the US demonstrated average behavior, Colombia had a fairly high inclination to bet on extremely unlikely events. I hasten to add that, once again, this issue merits further debate and analysis. And, clearly, the research is available for anyone to review. But if this is a true depiction of the current state of affairs in terms of these three societal aspects as measured by this survey. We definitely need to take these differences into account when designing products which are going to be offered to in different countries.

GRAPH 4

INCLINATION TO BET ON EXTREMELY UNLIKELY EVENTS WITH A VERY POSITIVE OUTCOME



Behavioral finance and investment managers

Now, let's turn to investment managers. Are behavioral problems new to the investment world? Definitely not. Tulipmania occurred in Holland during the 1630s. My wife loves tulips. I like tulips as well. But this situation got completely out of hand. It reached the point to where the cost of a single tulip exceeded the annual salary of a skilled artisan. People actually sold their houses to go out and buy a tulip. Of course, eventually the bubble burst. In 1637, they were left with assets which were – while very beautiful – fairly worthless in relation to their former value. Behavioral challenges in finance are nothing new.

Earlier, I referred to the issue of confidence. Brad Barber and Terrence Odean (1999) equated confidence with trading activity. Increases in trading activity were seen as indicators of increased confidence. As you can see from their data, however, overconfidence does not necessarily translate into higher returns (see Table 1).

TABLE 1

BEHAVIORAL PROBLEMS CONTINUE TODAY (OVERCONFIDENCE)

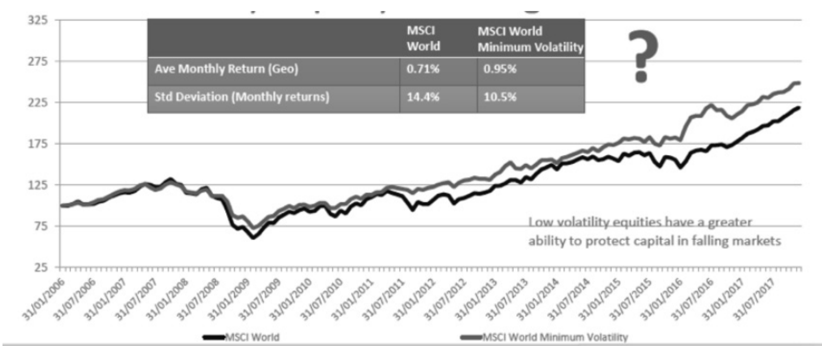
Portfolio turnover and return	Mean monthly turnover	Average annual portfolio return
20% least active traders	0.19%	18.5%
20% most active traders	21.49%	11.4%

SOURCE: BRAD BARBER AND TERRENCE ODEAN (1999).

Low volatility equity strategies

On the issue of risk, we generally consider the following statement to be axiomatic: the lower the risk, the lower to return; and conversely, the higher the risk, the higher the return. However, as can we can see in Graph 5, this is not always the case. The black line tracks the MSCI World Index, while the blue line tracks the MSCI World Minimum Volatility Index. The figures in the chart clearly demonstrate that the World Minimum Volatility Index actually provided a higher return on investment. While we could sit here and debate why this is so, we need to ensure that we never forget that this phenomenon exists.

GRAPH 5
LOW VOLATILITY EQUITY STRATEGIES?



SOURCE: THE AUTHOR.

Addressing our irrational nature

How then are we to address this propensity for irrational behavior within markets? When challenged by a given topic, I tend to tell myself to look into what Warren Buffett has to say on the subject. He suggests utilizing a sound intellectual framework, to help keep emotions out of the equation.

> ***To invest successfully over a lifetime does not require a stratospheric IQ, unusual business insight, or inside information. What is needed is a sound intellectual framework for decisions and the ability to keep emotions from corroding that framework.***
>
> ***Warren Buffett***

Another approach which can be utilized is analyzing the trades being executed by a given manager. On the basis of this data, you can actually identify behavioral biases. For example, you can track the trades being made by an investment manager in order to make a determination of where they add value. Is it on *buying* shares or *selling* shares? I happen to find this quite interesting, since when I analyze my own behavior I suspect that I would be fairly good at buying shares. But I am not convinced that I would be adept at selling shares. Maybe this is why I am not an investment manager. Understanding the weight a particular manager places on these two alternatives can be a powerful asset. For instance, it can inform the manner in which you structure an investment team. It can also make the entire process more efficient.

Another example involves the manner in which an individual trades. We can track trading behavior over time. Traders normally buy during a given 72-hour period, or sell during a similar period of time. Analysis can highlight that over time, your first buy or first sell is the most successful (or vice versa), you can then change your trading practices to reflect your skills.

Through personal experience, I am aware that one finds that certain portfolio managers are gifted in terms of buying, while others demonstrate a proven track record in terms of knowing when to sell. Again, once you identify said strengths, you can adjust your structure in order to leverage these competitive advantages. In fact, firms such as Cabot Research are expressly dedicated to this very task. They specialize in looking at investment firms and reference the ability to add 45 basis points per year. If this is the case, these are impressive results and the feasibility of this option needs to be considered.

Another example comes from an investment firm which I have been following for a fairly long period of time. I like the way the manager chooses to approach this issue. They follow a very simple philosophy: buying shares which they believe possess a 50% upside and 33% downside. However, they have also chosen to address the possibility that their portfolio managers will fall in love with the shares they manage. They introduced a single rule: if a share appreciates 50%, they sell one-third. It does not matter what firm is involved – they simply get rid of one-third of the shares on hand. Furthermore, if a share falls by more than 33%, managers pass the asset on to a new analyst.

This is not an approach which might be universally-recommended to every firm we come across. But it does work remarkably well in this particular instance. It is an exceptional example of a company understanding its own biases and then taking appropriate action to counteract same. They knew what their potential challenges were – then took measures to make life easier.

What I have attempted to achieve here is explain how behavioral finance can play a pivotal role in understanding how individuals interact with pension products, pension plans or other financial products. An understanding of behavioral finance can potentially help us to put forward products that people actually want and are currently in search of. In my experience, the challenge often lies with firms focusing on what they think the public needs instead of making an effort to determine what participants actually want. I also believe that, in accordance with the principles of behavioral finance, initiating measures such as auto-enrollment, target date funds and auto-escalation have the potential to significantly improve the current defined-contribution (DC) system. As we continue to enhance the DC sector, we need to do provide than mere defaults. Behavioral finance can help us achieve these ends.

In terms of investment managers, it is a similar story. Behavioral finance allows one to identify behavioral bias within the market, which is precisely what quantitative managers do. This will allow us to exploit these biases. If you recognize your own biases, you can take action to correct same. Behavioral finance can even help you become a success in areas that could have been a weakness.

I would like to leave you with one issue to ponder. As investment decision-making becomes increasingly reliant on options such as artificial intelligence and machine learning, it will be interesting to observe whether or not behavioral finance disappears. I suspect this will not be the case, at least in the short term. To begin with, biases are not going to simply disappear over time. They may not take the same forms as we have seen thus far, but they will continue to exist and play a role in markets. The ability to understand and analyze these patterns, therefore, will continue to be relevant. A much more likely result is that the two factors synergize one another and jointly drive the relevance and utility of behavioral data.

References

Montier, James (2006). Behaving Badly. London: Dresdner Kleinwort Wasserstein Securities. Available at SSRN: http://dx.doi.org/10.2139/ssrn.890563.

Chhabra, Ashvin B. (2005), *Beyond Markowitz: A Comprehensive Wealth Allocation Framework for Individual Investors*. The Journal of Wealth Managment, Vol. 7, No. 4, pp 8-34. Available at: https://ssrn.com/abstract=925138

Meta, Renisa. (2015). Behavioral Finance: The Psychology of Investing. Available at Research Gate: https://www.researchgate.net/profile/Renisa_Meta/publication/283488173_Behavioral_Finance_The_Psychology_of_Investing/links/563a1b0308ae337ef2983976/Behavioral-Finance-The-Psychology-of-Investing.pdf?origin=publication_detail

Laibson D, et al (2017). Borrowing to Save? The Impact of Automatic Enrollment on Debt. 2017. Available at: https://scholar.harvard.edu/files/laibson/files/total_savings_impact_2017_12_06.pdf

CPA Australia (2013). Twenty years of the superannuation guarantee: The verdict. Available at: https://melbourneinstitute.unimelb.edu.au/assets/documents/hilda-bibliography/other-publications/2013/Kelly_twenty-years-superannuation-guarantee.pdf

Barber, Brad M. and Odean, Terrance (1999). The Courage of Misguided Convictions: The Trading Behavior of Individual Investors. Available at: http://dx.doi.org/10.2139/ssrn.219175

ANALYSIS PANEL: MANAGEMENT AND REGULATION OF LONG-TERM PORTFOLIOS: WHERE ARE WE GOING?

JUANA TÉLLEZ.
FELIPE LEGA.
OMAR RUEDA.

Moderator: Juana Téllez

Juana Téllez holds a PhD in Economics from Queen Mary University of London, having pursued her undergraduate studies in said field at the Universidad Javeriana (Bogota). Currently serves as Chief Economist for Colombia at BBVA Research, where she leads a team focused on economic, financial, sector and regulatory analysis. Previously served as a researcher (macroeconomic, monetary and historical analysis) at the Central Bank of Colombia; former principal advisor to Office of the President, as well as economist targeting financial sector and macroeconomic policy, at said entity. Served as assistant professor at the Faculty of Economic and Management Sciences (Universidad Javeriana). Former editor of the Universidad Javeriana Economic Review. Has published in a variety of peer-reviewed journals, and serves as a columnist for several media outlets in Colombia.

Panelists

Felipe Lega

Felipe Lega is an industrial engineer who holds an MSc in Financial Engineering from Columbia University. Former market-monitoring expert at the Central Bank of Colombia, where he served in the Market Operations and Development Department. Former interim director at the federal entity charged with oversight of stockbrokers and other agents in Colombia. During 2013-2015, served as Vice Chairman of Market Integrity at the Financial Regulation Unit (URF). During said tenure, helped generate the national Financial Inclusion Strategy; currently serves as Director General of same.

Omar Rueda

Omar Rueda holds a degree in business engineering from the Autonomous University of Bucamaranga. Cofounder and CEO of Fillum, SAS. Seventeen years of experience within the financial sector as a stock broker and CIO at Protección, a private pension fund.

Juana Téllez:

The plan here is to conduct a panel on our main topic: the management and regulation of long-term portfolios. The idea is to address a fairly wide variety of questions, through the prism of our central issue: How should long-term funds be managed? What is the most appropriate regulatory framework for the Colombian market? Is enough capital or investment currently flowing into long-term funds?

We will then turn to a review of what types of financial instruments are currently available, and determine how well-suited said instruments are vis-à-vis the Colombian stock market. We will be wrap up the panel by spending a bit of time on the issue of obligatory pension funds.

I wish to begin by stating what should be fairly self-evident: *Colombia needs to achieve higher growth rates*. It needs to achieve greater economic inertia and generate much stronger macroeconomic indicators. As Marcela Eslava mentioned, if we plan to achieve these ends then increased productivity needs to be one of our primary objectives.

However, Colombia will need to address other factors as well. For instance, we will need to make a concerted effort to increase our current levels of investment. Fortunately, long-term funds are particularly well-suited to achieving this goal. One of the main assets that this fund class possesses is its ability to finance other investment projects.

Furthermore, Colombia will need to go beyond what it has achieved thus far in terms of financing infrastructure projects such as the Fourth Generation (4G) Highway System. More than likely, it will also need to finance projects within the tourism, healthcare and education sectors. Clearly, long-term funds have the resources to meet these types of challenges.

Perhaps we should begin by giving the floor to Omar Rueda, as he has a great deal of experience managing pension funds. It would be very productive to hear his remarks regarding how rational it is to expect that long-term funds will be capable of funding these types of large-scale projects.

Omar Rueda:

The question posed by Juana reminds me of a study in which I was involved. We were attempting to determine what the optimal replacement rate for the pension system was. At the time, we determined that the appropriate rate was 70%. In terms of the conditions necessary to achieve said rate, we performed another study aimed at determining what the target yield would need to be during the accumulation phase. The study determined that, in order to achieve the aforementioned 70% replacement rate, a conservative fund needed to yield at least 4% above the consumer price index (CPI). Funds involving moderate risks needed to achieve 6% over CPI, while there higher-risk counterparts needed to yield at least 7% over CPI.

Clearly, this hypothetical scenario involved an entire series of conditions. For example, individuals needed to remain active within the workforce from age 20 until retirement.

The next question related to asset allocation. How are long-term funds supposed to generate these levels of results given the stocks which are currently available, as well as the current regulatory framework? This is to say, funds in Colombia are currently up against a fairly restrictive set of parameters.

Therefore, one needs to begin by analyzing the issue of long-term yields. The Colombian stock market currently achieves about 11%. However, the private-capital funds which formerly yielded about 25% in 2008, have fallen to 16% in 2018. The conclusion was that a moderate fund would be incapable of generating 6% over CPI.

Under these circumstances, the higher-risk fund is the logical alternative. This led our team to perform an in-depth analysis of the higher-risk fund. We found that, given the fact that 70% of its assets were invested in equity, the higher-risk fund was the appropriate alternative for the vast majority of participants. In order to achieve all this, however, the majority of individuals enrolled in the moderate fund need to transfer their assets into the higher-risk fund; this is to say, if we endeavor to increase the supply of higher-risk products available.

When we began to introduce multi-funds in Colombia, this issue was put before the Congress. Although I cannot say exactly which committee made the final decision, the idea was that all of the individuals currently enrolled in the moderate fund would be transferred into the higher-risk fund. In order to make this type of measure successful, the regulatory framework would need to make the higher-risk option the default category. This type of strategy will generate greater demand among fund administrators for higher-risk products and, as a result, generate a capital market on a scale which is practicable.

I think my remarks answer part of the question. We definitely need to move towards a strategy which promotes the presence of more individuals within higher-risk funds. If we are to achieve these competitive rates, something will need to be done in order to ensure that the system generates a well-designed product that attracts participants into these funds.

Juana Téllez:

Felipe Lega, would you care to share some are good remarks regarding the current regulatory framework? I know that new regulations are about to be enacted. It would be interesting to hear your thoughts regarding multi-funds in general terms.

Felipe Lega:

First, allow me to express my thanks to ASOFONDOS for the opportunity to be on this panel and share the Financial Regulation Unit's (URF) viewpoint. In terms of the broader points covered by Omar Rueda, we are in complete agreement. We do, however, diverge when it comes to the finer details; for example, the variety of alternatives currently available within each of the funds. Additionally, we disagree in terms of the strategy which should be utilized to ensure that the outcomes pursued by the funds coincide with the objectives of the individual fund participants; this is to say, his remarks regarding the manner in which demand should be generated.

With regard to the first issue, regarding the possibility of providing pension funds and multi-funds with alternatives needed to respond to the spectrum of possibilities, I wish to make it clear that the URF has worked hand-in-hand with the pension fund sector. The current administration has been open to ideas put forth by the private sector in order to ensure we are generating policy which serves the investment objectives of the sector. For example, the pension sector has possessed the ability to invest in private-capital funds for many years. Specifically, regulations have allowed for private sector pension funds to invest in infrastructure projects, in order to respond to the issue highlighted by Juana at the beginning of this panel.

However, all of the foregoing leads one directly to the issue of ensuring a good match between the profile of individual participants and the raison d'être of each multi-fund upon launch. We have the higher-risk fund, a moderate fund and the conservative fund. Now we need to ensure that each of these alternatives generally coincide with the profiles of individual participants.

This leads me to the issue of the current group of regulatory draft bills. The first measure involves assigning a default fund to system participants. All participants are currently enrolled into the moderate fund by default unless they manifest a desire to enroll into another fund. This issue was addressed during the debate on the upcoming regulation, but I am convinced we failed to take into account the individual needs of fund participants. This occurred, in spite of the fact that Colombia is especially fortunate in terms of the fact that many of its inhabitants are fairly young. Among other issues, this element means that the majority of Colombians would best be served by enrollment in a higher-risk alternative.

For this reason, we are currently working on a bill which will ensure that individuals are enrolled in a fund which is much better suited to their individual needs. Clearly, this will go a long way to helping our nation achieve its goals in terms of replacement rates. These rates will be optimal in a scenario in which an enrollee's fund is better suited to their age.

Juana Téllez:

Omar, what do you think the final impact of this new regulation will be? Do you feel that fund administrators will be capable of exercising responsible decision-making in a higher-risk portfolio? This is to say, do you believe that as they begin to invest in more challenging sectors, the majority of outcomes will be positive?

Omar Rueda:

Yes and no, Juana. On the one hand, I believe that the URF is doing an amazing job for Colombians. However, I would hasten to add that I also believe that we have lost sight of the primary objective here. The primary goal, in this instance, is to ensure that all of these young people are well-placed in terms of these different fund alternatives.

When one analyzes the policy generated by the URF of late, it is – at least in my opinion – fairly conservative. We are going to end up with 60% of individuals in higher-risk funds, and 40% in the moderate fund. However, as we analyze the demographic composition of the population enrolled in the Colombian pension system, it becomes immediately clear that this group is primarily comprised of young people; i.e., a group of individuals which should be exposed to much higher levels of risk.

Therefore, while I do believe that the URF has had an overwhelmingly positive effect on the economy, in terms of this particular issue I believe that we are repeating the same set of errors.

And by this I mean that we are falling into the mindset of utilizing pension fund resources as a savings account for the government. And this was not the reason pension funds were created. Their primary mission is to generate acceptable replacement rates, period.

However, if the State has its hand in the till so it can address public debt levels, the pension industry is not been allowed to fulfill the ends for which it was created. The pension fund sector primarily exists in order to serve the individual fund participants which comprise it.

Juana Téllez:

In its agenda for 3Q2018, the URF plans to address the issue of minimum fund performance because this factor can play a significant role in the herd mentality dynamic. Therefore, perhaps Felipe can share some remarks on what the Unit has in mind in terms of minimum-performance thresholds.

Felipe Lega:

Before turning to the issue of minimum yields, I would like to address a remark made by Omar during his presentation. We will in all probability be generating a draft bill which will specifically address the issue of default enrollment into a particular fund. The process of putting forth a legislative package designed to modify the regulatory framework includes a phase during which the sector has an opportunity to provide its feedback. The administration will do everything in its power to ensure that this input from the market is taken into account and incorporated into the wording of the new regulations. As a result, I can assure you that the issue of default enrollment was one of the top priorities pointed out by the industry.

As we prepare the final draft of the bill, we are looking at how to properly address default enrollment within the forthcoming regulatory framework. [1]

However, as we contemplate this issue of fund selection, it is important to never lose sight of the significance of the advising services that each participant may – and frankly should – receive from their respective fund administrator. This issue is of paramount importance in terms of ensuring that each enrollee chooses the best option vis-à-vis their individual circumstances. Better-advised fund participants will help make ensure each account holder achieves the best replacement rate possible, in addition to ensuring that their choice of fund involves an optimal level of risk. This is to say, individuals should only participate in a higher-risk fund when their profile, in terms of age, coincides with such a choice.

I do not believe that this issue necessarily merits a complete reworking of the regulatory framework. It is best seen as a duty which the industry should address in its day-to-day activities. It is not an issue which can be fully addressed via a modification of the regulatory framework, by mandating which fund enrollees are defaulted into.

1 *Decreto 959 de 2018 is a presidential decree enacted in June 2008. It modified Decreto 2555 de 2010 in terms of the defaults utilized when individuals enroll into the multi-funds scheme.*

In terms of minimum fund yields, this issue is definitely on the agenda. We are fully aware that this is a challenge which the sector has faced since its inception, due to the fact that most funds are concentrated into a fairly limited number of economic sectors. Secondly, the strategy which we currently utilize to calculate minimum yield tends to encourage fund managers to make decisions vis-à-vis the behavior of their sector peers. This is to say, that they go along with the crowd in order to avoid the risk of a more independent path, and thus forego opportunities to maximize returns.

We have already made several changes and are considering a future regulatory adjustment which will permit the incorporation of indexes which are replicable, and which address this particular fund administrator behavior and which allows for an asset allocation which is much more conducive to the optimization of returns which is so urgently needed. In this instance, we have incorporated the majority of the recommendations made by the group of experts in order to ensure that the new regulatory framework is fully aligned with our broader strategic aims.

Clearly, we are also going to address specific issues such as fund operation. This is to say, while we are going to fully address the issue of calculating minimum yield, we also want to study the feasibility of calculating yield based on net asset value, instead of the internal rate of return. This will provide an opportunity to address the issue of fund fees. Within the next two months, we plan to begin discussions with the industry.

Omar Rueda:

Felipe, I would like to clarify a point regarding the issue of whether individuals should decide to enroll in a higher-risk fund or not. According to the remarks made by Neil Lloyd in his presentation on behavioral finance, all the evidence points to the fact that when individuals are faced with a decision to enroll or not into a given fund, they put off making said decision. In my judgment, under these circumstances it is the responsibility of the regulatory framework to ensure that a person is enrolled into a given fund on the basis of their age. For instance, younger workers need to be directly enrolled into the higher-risk fund. As we know, these individuals can simply remain in said fund until reaching the next age threshold, and then be shifted into the moderate-risk alternative.

Secondly, every time I come across this issue of minimum yields I am reminded of the movie Star Wars. It comes down to a battle between the good and dark side of the Force. It is impossible to overestimate the influence that the dark side of the Force – i.e., minimum yields – has in terms of influencing the manner in which pension fund administrators approach decision-making processes. It has an immense impact upon their appetite for investment.

For example, when a fund manager decides to take on risk in order to invest in an infrastructure fund at volume X of investment, the decision may be prudent. But when this fund manager presents said investment to a risk committee, the members may have a completely different take on the investment in question. The committee might rule that if said manager travels too far afield of what they consider to be an acceptable level of risk, then the manager would be in danger of generating a major loss.

Fund managers must then present their strategies to an investment committee, the Board of Directors or the CEO, in order to determine whether or not the investment plan is deemed permissible. At the end of the day, it is the process which makes a determination regarding whether a given level of risk is in accordance with the broader interests of individual fund participants.

Minimum yields, as a result, might best be described as a type of tax levied on each individual account holder, as they restrict a fund administrator's ability to participate in investments involving higher levels of risk. Additionally, this scenario constitutes an asymmetric risk for fund administrators, because it leads them to avoid risk and relegates them to simply replicating investment strategies pursued by their peers within the sector.

Instead of pursuing the prime objective of the sector – which is to say, doing everything within their power to achieve optimal replacement rates – they are relegated to simply monitoring the sector. Many within the sector have suggested that we incentivize risk-taking through the use of compensation packages. While on the face of it this appears to be a rational strategy, it would more than likely result in fund managers becoming much more conservative, as they would begin to overthink every decision.

On several occasions, I have asked myself: how did this concept of minimum yields even work its way into the debate? I feel that fund administrators in Colombia – be they private pension fund administrators, fiduciaries, stock brokerages and everyone involved in the wealth management sector – have made great strides forward in terms of portfolio management in recent years. The levels of corporate governance involved are so exacting that they beg the question: why is there a need to utilize regulatory thresholds to establish minimum yields?

I believe that if we utilize incentives designed to achieve minimum yields, they will have the exact opposite effect. Fund managers will remain permanently focused on achieving said incentives, to the detriment of the broader interests of the fund participants they ostensibly serve.

Juana Téllez:

Felipe, any follow-up remarks?

Felipe Lega:

There will be many opportunities to address the issue of incentives in the regulatory bill which is currently underway. We need to operate within the parameters established by the legal framework. Fortunately, I know that we will have a debate on this issue which will be very productive and inform the entire process. The debate in Congress will address these legal parameters.

With regard to how one might go about aligning the incentives, we need to review all the decision-making hoops that fund managers must currently jump through. And as Omar mentioned, decisions are currently being overanalyzed. There are several proposals that have been generated by experts on the subject which would serve to decrease the herd effect. They involve the use of several indexes designed to generate the reference portfolio. These indexes can then be replicated by individual fund managers in order to ensure an effective asset allocations and – here again – align investment strategies with fund performance, instead of relegating one's role to being a market watcher; or, as Omar mentioned, the overemphasizing of risk levels in order to ensure compliance with minimum yield thresholds, as so often occurred in years past. Overemphasizing risks in an attempt to achieve minimum yields induces fund managers to make bad decisions. This because every decision is made vis-à-vis what other fund managers are doing, thus leading to the aforementioned herd effect.

Fortunately, the latest round of regulatory adjustments was designed to remediate this very dynamic, including the behavior of fund administrators. Furthermore, there is also an opportunity incorporated within the forthcoming regulation package for us to address the issue of how we go about constructing the reference portfolios via the aforementioned indexes. This will give us a much greater degree of flexibility, as well as afford us an opportunity to adopt a minimum yield which is much more aligned with the primary objective of pension funds. Clearly, it will also serve to incentivize asset allocations which are much better aligned with the primary objectives of said funds.

Juana Téllez:

Perhaps we should get back to the issue of the investments options which are currently available. The current administration has made an effort to extend the curve in terms of Treasury notes.[2] It would be interesting to hear the views of both panelists regarding whether or not this policy is working, and what else needs to be done with regard to our Treasury bill market. In the previous discussion panel, the issue of capital market depth was touched on. What needs to occur within Colombia for us to achieve this level of depth?

Felipe Lega:

This is an issue which we have discussed at great length. Various actors within the sector have requested solutions regarding the manner in which Colombia intends to extend the curve. Fortunately, we achieved this preliminary objective in 2018 with the first issuance.

What remains to be done? Clearly, a great deal. This was merely the first issuance of many. It involved COP 1 billion, and everything points to a fairly strong demand for more of the same. In fact, demand seems to have outpaced supply by about two to one.

In terms of the current economic policy, the public-debt team at the Treasury is clearly planning to issue COP 3 billion more during 2018 in an effort to continue strengthening that point on the curve. This is good news for everyone involved, because now the long-term reference – which we have been requesting for a long time – is in place. I think everyone involved is fairly aware of the potential benefits of utilizing this type of long-term instrument.

Furthermore, we have also been analyzing other measures which would allow the market to capitalize upon possible synergies with these types of long-term instruments and, thus, allow it to optimize the manner in which it addresses its obligations.

We have also been very focused on generating optimal regulatory measures. Omar mentioned *Decreto* 59, a presidential decree which addressed the issue of programmed withdrawal. We fully realize that the current valuation, of at least a percentage, of these types of instruments should take into account that reality in order to allow us to address our obligation levels in order to ensure said value is not subject to the traditional volatilities of the market. This is possible because under these circumstances coverage would be ideal.

What else needs to be done? I feel that a great deal has been done thus far. This

2 *Known as TES bills in Colombia, these are domestic, public-debt obligation issued by the government and administered by the Banco de la República, which is the central bank.*

request, which has remained unaddressed during a long period of time, requires that sector actors as well as the insurance sector capitalize upon this opportunity, in order that they might also contribute to the development of the annuities market.

Everyone involved acknowledges that many other problems exist. Some of the most problematic issues are those which I have just outlined and, fortunately, we have been able to provide solutions to same. Clearly, every time we act to remove a given restriction, another one appears. This is simply the nature of generating solutions in any economic context. But progress has been made, and now it is only a question of continuing to optimize the strategy which is in currently place, as well as ensuring that we consolidate the progress made thus far.

Juana Téllez:

Omar, would you like to address the fact that the majority of issuers in the market are AAA? Along the lines of what you mentioned, with regard to our need to have higher-risk alternatives available, it might be interesting to increase the availability of non-AAA issuers. In this regard, what role should regulators play? Should the government generate a proactive policy which would attract more participants into the market, or introduce an initiative which would lower market-entry costs? It would be interesting to hear your remarks on this subject.

Omar Rueda:

This is an interesting point, because the market has been attempting for some time to generate some non-AAA alternatives. But, here again, I think that one needs to first understand institutional investors. The top priority of institutional investors is governance. And normally non-AAA firms just do not possess the level of governance that institutional investors demand.

But I want to return to the issue of why pension funds exist in the first place. At the end of the day, the sector currently manages moderate risk portfolios and not high-risk portfolios. If a fund manager is involved in high-risk portfolios, they are logically going to have a higher propensity for participating in non-AAA stocks.

As a result, I believe that this type of asset is important. But in a scenario involving the current regulatory framework, we are unlikely to see many institutional investors getting involved. Therefore, this is an immensely significant area of opportunity. Because purchasing TES notes at 6%, in order to fund pensions, may not be the most appropriate strategy. This is why the non-AAA option is the perfect alternative to address this need within the market.

Juana Téllez:

From the standpoint of the government, the initiatives which have been introduced thus far have fallen short in terms of increasing the number of issuers within the market. It would be interesting to hear whether or not the government plans to utilize other measures designed to increase the volume of issuers within the market, as well as measures designed to lower the costs associated with an initial issuance. Are there any legislative or regulatory strategies in the works?

Felipe Lega:

This issue is similar to the non-AAA issue. In conjunction with Dr Cordoba at the Colombian stock exchange, we have attempted to identify the optimal strategy for increasing said number of issuers, and to increase the spectrum of firms involved in terms of their ratings (i.e., AAA, non-AAA). There has always been a fair degree of consensus regarding the fact that the relatively high cost of becoming a stock issuer has served to limit the number of same in our market. Issues such as a standardized issuance prospectus have been addressed in order to improve the entire process. It is also important to remember that tools such as the secondary market have been available for years.

Although these regulatory tools may not have been utilized on the scale that one would wish, they do exist and are available to be implemented when needed. We remain optimistic in terms of believing that the right tools will be identified which will allow potential issuers to enter into the market and thereby increase their numbers. Unfortunately, to date we have not achieved the expected results. But, again, the regulatory tools are in place and available.

The other issue which Omar addressed is investment instruments. Specifically, he mentioned that pension fund administrators manage enormous amounts of capital. I understand that the investment parameters involved in these situations need to be commensurate to the amount of assets involved. Although there is no plan to directly regulate investments made by pension fund, private-capital fund and mutual fund administrators, there are plans to provide oversight to these types of vehicles. They have experienced an enormous amount of growth within our market. We are extremely proud of this evolution and will never lose sight of the potential for growth which they possess. But we believe that they are tools which should be developed via these types of investment vehicles.

We are also currently working on a draft bill for the private-capital fund sector, which will permit these funds to utilize much more clearly delineated parameters in terms of the governance mentioned by Omar. The forthcoming presidential decree will permit them to delegate certain operational tasks required to manage serrated funds. I hope that this type of initiative will lead to a situation in which the portfolios generated by pension fund administrators are better matched to private-capital funds. This is to say, that pension funds maximize their yields as they become able to incorporate these types of assets into their portfolios.

It should be noted that there is already a provision whereby investment schemes may operate fairly unfettered. We know that each of the funds utilizes categories which have very well-defined investment parameters. Therefore, it is not currently necessary to modify said investments schemes; at least in terms of attracting these types of assets. This is because they possess the freedom to act and the regulatory framework in no way impedes their ability to operate. Therefore, all that needs to be done is for them to capitalize upon the opportunities available within this asset class, as well as to avail themselves the diversification offered by said funds.

Omar Rueda:

I wish to make an additional comment on private-capital funds. Although this industry manages COP 14 billion in assets, at times I am very concerned that the current regulatory framework includes an investment cap for institutional investors which places national and international investments under the same threshold. I have noticed a dynamic in which are institutional investors are impacting Colombian funds through their decision to invest in international funds.

This is, by no means, but a bad thing in and of itself. Logically, when one analyzes a given fund or performs the necessary due diligence, it is much easier for an international private-capital fund to do this than its Colombian counterparts. But this dynamic is having an effect. When one analyzes this industry in Colombia, we have not continued to see new, local private-capital fund issuers entering the market.

In spite of the impact this dynamic has had on sector size, when we analyze the expected returns of local funds, we continue to see that they are outperforming their international counterparts. Therefore, in this instance I feel that it is time to consider including an additional threshold specifically designed to address assets flowing in from the local market.

What makes this type of measure so desirable? In response to the first question posed by Juana, it would allow us to access other types of funding generated by this investment class. For example, institutional investors would be able to provide capital to the FinTech sector. The issue of governance is covered, and its level of corporate governance fully complies with the exigencies of institutional investors.

I believe that, if we fail to appropriately address this issue, we will begin to see private-capital markets gradually disappear from the Colombian market.

Felipe Lega:

Your remark regarding the behavior of investors in the case of local, private-capital funds is especially interesting. In these instances, the normal expectation would be that the market would rationally respond to an opportunity to achieve higher returns. If local private-capital funds have an expectation of achieving higher returns, their fund managers would necessarily begin to allocate assets into local funds, as opposed to their international counterparts. I think that we need to look more deeply into this issue.

For years, there has been a great deal of discussion regarding what the most appropriate strategy might be in terms of regulating investment schemes. However, we also need to talk about why such a regulatory framework may serve to restrict markets.

Private-capital funds can fulfill a wide variety of roles. For example, we can utilize them to finance all of the projects we mentioned at the outset. Fortunately, Colombia has made a great deal of headway on this front. This strategy has paid major dividends in terms of funding highway construction, as well as in terms of other sectors within the economy. It also has the potential to finance and drive sectors such as FinTech, as Oscar mentioned.

The whole crowdfunding issue, which is also addressed in the forthcoming decree, has the same potential. It is a phenomenal way to bring these types of investment options to individuals seeking to invest excess capital. Crowdfunding also has the capability of generating the resources needed to launch projects throughout a wide variety of sectors within our economy. Once underway, these projects can then begin to work to attract investment capital on a larger scale from investors such as pension funds. Therefore, crowdfunding has a tremendous potential in terms of being an economic catalyst.

I believe that these types of investment vehicles are solving many of our funding problems, as well as optimizing the ability of funds to maximize returns.

Fortunately, Omar, I think we essentially agree on all of the major points involved here. And that is a great indication of how things will evolve in the near future. Furthermore, we refer here to tangible measures included within the existing market regulatory framework, and not simply things that we wish our market had access to.

CHARTER III

CURRENT AND FUTURE DEMOGRAPHIC TRENDS

RAFAEL PUYOL. A practical guide to demography and pensions.
NATALIA ROLDÁN. Health and social resources.
SANTIAGO MONTENEGRO. The nonviability of the PAYGO pension systems in Latin America.

A PRACTICAL GUIDE TO DEMOGRAPHY AND PENSIONS

RAFAEL PUYOL[1]

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Initial thoughts

The Positivist philosopher Auguste Comte was the first to state that demography is destiny. This assertion is more relevant than ever given the influence that demographics have exerted and, more importantly, will continue to exert on our respective economies and societies. Individuals are becoming increasingly concerned about pensions, healthcare, natural resources, global warming, and dependency rates. They are also increasingly aware that demography has a role to play, or at least something to say, about these types of issues. In fact, many in society blame demographics for the so-called welfare crisis, as well as the bleak outlook which has overtaken the horizon. In reality, more often than not they do not even comprise the primary contributing factor. However, we ignore their relevance in certain socio-economic processes at our peril, because this will only lead to their ramifications becoming irreversible. At the end of the day, this is the main issue which we need to address, and which comprises the central thesis of this text.

1) What is my initial hypothesis?

The issue could not be clearer. Demographic factors currently impede the sustainability of pension systems based exclusively on a funded model. With time, this problem will only exponentially worsen.

This assertion is especially true for demographically-advanced societies, which are in the final phase of demographic transition and demonstrate the characteristics of the so-called second transition.

However, as developing nations are currently undergoing the same processes as their developed counterparts, they too will face the same set of challenges. Given the current dynamic within the developing world, the horizon for these challenges is becoming increasingly shorter.

This is especially the case in Latin America, which has demonstrated the fastest demographic trajectory within the developing world. In Asia, for example, the demographic dynamic has evolved much more slowly. And in sub-Saharan Africa, the process has only just begun.

2) What are the fundamental demographic variables at work within funded systems? Do other socioeconomic factors need to be taken into account?

The two primary factors involved here are the steep drop in birth rates and the intensity of population aging that is currently occurring. These two factors are of paramount importance and society cannot afford to get sidetracked in terms of our efforts to address them. As a result, it is important to clarify a few issues.

a) Population aging is measured in relative terms. An aging population is characterized as such if the total number of individuals over 65 exceeds a given percentage of the total population; e.g. 10%. It should be noted that this notion, which has been utilized for more than a century, is currently under review. Demographers are beginning to utilize a rolling threshold which operates vis-à-vis life expectancy rates. As result, individuals will no longer be considered older adults by simply reaching the age of 65. They are now considered older adults when their life expectancy reaches 15 years. In 2016, the life expectancy in Spain was 83 years for both sexes. Therefore, the Spanish aging threshold was set at 68, instead of 65.

   Due to the fact that these calculations are not the most expedient benchmark in every national context, for the purposes of this discussion the threshold of 65 years of age is utilized to define the process of aging.

b) Historically, the primary cause of population aging was the decrease in birthrates combined with lower infant mortality rates. These factors tend to constrict the base of the population pyramid. A decrease in the number of young people within a population translates automatically into a proportionally larger adult, then older adult, population.

c) For their part, increases in longevity exert a number of effects on the top of the pyramid. In short, they serve to expand the upper portion of the pyramid.

d) As a result of the foregoing, the intensity of the population aging currently observed in developed nations is due to increases in longevity (i.e., more older adults), as well as drops in birthrates (i.e., fewer young people).

e) If drops in birthrates initially trigger population aging, then reversing birthrate trends is going to be an extremely difficult undertaking. This is why demographers believe that the correlation between low birthrates and population aging is so strong.

f) In terms of pension systems, other demographic factors which contribute to population aging – and therefore must be addressed – include the following:
   - The majority of the developed world, in addition to many developing nations, is currently undergoing what we term a demographic inversion. This is due to the fact that the under-25 population comprises fewer inhabitants and is proportionally smaller than that of the over-65 population. The quintessential example of this dynamic is Japan, where older adults comprise 26% of the population. This figure is exactly double that of the nation's young people (13%).
   - Population aging is especially marked among women. Throughout the world, more males are born than females. The current ratio is 106 male births to 100 female births. Throughout most of the world, this gap levels off at 50 years of age. However, after age 50 the ratio of women slowly climbs. At age 65, there are 108 women for every 100 males. At age 80, there are 142 females for every 100 males. And at age 90, there are 216 women for every 100 men. Marriage-minded gentlemen who make it into their 90s will eventually have their pick of mates.
   - Population aging builds inertia over time. The older cohorts in our populations are growing the fastest. In fact, the over-80 population is the fastest growing demographic on the planet. The phenomenon of over aging is most exemplified by the growth in life expectancy rates of individuals aged 65. Currently, a person reaching age 65 can expect to live 19 years if they are male and 23 years if they are female. By 2050, life expectancies for these individuals will have respectively increased to 23 and 27. As one can see, inertia within the older adult cohorts is increasing exponentially.

3) How have birthrates involved within the developed world?

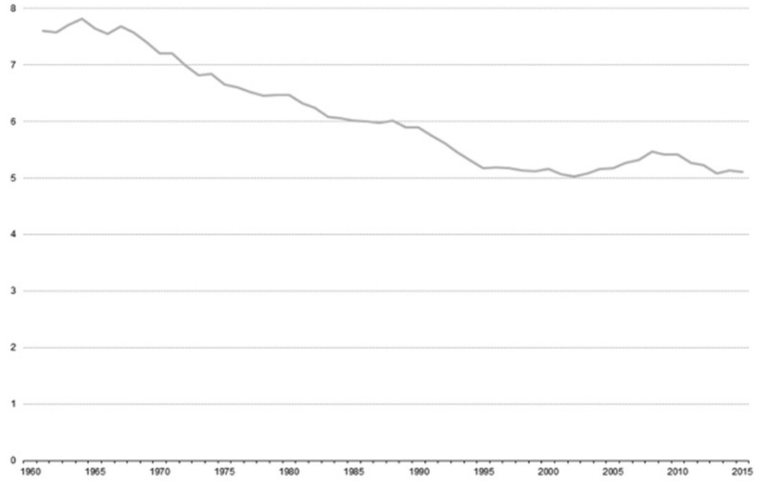
I believe that the case of the European Union is especially useful, whereas the EU has already navigated territory that every other nation on earth will eventually have to cover, too.

Although during the period 1960-2015 the total population of Europe increased, the actual number of births decreased (Illustration 1). In 1964, the European birthrate reached its apex of 7.8 million for the period in question. By 2015, the indicator had fallen 35% to 5.1 million.

Europe's low birthrate is best examined vis-à-vis the fertility rate – which is currently below the replacement level. The European Union median is 1.58. In some nations, it even reaches what we categorize as *lowest-low fertility*. These types of scenarios, involving values below 1.5, are caused by a decrease in the number of reproductive-aged women. In many nations, it is also the result of women opting to have their first child after the age of 30, or at times even after the age of 32.

ILLUSTRATION 1

NUMBER OF LIVE BIRTHS. EU-28, 1961-2015 (MILLIONS)



SOURCE: EUROSTAT.

If such low fertility rates – of 1.3 or even less – continue apace in the absence of immigration, they will ostensibly result in a population decrease of 50% within 45 years. On the other hand, a moderate immigration rate of 1.7% will serve to maintain population stability.

The real challenge of these low fertility rates is that they are almost impossible to counteract. In 2005, demographer Peter McDonald theorized that a critical fertility threshold exists. He set this threshold precisely at 1.5 children per woman, and stated that falling below said level triggers a series of events that make it extremely difficult for a nation to turn the demographic tide.

Allow me to review three of the factors covered by McDonald. To begin with, a scarcity of reproductive-aged women means that individuals within said cohort are essentially obligated to undertake a superhuman effort to maintain or increase the number of live births. Secondly, the existence of many small families in one generation typically leads to even smaller families in the succeeding generation. Even if a family manages to have the same number of children, the pattern is clear: small families lead to small – if not smaller – families and ensuing generations.

The third issue involves the new mechanisms established by USC economist Richard Easterlin. According to the Easterlin hypothesis, fertility rates increase during periods of upward intergenerational mobility; i.e., when children believe they will live better lives than their parents. Conversely, fertility rates are observed to decrease during times of downward mobility; which is to say, when offspring perceive that their prospects for living a better life than their parents are fairly limited. One can explain the baby boom of the period 1945-1960 through the use of the upward mobility factor, whereas the recent decrease in the birthrate in the wake of the 2008 financial crisis is best explained by a more pessimistic outlook.

Although one cannot make a determination on whether or not the current fertility rates of 1.3 or below observed in many nations are permanent, we can safely say that a miracle will need to occur for these societies to turn the tide. In short, the history of European birthrates in modern times is an excellent case study which the rest of the world should take note of.

In terms of the aspects of this dynamic which are germane to our present analysis, the principal outcome of such a sharp drop in birthrates is a reduction in the size of the two principal cohorts which comprise the younger portion of the population in Europe; i.e., the group comprised of the 0-to-15 cohort, as well as that comprised of individuals aged 15 to 29.

4) Are aging and longevity reversible phenomena?

Having clearly delineated the factors which contribute to aging, we should ever fall confuse aging with longevity. Longevity is a separate, absolute concept which refers to the length of the lifecycle in a given species. This is to say, almost every species on Earth – except the *Turriptosis nutricula* – currently has a finite lifecycle. This jellyfish seems to be the only living organism which has managed to achieve biological immortality. The death of death, as proposed by Singularity University professor Luis Cordeiro, is not something which the human race will be experiencing in the near term.

The current longevity record is held by Jeanne Louise Calment of France (Illustration

2), who lived 122 years, five months and 14 days. It is reasonable to expect that this record will be beaten any day now, because more and more individuals are making to their eighth, ninth and even tenth generation of life. In fact, a new adjective known as *supercentenarian* has been created to describe the population of individuals over the age of 110. A figure which is habitually cited is that there are currently 170 centenarians per one million inhabitants. This translates into 1.2 million centenarians on the planet. The majority of these individuals are concentrated into the so-called blue zones in which a combination of genetic, environmental, social and nutritional factors, among others, converged to boost longevity levels. One of the five blue zones located on the planet is located right here in Latin America: the Nicoya Peninsula in Costa Rica.

ILLUSTRATION 2
JEANNE LOUISE CALMENT

Now it is time to answer the question put forth at the beginning of this subsection. Are aging and longevity reversible phenomena?

Aging in individuals is not, in fact, reversible. This is to say, a person cannot travel back in time. However, many of us simply choose to defy the laws of time and space. And many in modern day society achieve what can only be described as miraculous outcomes. As a result, in statistics we actually factor in the tendency within the female population to shave a few years off their age. Some simply opt for sticking to a favorite age during an extended period of time. As one older Spanish woman stated, "I am not sure exactly what age I am. Between my shaving years off – and my friends stacking them back on – it's frankly pretty difficult to keep track." To be sure, many older gents also avail themselves of the opportunity to knock a few years off their ages.

Similarly, reversing the effects of collective aging is no small undertaking. Some headway can be achieved via two routes. One option is increasing birthrates. This alternative will first translate into a larger 0 to 15 cohort, and then into a larger young adult population. Clearly, these two effects will eventually generate a better young adult to older adult ratio within society. As one might suspect, however, this type of strategy takes years to even begin to show results in the medium and long term.

Immigration is a second route. Immigrants immediately drive growth among a nation's young adult population, and the children which they eventually have help to drive growth within the 0 to 15 age group. Clearly, this also translates into higher birth rates. Therefore, in the opinion of most experts immigration is the quickest solution to the demographic equilibrium question.

We need to be clear about one thing though: even the combined effect of these two measures will only slightly slow down population aging. Increasing the number of live births and immigrants within the nation will never reverse the dynamic. The quantities of births and immigrant inflows involved would simply be astronomical.

5) What is the aggregate impact of low birth rates and rapid aging?

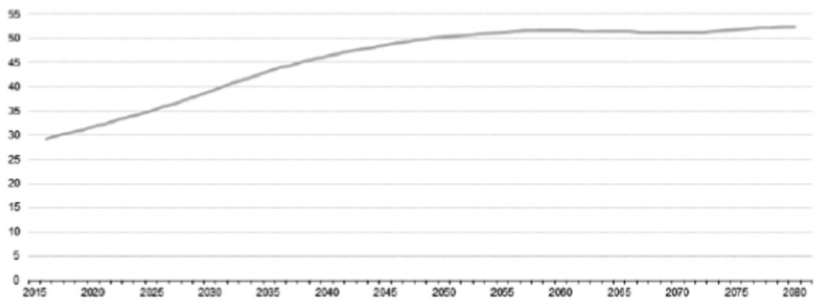
Low birth rates eventually cause a major issue in terms of adequately supplying the base of the workforce pyramid. Spain is an especially interesting example in this respect. Between 2016 and 2031, the 18-to-49 cohort will decrease by 3.7 million. This same dynamic will occur in other European nations with low birth rates (e.g. Germany, Greece and Italy).

On the other end of the age pyramid, increases in longevity are going to substantially increase the number of individuals within the over 65 cohort. Furthermore, the over 80 group will experience the most dramatic increase. Within the European context, the over 65 age group is going to do to the arrival of the baby boomers.

Given this demographic scenario, the lack of equilibrium in terms of the ratio of workers who actively contribute to pensions to older adults who receive pensions will steadily evolve until it reaches a point of no return. This is because life expectancy at age 65 will theoretically never stop increasing.

In the European Union, the older adult dependency ratio was 29% in 2015 (see Illustration 3). This translated into a bit more than three working age individuals per every inhabitant over age 65. Unfortunately, the ratio is on track to hit 50% by 2015, which loosely translates into two workers per inhabitant over 65.

ILLUSTRATION 3
OLDER-ADULT DEPENDENCY RATIO. EU-28, 2016-2080



SOURCE: EUROSTAT.

Clearly, the situation only grows worse when we take into account the total dependency ratio. The current rate is already 50%; which is to say, to economically-active individuals per dependent. By 2050, the rate will have grown to 70%, or 1.3 workers per pension recipient. These figures are always a bit abstract because we are dealing with a pool of potential workers which includes individuals who are employed as well as those who lack employment. If we use an indicator which measures the correlation between contributors and pensioners, the situation is not much better. According to August 2017 data, Spain was home to 12.3 million contributors and 9.2 million pensioners. Even though this particular month was exemplary in terms of employment levels, the ratio was 1.9 contributors per pension recipient – a figure which is far below the needed 2.5 active workers.

Proponents of funded systems – i.e., public pension systems – argue that demographics are not the only factor involved in the current failure of such schemes. These individuals, who are clearly not big supporters of capitalization systems, often stress the determinant role a nation's economy can play in inhibiting the efficient operation of a funded system. They also state that said pension frameworks are potentially viable based on the following arguments:

a) *Increases in unemployment rates have the potential to drive concomitant increases in the number of workers contributing to pension plans.* Several factors would lead a thinking individual to suspect the veracity of this argument. In Spain, the current number of unemployed workers is approximately 3.7 million. If we add this figure to the current total of contributors in Spain, we would still only have 22 million. If we divide this by 9.2 million pensioners, the resulting 2.3 economically-active individuals per pension or falls far short of the 2.5 workers needed to make the funded systems sustainable.
b) *The complete eradication of informal sector work, especially in nations still capable of capitalizing upon the demographic dividend due to their relatively young populations, will turn the tide.* As the case study put forth by Montenegro, Llano, Fajury and García on Colombia proves that this too would fail to convert funded systems into viable options.
c) *Increases in productivity levels will solve the problem.* While this would definitely go a long way to addressing the disequilibrium issue, it has no measurable probability of converting funded systems into practicable solutions to our pension problem. This is because the productivity levels involved would be so high. Additionally, economies would have to pursue these ostensibly unattainable levels in spite of the fact that their workforces are aging so rapidly.

The critics of individually-funded pension systems also argue that while it may be difficult to meet pension obligations, the State always has the option to utilize other funding sources. This may be so. However, we no longer refer here to the sustainability of a funded system. We have moved on to the issue of funding a scheme through general tax revenues or special measures such as the tax proposed by Pedro Sanchez, the secretary general of the Socialist party of Spain, who states that a specific tax should be levied on the banking sector.

6) How and when did the Bismarck pension model become obsolete?

ILLUSTRATION 4
BISMARCK

The pension system introduced by Bismarck is no longer viable due to two major factors:

a) When the system was introduced in 1889, life expectancy in Germany was 35 for men and 38 for women. The current life expectancy for humans is 80 years.
b) At the time the Bismarck model was launched, the average retirement age in Germany was age 70. Very few individuals lived this long in 1889. Furthermore, the system was unjust from the outset due to the fact that wealthier Germans tended to live significantly longer than their counterparts of more limited means.

In the decades following its initial launch, the life expectancy of the average German helped the Bismarck model remains sustainable. However, as life expectancy began to climb – and the mortality gap between rich and poor begin to close – the funding model became increasingly unsustainable. The world probably owes Bismarck a great deal in terms of his ability to introduce voting rights, social protection measures such as medical insurance, accident insurance and of course the aforementioned public pension system. Clearly, he cannot be faulted for failing to predict the huge demographic shift which has taken place and rendered his system almost completely unviable.

7) How has Western society reacted to the lack of equilibrium between active workers and dependent adults?

Several demographic, inter alia, measures exist that are capable of generating an impact upon pension models. However, these effects will only serve to treat the symptoms – and not the root cause – of the equilibrium gap between economically-active individuals and pensioners.

a) Demographic measures:

Two factors ensure that a population maintains itself at a given level or grows. Immigration inputs can help in the short term, and increases in birth rates are capable of exerting influence in the mid to long term. In the EU-28, the current demographic growth is 85% due to immigration and 15% due to natural causes; although twelve nations are actually experiencing negative growth. The EU-28 is currently home to 60 million immigrants who represent a little over 10% of all inhabitants; a figure below that of the United States, where the immigrant population comprises 13% of the total.

In terms of the present text, the most interesting facet of the European population is the structure of its younger age cohorts. It is an eminently active population. This dynamic contributes significantly to the birth rate, even as it serves to decrease the rapidity with which its population ages.

While immigration has a positive effect, it will never comprise a panacea to the EU's economic and demographic problems. Its contribution to the native population decreased after the Second Generation. It should also be remembered that immigrants also age. Additionally, the supply inputs involve fairly limited sources, except in the case of Africa.

Immigration is producing a conflict between the marketplace and the State in our societies. This is because businesses require foreign labor, while States tend to put up barriers to immigration in reaction to political pressure from inward-looking factions. Racism and xenophobia was once limited to extremist and ultra-right wing elements within society. However, they are slowly becoming more accepted. In fact, they have even worked their way into conservative, mainstream party platforms.

Another strategy for remediating the demographic situation is to drive internal growth through the use of proactive family policy. There is a measurable correlation between the existence of this type of public policy, on the one hand, and increases in fertility and birth rates, on the other. Nations such as Sweden, France and Great Britain have generated solid public policy which has translated into these nations outpacing societies such as Portugal, Greece and Spain, where leaders have put forth much less decisive measures.

Two other strategies for increasing the number of individuals within the economically active population, and remediating the active worker to dependent adult ratio, are to inject more women into the workforce and increase retirement ages. These strategies have been utilized in 23 of the 28 nations which comprise the European Union. The median retirement age varies between 65 and 67 years, but several countries are currently taking steps to increase their retirement ages to 70. Due to the lack of young people in the base of the labor pyramid caused by a steep drop in birth rates, nearly every nation within the EU is considering ways to ensure older adults remain within the workforce for longer periods of time. The aim is twofold. On the one hand, societies are attempting to remediate their active worker to dependent individual ratios, as well as drive employment rates.

Many firms are introducing new strategies such as part-time employment, job changes, lateral career paths, working from home, project-based positions, reductions in work weeks, and extending vacation time. Many have also taken measures to address accessibility issues within the workplace, career training and the formation of intergenerational workgroups in which seasoned professionals provide valuable mentoring support.

Given increases in life expectancy, as well as in terms of healthy life years (HLY), longer work lives are going to become more widespread. Longer careers will mean that firms and other entities will need to develop training regimes to address, inter alia, job transitions later in life. The job market will also need to come up with innovative ways to handle early retirement and other such issues.

b) Measures that impact pension systems; i.e., adjustments to parametric and structural criteria:

Initial efforts have included changing the criteria utilized to calculate pensions. These measures have included the aforementioned increases in retirement ages, minimum contribution thresholds for 100% payouts, the manner in which payouts are calculated and adjustments to the revaluation index. Every EU nation has undertaken these types of reforms. Furthermore, many have introduced an automatic adjustment mechanism which helps regulate certain pension parameters; all with an eye to increasing sustainability.

In terms of structural reforms, no nation within the EU has completely replaced funded systems with capitalization schemes. What *has* occurred is that States have often increased the footprint of capitalization schemes. This has been achieved by providing a basic pension or a contributory pension financed through the use of funded-system resources. During the period prior to the launch of capitalization systems, some nations have introduced notional accounts which remain, at the end of the day, funded systems – albeit a bit more sophisticated. This approach has been utilized in Lithuania, Poland, Italy and Sweden.

8) Can the European demographic model be reproduced in other regional contexts?

Factors such as decreases in the birth rate, increases in population aging and longevity are no longer the sole purview of the industrialized world.

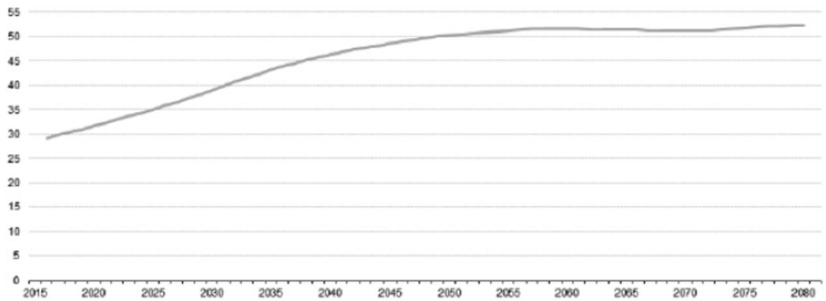
These processes are going to play out, to one degree or another, in every nation on the globe and will define the first and second demographic shifts which will be taking place.

The most likely order of events will be a drop in general mortality, followed by decreases in infant mortality, decreases in fertility/birthrates, demographic aging, and increases in longevity rates.

Illustration 5 provides an opportunity to ascertain what is occurring in terms of fertility rates birthrates.

ILLUSTRATION 5

DISTRIBUTION OF WORLD'S POPULATION, BY TOTAL FERTILITY LEVEL



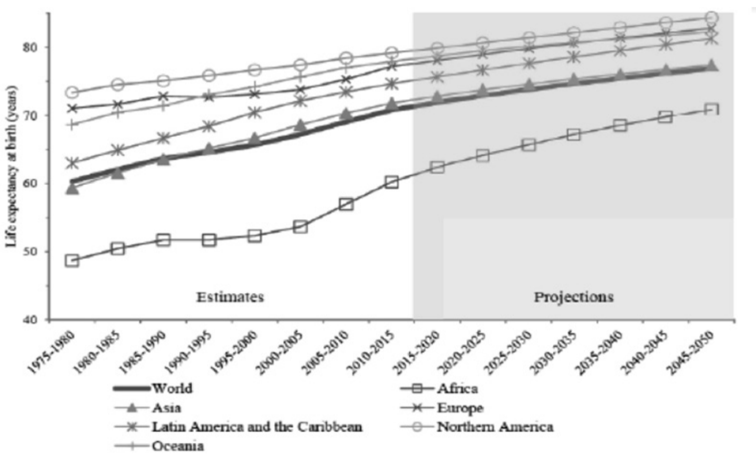
SOURCE: EUROSTAT.

During the period 2010-2015, 46% of the world's population lived in nations with fertility rates under 2.1 children per mother. Low fertility nations included all of Europe and North America, 19 nations within Asia, eight within Latin America, three within Oceania and two within Africa.

By 2040-2050, it is expected that 69% of the world's population will live in nations where women have less than 2.1 children. A concomitant increase in life expectancy, as seen in Illustration 6, will occur across the planet.

ILLUSTRATION 6

LIFE EXPECTANCY AT BIRTH, BY REGION (YEARS)
ESTIMATES (1975-2015) AND PROJECTIONS (2015-2020)



SOURCE: UNITED NATIONS, DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS, POPULATION DIVISION (2017).

This twofold process will in turn generate larger older adult populations. As demonstrated in Illustration 7, by the year 2050 the older adult population will surpass 1.5 billion individuals. It is also clear that every rate listed points to a generalized trend in population aging, except for nations within Africa. We can safely say that, at least within the 30-year horizon, population aging will be a globalized phenomenon.

ILLUSTRATION 7

FERTILITY RATES IN LATIN AMERICA
(STATES WITH OVER 1 MILLION INHABITANTS)

A) Under 2.1 children per mother

Nation	*Millions of inhabitants*
Brazil	207.9
Colombia	49.3
Chile	18.4
Cuba	11.3
Costa Rica	4.9
Uruguay	3.5
Puerto Rico	3.4
Jamaica	2.9
	301.6 (46.90%)

B) Between 2.1 and 2.5 children per mother

Nation	*Millions of inhabitants*
Mexico	129.2
Argentina	44.3
Peru	31.8
Venezuela	31.4
Ecuador	16.8
Dominican Republic	10.7
Honduras	8.9
Paraguay	6.8
El Salvador	6.4
Nicaragua	6.2
Panama	4.1
	296.6 (46.90%)

C) Between 2.6 and 3.0 children per mother

Nation	*Millions of inhabitants*
Guatemala	16.9
Bolivia	11.1
Haiti	10.6
	38.6 (6.00%)

9) What is the outlook for Latin America?

In my judgment, the best strategy for predicting what will occur begins with an analysis the two primary factors involved here: fertility and population aging. In terms of fertility, Latin America has experienced a decidedly downward trend (see Illustration 7). Eight nations are already under the minimum replacement rate at levels close to 2.1 children per woman. As one can see, the two groups below the 2.5 ratio comprise 93% of the Latin American population. Only six nations within the region are currently generating 2.5 children per mother, and their populations only constitute 6% of the region. The Latin American fertility rate has never been so low, and current projections estimate that the trend will continue well into the foreseeable future. In terms of aging, the situation has improved due to the high birth rates in the past because they insured that the population of younger individuals remained larger than that of their older counterparts. Only five nations within Latin America have an over 65 population which comprises more than 10% of the total population, and none have yet undergone the inversion of the demographic pyramid; i.e., a percentage of older adults (over 65) which is greater than that of young people (aged 0-15).

However, the steep drops in birth rates would seem to indicate that an equally steep increase in aging is about to overtake the region due to the cumulative effect of these two factors combined with a generalized increase in life expectancy rates. In terms of demographics and with the exception of Guatemala, Bolivia and Haiti, Latin America is currently well within the last phase of the demographic shift characterized by low birth and death rates, and moderate population growth. During the period 2025-2030, the aggregate fertility rate of Latin America and the Caribbean will be 1.8. By 2045-2050, it will have dropped to 1.77 and only the aforementioned three exceptions will maintain national rates above 2.1 children per mother.

The median life expectancy level for men and women will reach 78 during 2025-2030, and climb to 81.3 by 2045-2050; i.e., only 1.5 years below the EU median. These issues clearly show that the aging process is already underway. By 2030, the over 65 population will comprise 12% of Latin America, and by 2050 will have reached the current EU level of 19.4%.

Therefore, Latin America is clearly following the same demographic trajectory as Europe; albeit with one important exception. Latin America is going to achieve lower fertility levels, higher life expectancy rates and significant levels of aging on a much shorter timeline.

However, the region is currently better position than the EU and must, at all costs, ensure it avoids the demographic scenario which the Union is currently facing. Of course, the aging dynamic remains fairly unavoidable. Increases in life expectancy and longevity are also things which cannot and should not be counteracted. These two indicators represent major progress for mankind. Their respective economic and social impacts can be lessened if nations simply ensure that their 0-to-15 age cohorts remain at reasonable levels. In order to achieve these levels, we will need to ensure that fertility rates do not fall too far under replacement rate 4. Rates of around 1.7 to 1.8, combined with a slightly positive or steady immigration flow, would be capable of generating a fair amount of equilibrium. At any rate, what must definitely be avoided are fertility rates which fall below 1.5 children per mother, as is currently occurring in Puerto Rico (1.3). These extremely low fertility rates are also a fact of life in Brazil, Costa Rica and Cuba.

When fertility rates fall below 2.1 children per mother, something needs to be done in terms of generating proactive family policy. A quick, measured reaction to this issue is more than capable of preventing steep drops. A well-timed response would also help nations avoid the long-term ramifications of such decreases.

In terms of pensions, one thing is clear. From the demographic perspective and given a scenario involving a solely funded system, the marked lack of equilibrium in the active worker to older adult ratio, which is so often observed in European society, makes funded systems unviable options. In light of the foregoing, returning to funded systems – or trying to keep existing schemes afloat – is a very unworkable plan of action. What we have seen play out in the vast majority of European nations should serve to clarify to the rest of the world that they need to pursue pension frameworks which involve some type of capitalization system component. Failure to do so will only serve to perpetually complicate efforts to remediate falling replacement rates; not to mention, only add fuel to the fire in terms of working-class frustration.

The experience of Europe is not, per se, a great example of what needs to be done. Rather, it should serve as a lesson in what nations should not do. As result, lessons learned in Europe should ostensibly prove of great value to regions throughout the globe.

10) What is the outlook for Colombia?

Colombia is no exception to what is occurring in the rest of Latin America. After having reached a level of 6.76 during the 1960s, its current fertility rate of 2.0 children per mother is slightly below the replacement rate. Fortunately, aging is currently tracking at 8%; but things are moving quickly and the demographic dividend provided by Colombia's 0-to-15 population (26%) will gradually taper off. Its fertility rate is set to reach 1.6 children per mother by 2030 (Illustration 8), while its number of live births is estimated to fall by 500,000 during the period 2015-2030. The median life expectancy in Colombia (Illustration 9) is set to increase, while its population of young people is expected to decrease. Evidence indicates that its over-65 population will increase 13% by 2030.

ILLUSTRATION 8

TOTAL FERTILITY

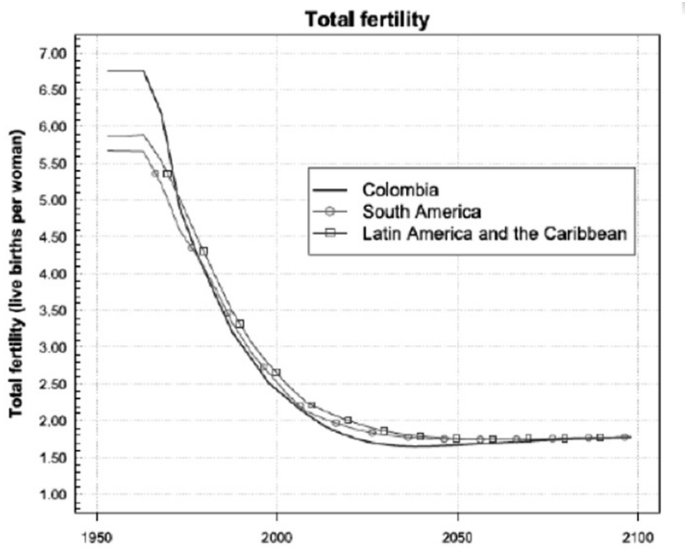
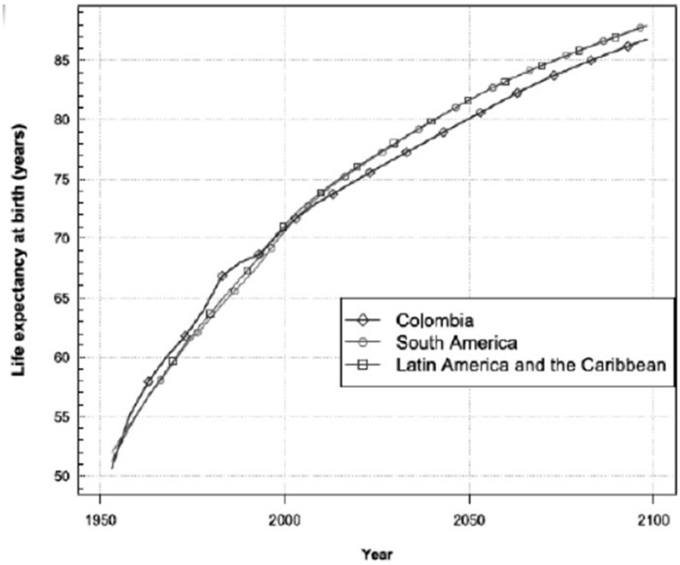


ILLUSTRATION 9
LIFE EXPECTANCY



As throughout the rest of Latin America, Colombia is going to undergo the same demographic shift which occurred in Europe. However, the change will take place even more quickly than in the rest of Latin America and the EU. Although Colombia will experience this change later than most of its neighbors, everyone is free to draw their own conclusions regarding what the final impact will be on the national pension system; not to mention, on other social outlays.

Allow me to reiterate one of the main theses which I am attempting to assert in this text. Given the current state of affairs of our respective national demographic scenarios, funded systems in the strictest sense of the word are no longer viable alternatives. We cannot afford to waste time on fruitless endeavors, whereas time is our most precious commodity in terms of generating a viable response to society's near-term challenges.

HEALTH AND SOCIAL RESOURCES

NATALIA ROLDÁN[1]

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In this brief text, I wish to address the healthcare services which are so vital to caring for older adults during the aging process.

Once a system is in place which provides an individual the economic resources required to address the challenges of aging, how should they then utilize said funds to obtain, for instance, specialized care? How should one go about addressing the issue of long-term care options during the aging process?

Clearly, every nation has seen life expectancy rates increase in recent years. Healthcare services will need to keep pace with this evolution. Factors such as improved living conditions, preventative practices, and the evolution of technology, science and medicine have resulted in longer life spans. This means that long-term care is more relevant than ever. This type of care comprises a challenge in a wide spectrum of national and economic contexts. Two other major issues which have impacted the long-term care issue are the decrease in the number of family members and the integration of women into the workforce (see Figure 1).

FIGURE 1

SOURCE: AUTHOR.

I. Regional structuring and care systems

I wish to share some remarks regarding Spain's experience to date with regard to the implementation of its *Law for the Promotion of Personal Autonomy and Care for Dependent Individuals* (LAPAD) legislative package which was introduced in 2006.[2] In order to effectively address LAPAD, we first need a bit of context concerning the territorial parameters involved. Spain is comprised of 17 autonomous regions and two autonomous cities. These, in turn, are divided into 8124 incorporated municipalities.

How did this issue impact LAPAD implementation? Although these healthcare and social services entities fall within the purview of a single ministry at the national level, the entities are fairly autonomous in terms of their respective operational scopes. This is to say, each autonomous region operates its own healthcare and social services entity. Additionally, municipal governments have the option to make improvements upon the general framework implemented within their respective communities.

There is an entire series of significant events which one can point to in terms of the evolution of LAPAD health and social care initiatives. However, I have attempted to narrow these down to the points which are, ostensibly, of greatest relevance. In terms of the medical care system, which has always entailed a greater degree of coverage and financing, the aforesaid regional variances have led to the implementation of the *National Healthcare System Standardization and Quality Act*, which was introduced in 2003.[3] The law was enacted in order to delineate the service range which – regardless of where they might live within the nation – every Spanish national has a right to receive.

In terms of the framework utilized to deliver social care, we got started a bit later. One of the most significant events occurred in 1988 when the Plan to *Standardize Basic Social Services Delivery was introduced*. [4] The initiative was designed to address the issue of collaboration between the State and autonomous regions, in order to ensure that municipal governments have the economic and technical capacity to provide care to their most vulnerable populations; which is to say, individuals in danger of being marginalized within society. Once the system was launched, it rapidly became evident that many of the individuals within this demographic were older adults.

2 *Ley de Promoción de Autonomía Personal y Atención de Personas en Situación de Dependencia (LAPAD).*

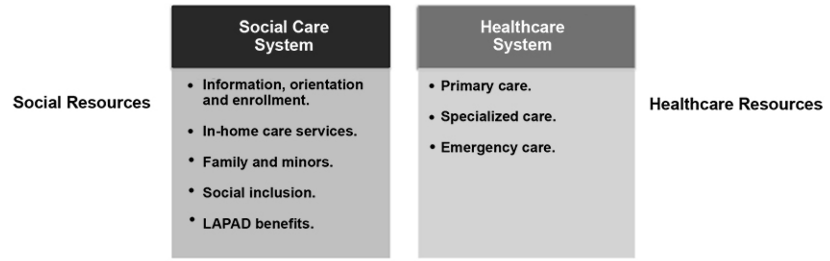
3 *Ley de Cohesión y Calidad del Sistema Nacional de Salud.*

4 *Plan Concertado de prestaciones básicas de Servicios Sociales.*

As a result, a determination was made in 2006 that legislation was needed in order to provide a coherent strategy for addressing the societal challenges of aging and dependency. This realization became the genesis of what is now known as LAPAD. In light of the foregoing, a specific service portfolio was established, along with a standardized set of eligibility criteria. Our effort to standardize these issues generated a mechanism by which the level of dependency of any individual can be determined regardless of factors such as age. This ensures that every member of Spanish society has access to the aforementioned needs-based services. Some resources are delivered in the form of economic benefits, while others are delivered as services.

The Spanish medical care system is fundamentally comprised of three levels: primary care, specialized care and emergency care (see Figure 2). Specialized care is available at hospitals and outpatient clinics. In practical terms, all care is divided into healthcare regions which are comprised of the respective hospitals or primary care centers which serve their local populations.

FIGURE 2



SOURCE: AUTHOR.

In terms of pre-LAPAD social resources, even in light of adjustments which have been made to same, a series of basic services were established which basically provide patient orientation and information support in terms of urgent care, emergency care or in terms of citizens who may be at risk of exclusion. In this case, everything is linked to the familial context, where older adults understandably play an important role. There are other issues which are related to social inclusion (see Figure 2).

Within this context in Spain, a series of services and resources are available to care for the population. Unfortunately, they are not integrated. This is to say that, on the one hand, the healthcare system offers a wide spectrum of services, whereas the social care system offers and manages its own schedule of services.

II. Care resources

Clearly, the aging process constitutes a scenario in which individuals require integrated health and social care. It is difficult to correctly diagnose and then treat a medical issue on behalf of an older adult if we are unaware of, or simply fail to address, their broader socio-familial context. In many cases, there are a high percentage of problems generated by a worsening medical issue, precisely due to a lack of support. Normally that lack of support also creates a dynamic in which the older adult has less ability to take care of themselves or prevent some diseases.

In terms of primary care, healthcare resources are fundamentally provided with the family in mind; especially in terms of preventative care issues. For example, campaigns designed to foment healthy aging address the issue vis-à-vis primary care scenarios.

When seeking specialized care, which often occurs when an individual is referred by their primary care physician, individuals are normally seeking a more precise diagnosis. If the patient has a condition which requires hospitalization, they must undergo the relevant medical tests.

Urgent care is provided within a community or hospital setting. Urgent care transportation is also available and may be scheduled as needed by medical staff.

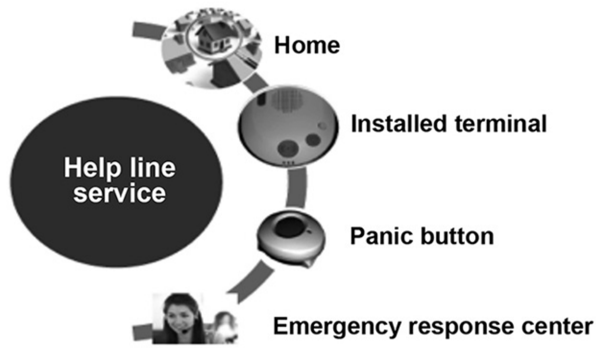
In terms of providing social care resources, Spain's trajectory is fairly long. Although each resource will be mentioned, the plan here is to focus primarily on resources within the purview of LAPAD. This law contains a spectrum of services involving a set of eligibility criteria which is applied to each citizen seeking to access the system and, as a result, establish and individualized treatment program. Why is this the case? LAPAD ostensibly establishes the subjective right of every citizen to request care based on their individual level of dependency. Additionally, it is important to note that in many cases the patient or family is seeking to provide said care within a family setting. As a result, a determination is made regarding household members in terms of their respective social, functional and cognitive ability, in order to identify the most appropriate care strategy. The individual requesting said care is fully involved in the decision-making process. Up until now, medical care was simply provided as a given healthcare professional deemed fit, and many patients and their families were not even apprised of available options. However, patients now have a voice in the process, which is taken into account vis-à-vis their respective family environment, and the advice of medical professionals who then make a determination with regard to the best way forward. In Spain, this option is known as an individualized care program, or PIA (*Programa Individualizado de Atención*).

In terms of at-home care, the Spanish social and health care system basically provides three options: preventative care; care provided via telephone; and, a house-call option. In terms of institutional care, the nation has daytime care centers and residential centers.

The system provides two types of economic benefits. The first involves benefits designed to cover the costs of in-home care by an individual's family. Of course, this presupposes that family members live with the individual and are capable of providing the level of care needed. The second benefit option is related to services. This is to say, if household members are unable to fulfill the previous criteria, they still have a right to request funds in order to pay for a medical professional to provide services within the home.

In terms of the care provided over the phone, it should be pointed out that this option has received extremely favorable evaluations by users. A terminal is installed in an individual's home, and they are given a signaling device which they can utilize to contact a specialized care facility which has experts on staff 24 hours a day. If an emergency arises involving a health care, social services or personal issue, the individual simply presses their signaling device button and are immediately in contact with the appropriate health care or social services professional on staff at the emergency response center (see Figure 3).

FIGURE 3



SOURCE: AUTHOR.

The emergency response center can also be utilized to address the following issues: follow up on preventative-care or public-information campaigns (vaccines, hydration and nutrition); check up on an individual who is recovering from a recent medical or psychological event (i.e., surgery, mourning); or to proactively address chronic pathologies and their treatment within the home, or simply provide support to informal care providers (family members).

It is interesting to note that one of the major challenges we have identified in the aging process is the issue of loneliness. As a result, the telephone helpline has become an important channel for individuals living alone, because it guarantees constant contact is possible with the outside world. Clearly, many individuals have difficulty in getting out of the house on a regular basis.

Additionally, Spain also has a house call service where medical or social services professionals visit individuals at home. An entire variety of services can be undertaken, but they are basically related to personal care and support provided at the individual's residence. The overall aim is to provide older adults with necessary resources in order to ensure they are able to continue living at home as long as possible by fomenting independence and autonomy. The telephone helpline and house call service work hand-in-hand. In my opinion, it is only natural that the two be fully unified in order to optimize the resources expended separately on each, and to increase the levels of reported care quality.

A resource which is utilized within the community setting is the daytime care facility. These centers normally operate between 9 AM and 6 PM. Their goal is to treat a given number of individuals (median: 30) who share a fairly similar state of health. Staff works with individuals in order to prevent or remediate a person's condition through personal support, social care or rehabilitation services (physical or occupational therapy). Normally, this resource includes transportation which picks up an individual and then takes them home once their session is completed. Another major issue is also covered at the daytime centers. Spain ensures that its older adults are fed properly. Daytime centers provide breakfast, lunch and dinner to individuals who are receiving services. In another sense, services provided by the centers provide a moment of respite for the primary caregiver, due to the fact that it allows said individual to pursue a career and endeavor to meet their obligations to their loved one.

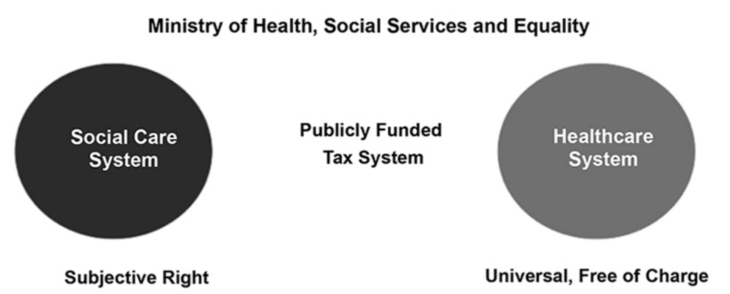
Additionally, direct care is provided to individuals visiting the center in terms of preventative care, checkups or treatment. Preventative services are fairly limited at the centers. The centers are basically designed to address the functional aspects of a condition. However, some preventative initiatives have been introduced to address individuals' cognitive health.

The residential centers have also made have made a great deal of headway in terms of introducing patient-centered treatment to the older adult population. Spain has been fairly successful in terms of increasing the flexibility with which services are provided, thus ensuring care is more tailored to each individual. These older-adult living facilities have slowly begun to combat the interpersonal nature and organizational rigidity with which nursing homes often operated in the past.

III. Experience and sustainability

What has our experience been in terms of service management? Can improvements be made to make the system more sustainable? Definitely. Healthcare and social care need to operate much more interactively with one another (see Figure 4). In fact, in terms of service delivery this issue comprises one of the fastest routes to system sustainability. What makes no sense is failing to tap into the all of the available synergies. Another inexplicable strategy involves an individual having more than one interlocutor. The fact that a person receives more than one health or social care service in no way implies that they require more than one interlocutor. On the contrary, this only serves to ensure that no one is completely clear on what the individual needs.

FIGURE 4



SOURCE: AUTHOR.

This is a good place to delve into a couple of funding issues. Public outlays on the Spanish healthcare system totaled 9.2% of GDP (2.8% of which is spent within the private sector). LAPAD¬-initiative funding, on the other hand, only totals 1% of GDP. This is further evidence that LAPAD is the best money Spain has spent on itself in years. Logically, everyone is fully aware of the fact that any person can access the healthcare system at any point in time. However, we need to focus more on the fact that, at some point in time, we will all grow old. Therefore, every one of us is going to depend on someone to help us deal with the aging process.

In terms of LAPAD, over 1.72 billion requests for care have been submitted by almost 1,000,000 individual users. This is to say, while not everyone in Spain receives benefits, everyone is free to file a request for same. Individuals who fail to receive benefits either fail to meet criteria or are on a waiting list. Eligibility, in terms of an individual's respective degree of dependency, is determined on the basis of need. Based on this determination, the respective care resources are delivered. Furthermore, there are other initiatives available at the local level which provide these same services. People who fail to receive resources always have the option to pursue alternatives available at the local level.

At any rate, beneficiary percentages can be determined through the use of direct resources. 67% of individuals receive assistance via home care, the telephone helpline, daytime centers or nursing homes.

A person's ability to access different types of economic help or different levels of at-home care is determined on the basis of their dependency level, which may be characterized as moderate, high or severe. This variation does not occur in the case of the telephone helpline due to the fact that it functions exactly the same for all users.

What occurs? The health and social care system in Spain indicates clear signs of requiring higher levels of public-private collaboration. Both sectors need to be more proactive in terms of working with one another. This is the only way that Spain will be able to address its collective care needs; especially as Spaniards grow older.

In 2018, EULEN's health and social care services are celebrating 30 years of experience within the sector; much of it within the Americas. Our experience in resource management allows us to have a particularly international and integrated approach, because we have a vast amount of experience within both the public and private sectors. In Spain, outsourcing has proved valuable in terms of public-resource management by private firms. This is merely a delegation of responsibilities and in no way constitutes what one would describe as full-scale privatization of resources. It is very important to understand the difference. This dynamic forces each of the parties involved to identify opportunity areas as well as acknowledge the strengths of the other sector; thus ensuring a continuum of evolution and innovation, in addition to optimizing care resources.

What lessons have we learned at EULEN? In short, societies need to integrate available systems in order to meet the challenges of caring for older adults. It is illogical to duplicate resources and systems, because this means nations must address spending and inefficiency levels which are both twice as high. This only serves to put the sustainability of the entire care system at risk. At the end of the day, the funding issue will always be with us. The challenge involves constantly developing new strategies which increase efficiency. Therefore, anyone who believes that a perfect and definitive model is possible has failed to take into account the constant evolution of society and demographics. These two issues will always mean new challenges. They will also always remain determinant in terms of demand for services. Additionally, technological and scientific advances will always reconfigure the challenges we face in terms of caring for older adults. This is why it is so important to ensure that we have a system in place which involves a constant and continuous monitoring mechanism. In order to do this, however, we are going to need more willingness to collaborate in terms of what model needs to be utilized, and – if I may be so bold – in terms of what funding strategies should be pursued.

Clearly, a great deal more also needs to be done in terms of preventative programs, as well as public awareness, in order to see ensure we are all more conscious of the role we play in caring for ourselves, in order to ensure that the system operates better and for a larger number of individuals.

IV. Conclusions

In conclusion, I wish to share a few tips which I hope will be of use:

1. Growing old is a good thing. We must never lose sight of this, because at times it often sounds as if the opportunity to grow old were a problem. All one needs to do is address the challenges. Every major actor will need to be involved if society is to be successful: those within the public sector, as well as those within the private. I am convinced that, as citizens, we possess the ability to address these issues in a sensible manner. And, if we are going to make headway on this issue, common sense is going to be of paramount importance.
2. Advances in science, as well as living conditions and lifestyles are going to have a direct impact upon the periods of time in which individuals receive long-term care. The two factors simply go hand in hand. As people live longer, their demand for long-term care will increase accordingly. In these cases, one does not speak of a cure; rather, to care. We need to ensure that, as a society, we are investing in professionals capable of understanding the aging process, as well as each of our individual contexts as human beings.
3. Socio-demographic shifts are going to have a major impact, but we must ensure that public policy never fails to address the family framework. We need to

generate higher birth rates, as well as establish intergenerational and integrated systems between different groups within our respective national populations. Nations need to ensure fluid interaction between public policy generated to care for families, on the one hand, and others designed to address infancy issues, employment, education and long-term care. The aim is to ensure that they grow on the same scale and are properly integrated.

The aging process is a major part of what the health and social care system was designed to address. But it is also often necessary to generate housing policy and initiatives. The adaptation of a new dwelling has the potential to increase the time which an individual can live independently. It also helps care services be carried out more efficiently and more safely in terms of both the caregiver and older adult. This, obviously, translates into lower costs for everyone involved. It also ensures that individuals stay connected to their respective communities. The best preventative medicine for individuals is an active, safe and helpful community to live in.

4. The aging process involves certain biological and psychological factors which necessitate the existence of an effective health and social care framework.
5. Society need not create new systems; rather, the solution involves reworking existing frameworks.
6. Care systems need to be flexible in order to respond to the evolving needs of an individual as they grow older.
7. Education, public awareness, prevention and self-care: healthcare and social care systems need to be participant-oriented. This is to say, that before delineating the service to be offered, one needs to define exactly what the necessities are in order to avoid duplicating services and, as a result, costs (see Figure 5).

FIGURE 5

SOURCE: AUTHOR.

8. We need to provide mixed funding and an opportunity for individual users to participate directly and indirectly. If everyone is involved, services need to be designed in order that recipients assume part of the cost, regardless of whether or not there is a direct expenditure on the part of an individual service recipient.
9. Flexibility in terms of retirement ages and fomenting the creation of business projects for individuals after 65 years of age. These types of initiatives will ensure that individuals are active during longer periods of time and the incentivize creation of other forms of health improvement, taking into account the progressively increasing life expectancy vis-à-vis the evolution of conditions within a given nation.
10. Real coexistence and collaboration between public and private sectors.
11. Incentivize a culture of retirement savings. A lot still needs to be done in terms of developing and driving the private insurance sector in terms of old-age dependency. Societies should have the option of choosing between a monetary payout or receiving services in cases where an individual will require around-the-clock care.
12. Ensure that services we are designing today can be utilized by future generations:
    a. Address intergenerational issues such as generational changes in the older adult population.
    b. Decisions in the short term, effective at the in the medium term and vision in the long term.
    c. Utilized in-depth, forward thinking to generate proposals.
13. Using technology within the health and social care sector. As mentioned, officials need access to information within databases. Proposals such as including work history and medical history are two of the many good ideas I have heard at this event. Additionally, we need to consider including social data in order to provide our professionals with more social context in terms of a given individual. Lack of information is one of the primary problems of our current frameworks. A unified database on individuals containing all the variables at work in an individual's life is necessary in order to construct a well-founded, integrated strategy for those served by the health and social care system. It would also help us to ensure we are employing the most inappropriate resources in a given instance.
14. Healthcare and social care systems can generate jobs. The aging process, as well as all the services and resources which will be required to adequately address this issue, collectively comprise an important source of employment. And this is the type of employment which we want to generate: decent, formal-sector employment which pays a living wage and involves individuals who possess a defined skill set. This, therefore, is everyone's responsibility.

THE NONVIABILITY OF THE PAYGO PENSION SYSTEMS IN LATIN AMERICA[1]

SANTIAGO MONTENEGRO[2]

1 *For further references, see Montenegro et al. (2017).*

2 *Santiago Montenegro holds a Master's degree in economics from Universidad de los Andes, an MSc in economics from the London School of Economics and a PhD from the University of Oxford. Currently serves as chairman of the Pension Fund Administrators Association of Colombia (ASOFONDOS) and president of the Trade Association Council of Colombia (CGS). Occupied cabinet level position in Colombia while serving as director of the National Planning Department (DNP). Currently serves as chairman of the board at Interconexión Eléctrica S.A, a multinational energy conglomerate. Member of the Board of Trustees at Universidad de los Andes, and the boards of the Colombian stock market (BVC) and the federal entity charged with regulating said nation's stock market (Autorregulador del Mercado de Valores).*

Summary

Nations within Latin America are in dire need of sustainable, pension frameworks capable of delivering decent pension payouts to their older adult populations. As a result, pension reform efforts must not be derailed by peripheral matters such as remediating a nation's tax revenue issues.

After its launch in 1881 by Otto von Bismarck, the funded system remained viable due to society's ability to comply with an intergenerational contract. At the time, this covenant between the generations was considered to be as eternal as it was just. The scenario remained practicable as long as society had enough younger workers to provide the contributions needed to fund pensions for older adults. Clearly, everyone believed that there would always be more economically-active individuals than older adults. However, demographic shifts and increases in informal sector growth have eroded the very foundations of the intergenerational contract, rendering it completely unviable.

The digitalization of society comprises another major obstacle to society's ability to fulfill the terms of the contract. Robots and algorithms are slowly replacing human workers, generating a scenario in which the ratio of active workers to older adults will become even more untenable than we previously suspected. Given the circumstances, societies need to generate pension systems based on savings and capitalization. Additionally, the debate must be conducted vis-à-vis our collective efforts to identify an optimal pension model. Clearly, societies cannot afford to waste time arguing about who will manage a given framework. This is to say, we must never allow the pension debate to devolve into a "public versus private" argument.

I. Introduction

In this text, the aim is to review some basic points which I believe merit inclusion on the pension debate agenda here in Colombia. Allow me to begin by stating that every nation in the world needs a pension framework which, above all else, is sustainable over time and is capable of delivering decent pensions to our respective older adult populations. This aim must comprise our primary goal in Colombia, as we cannot afford to get sidetracked on to other issues such as utilizing pension resources to address tax revenue shortfalls, or to fund anything other than pensions in the national budget.

Since its inception, the funded pension framework introduced by Bismarck in Germany operated on the basis of an intergenerational contract. The underlying rationale of the contract was also used to justify the existence of funded models. Most believed the contract to be a just contract which merited compliance within each ensuing generation. Most in society considered it to be veritably eternal.

But as we delve deeper into its component elements, Bismarck's funded system was built upon the supposition that society would always come up with enough young active workers to cover the costs of pensions provided to the older adult population. For better or worse, everyone seems to have felt that the ratio of active workers to pensioners would always remain relatively high. Though most seem to have understood that the variable was subject to certain vicissitudes, the overall trajectory was felt to be feasible. Clearly, this was not the case. As a result, this social contract is dead in the water. We have all heard, at a number of forums and on a number of occasions, why this is the case. Demographic shifts and increases in informal sector growth have served to render the intergenerational contract upon which funded systems are based completely unworkable.

Another element also needs to be pointed out. As Klaus Schmidt-Hebbel mentioned earlier at this form, the digitalization of society makes the contract even more untenable. Robots and algorithms are slowly replacing the human workforce in a fairly wide variety of economic sectors. Just try and extract a pension contribution out of a robot or an algorithm. It is possibly the definition of a fruitless endeavor.

Given the foregoing set of circumstances, the ratio of active workers to older adults will become even more unviable than we previously expected. Anyone seeking to cash a check based on said intergenerational contract has failed to understand the parameters involved.

In modern day society, viable pension frameworks will necessarily be based upon two components: savings and capitalization. As a result, the pension debate in Colombia – and, for that matter, the entire hemisphere – must not devolve into a turf war between system administrators. Our principal aim must remain focused on discerning between viable and unviable options. A fight between public and private sector interests can only result in time and precious intellectual resources being lost. Such an argument would only forestall our performing the in-depth analysis which we so desperately need in terms of the major issues.

To be clear, I believe that a system administered jointly by the public and private sector is a completely rational expectation.

And it is in this spirit which I seek to address the issues below.

Firstly, I wish to point out some of the challenges which, according to most, the pension system in Colombia is currently facing. Here again, it is important to point out that they comprise issues which are likely to be relevant in the majority of national contexts within our hemisphere.

Secondly, I will be addressing the subject of digitalization. The third issue to be covered is the profitability levels of capitalization systems versus those generated by funded systems. Lastly, I will be enumerating elements which ASOFONDOS feels need to be incorporated into the Colombian pension reform package, to include the respective underlying rationale for each.

There are currently nine major problems which our national pension system faces. To one degree or another, every nation within the Americas is facing the selfsame set of challenges.

In order of importance, they fall into the following categories:

1. Demographic shifts
2. Informal sector growth
3. Digitalization of society
4. Low profitability of funded schemes
5. Existence of two contributory schemes
6. Inequities of public funded system
7. Lack of social security coverage for semi-informal workers
8. Precarious corporate governance of public funded system
9. Fiscal deficit of public funded system

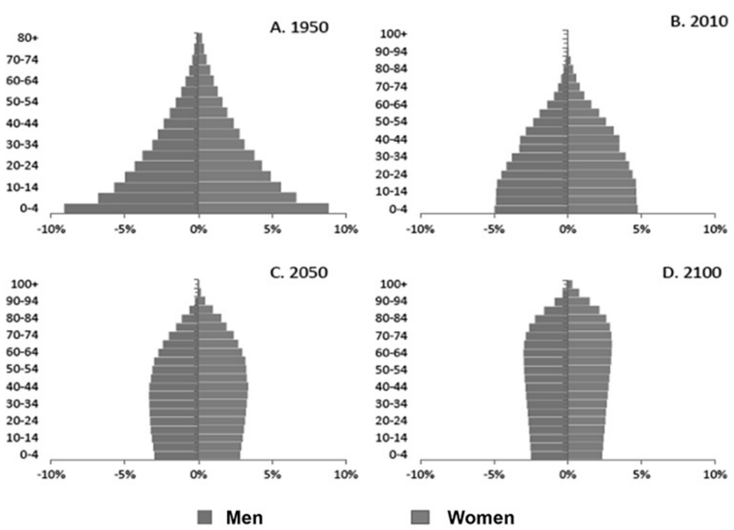
While I will cover each point on the list, special attention will be paid to the third and fourth points: digitalization and the low profitability of funded systems. Before turning to the issue of digitalization, we need to address the issues of demographic shifts and the growth of the informal sector, which comprise the first and second categories on the list.

II. Effects of digitalization

Demographic shifts

The vertical axes in Graph 1 divide the total population of Colombia into quintiles; the male population being represented on the left panel and women on the right. The horizontal axes illustrate the percentage of the total population which each age cohort represents. Panel A, for instance, illustrates the Colombian population pyramid in 1950, a year which saw some of the most remarkable population growth in the nation's history. As a result, it is not surprising to see that the base of the pyramid is fairly wide. This is due to the fact that the ratio of working age individuals to older adults was very high. However, as time has moved on the base of the pyramid has narrowed. By the year 2100, the population graph of Colombia will resemble a wine bottle more than a pyramid.

GRAPH 1
DEMOGRAPHIC SHIFTS, COLOMBIA

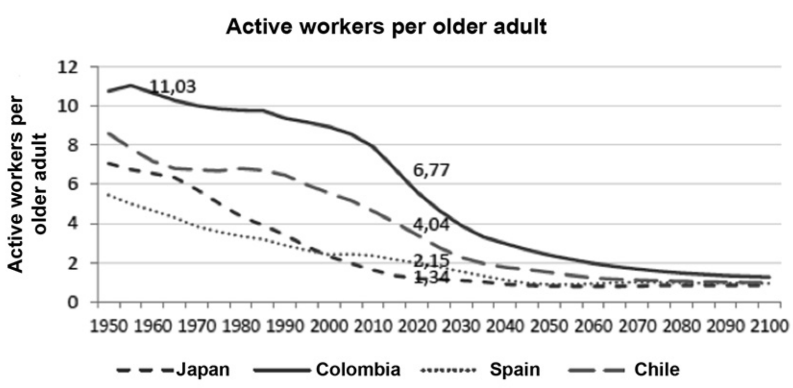


SOURCE: UN POPULATION DIVISION

This demographic shift can also be analyzed utilizing the method included in Graph 2, which illustrates changes in the ratio of active workers to older adults during the same period of time (1950-2100). To be clear, the lines on the graph represent the ratio of economically-active adults between the ages of 15 and 64 to the population of adults over 65; i.e., what is commonly referred to as the dependency rate.

GRAPH 2

DEPENDENCY RATES



SOURCE: UN POPULATION DIVISION

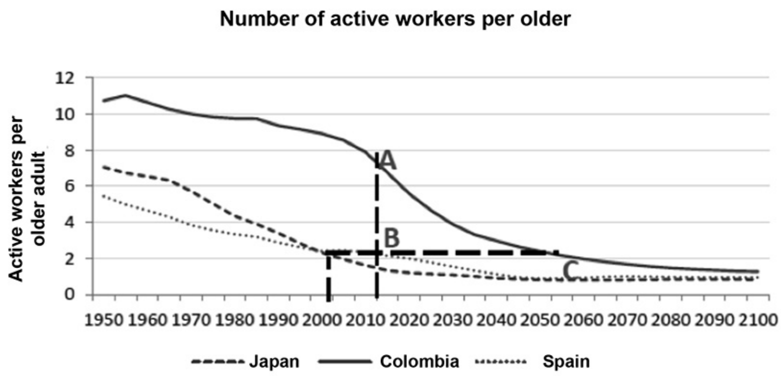
Clearly, the dependency rate has worsened over time. This is a major problem – primarily due to the fact that in a funded system pensions are paid for through the use of contributions made by workers. In the 1950s, Colombia had more than 11 economically-active workers per older adult. That figure has now fallen to below seven workers per pensioner; and to be exact, it is actually 6.7. Even though this demographic shift has been fairly pronounced, if every single active worker were meeting their contribution obligations, available evidence seems to indicate that the system would actually be viable in terms of providing pensions to the current population of older adults in Colombia. But, as the graph illustrates so plainly, the ratio is going to fall to a mere four workers per older adult by 2030, and is on track to reach two by year 2060. This tendency makes the funded system simply unfeasible – even in the near term. Action needs to be taken immediately, because if one calculates the liabilities and future income vis-à-vis present value, the system generates a net deficit. Given this dynamic, unless we are willing to make some major adjustments to the current set of parameters – which is to say, increasing contributions or reducing replacement rates – operating a funded system is completely unfeasible.

Beyond Colombia's borders, the situation is much the same. Chile is currently at four, Spain is at two and Japan is below two. In nations where the demographic shift has been underway for much longer periods of time, the dependency rate issue is even more critical than in Colombia.

Informal sector growth

We have not yet addressed the impact which informality has had on funded systems. Although the drop in dependency rates jeopardized the continued viability of funded systems, once we factor in the entire informal sector issue, the funded option becomes frankly impossible. In fact, the informality rate in Colombia serves to lower our theoretical dependency rate of 7:1 to a mere 2:1. This is because only two workers per older adult actually contribute to pensions, as can be seen in Graph 3.

GRAPH 3
EFFECT OF INFORMALITY ON DEPENDENCY RATE



SOURCE: UN POPULATION DIVISION

In other words, whereas we should currently be located at point A on the above graph, informality has pulled Colombia down to point B. This dynamic, in turn, has resulted in the nation now having a dependency rate which it should not have had to deal with until 2060, which is represented by point C on the graph. It is as if informality is causing the nation to age prematurely.

It is easy to surmise that, given our current ratio of active workers to older adults, generating the resources needed to operate a funded scheme is simply not practicable. This the catastrophic effect of informality on the pension sector. Our current generation of young people is more than willing to lend a hand to their older counterparts. However, when these young people grow old, who will come to their aid?

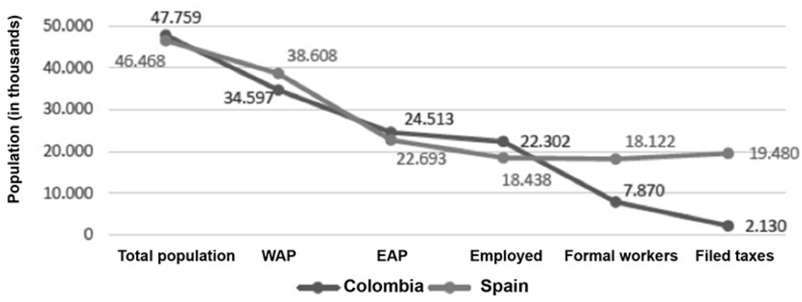
This is a situation which could be theoretically corrected via labor market reform. Measures would need to capitalize upon the full potential of Colombian workers during their productive years, as well as facilitate their access into Colombia's *Sistema General de Pensiones* from an early age.

I also wish to address a side issue through the use of Graph 4. It illustrates another aspect of the informality issue via a comparison between Colombia and Spain. This is an especially useful strategy because the two nation's demographic profiles are essentially analogous. Additionally, our respective labor markets also have a great deal in common. The populations involved are also extremely similar: 47 million inhabitants in both nations. The working age population (WAP) in the two nations is extremely similar at 38 and 35 million, respectively. The economically active population (EAP) is also comparable at 25 million and 23 million.

The two nations begin to diverge in terms of the number of employed. However, the major difference is immediately noticeable in the far right-hand side of the graph. In Spain, more than 18 million individuals contribute to pensions. In Colombia, only 7.8 million workers contribute to pensions. And, unfortunately, the situation is worse than it looks at first glance. The figure of 7.8 million was arrived at based on responses to a fairly limited question: Did you contribute to your pension during the last 30 days? If we inquire as to whether or not these individuals contributed during at least nine out of the last 12 months, the figure drops steeply off to 2.4 million. This figure is extremely similar to the last variable located on the right-hand side of Graph 4, regarding the number of Colombians who filed a tax return. In Spain, 19.5 million individuals filed their taxes. In Colombia, we only reach 2.1 million (i.e., extremely similar to the figure of 2.4 million individuals who are actively contributing to pensions).

All of the foregoing would seem to indicate that the majority of our fiscal problems in Colombia are somehow related to the informality factor. The figures generated by our firms are very similar. Very few Colombian firms file taxes. Furthermore, the firms that do file are being charged very high tax rates.

GRAPH 4
DEMOGRAPHICS AND LABOR MARKETS: COLOMBIA AND SPAIN



SOURCE: COLOMBIA: DANE – SFC – DIAN; SPAIN: INE – AGENCIA TRIBUTARIA DEL GOBIERNO

In addition to meriting inclusion on the pension reform agenda, these issues are critical to the success of the broader economy. Should we fail to address them appropriately, people in Colombia – and throughout the Americas, for that matter – should not expect to achieve much success in terms of their pension sector problems.

Digitalization of society

And now we come to the issue of digitalization. The impact of this constantly evolving factor upon society is increasing as automated systems slowly begin to replace human workers within the labor market. In terms of available evidence, there is a wealth of data indicating that this evolution is occurring. According to *IFR World Robotics* (2017), the supply of robots within the Americas is expected to increase by 12% during the period 2008-2020. The region comprising Australia and Asia is expected to increase by 17%, while Europe is set to increase by 7% during said period of time.

The digitalization revolution is well under way, according to evidence provided in David (2017). The study indicates that a number of job functions have already been replaced through the automation of certain tasks. For example, tollbooth workers have been replaced by automatic payment systems, and taxi dispatchers have been replaced by online customer service software. Additionally, one cannot fail to perceive the important role that virtual firms, such as Google and Facebook, now play in society. Even the defense sector has been impacted, as unmanned drones have slowly begun to replace fighter pilots at firms such as Northrop Grumman.

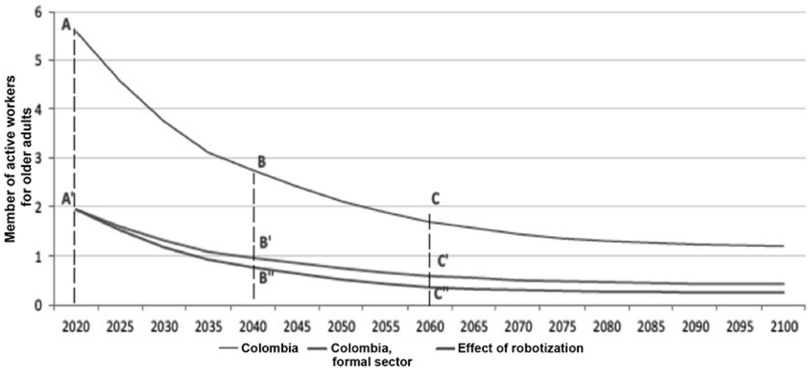
Clearly, many other sectors of the economy have also been impacted. Even highly specialized trades such as machinists have been affected. The impact of technology has truly been limitless, and what has occurred before is only the tip of the iceberg. In the United States, estimates indicate that 47% of the workforce has a 0.8 probability of being replaced by algorithms or robots at some point in time. The dynamic is especially notable among the population of unskilled workers. As might be expected, highly skilled workers are the most prepared to fend off the immediate results of automation.

If we analyze this dynamic vis-à-vis the data in Graph 1 regarding the dependency rate of active workers to older adults, we can immediately see that automation is going to have a negative impact on the dependency rate. In fact, it will be much worse than we suspected at the outset of the technological revolution. We will have a much smaller formal sector workforce available to generate the resources (contributions) nations need to keep their funded systems afloat.

Graph 5 demonstrates the degree of impact which robotics and automation have had upon the job market in Colombia. As one can ascertain, it will further reduce the number of active workers able to contribute resources to fund pensions for our older adult population. Consequently, no truly viable pension reform package is going to be exclusively – or even partially – based on a purely funded model.

GRAPH 5

DEPENDENCY RATIO, COLOMBIA (1950-2100)



SOURCE: UN POPULATION DIVISION.

III. Low profitability of funded schemes

Let's imagine, for a moment, that the ratio of active workers to older adults could be maintained into the foreseeable future at its current level. Even if this is an area were feasible, there are other reasons to believe that a capitalization system is superior to a funded system.

The return generated by a capitalization scheme is a fairly straightforward affair, while calculating the profitability of funded systems can become a bit difficult to achieve. For example, in Colombia there has been talk about the opportunity costs of issuing a Treasury bond. In terms of tools to help us quantify the yield of funded systems, the literature provides what might be described as a seminal study by Samuelson (1958). During the 1980s and 90s, this study was cited ad infinitum. Later, the issue was revisited by Thomas Piketty in his famous book entitled *Le Capital au XXIe siècle* (2013). The book was truly thought-provoking and helped generate many of the great ideas generated by authors such as Xavier Sala-i-Martin.

To simplify matters a bit, let us suppose a scenario in which individuals lives can be divided into two periods of time. Individuals in this construct receive a wage, W, which they utilize to contribute to a pension during the first phase of life, and then move on to the second phase. We can use this model to measure the amount of money paid out by each scheme during the second period. In short, we can interpret the profitability of both types of schemes through the use of the payout levels they generate. The primary factor in the capitalization system model is the interest rate, r. The second variable, which is a bit more nebulous, is derived from the resources which are generated during the second period as a function of the growth of salaries and the population. As a result, the aggregate total of wages during the second period of time will be equal to the sum of these two rates.

This is an empirical problem, but an entire series of reasons exist which would lead one to believe that the rate of return on capital will consistently outperform total wage growth and total population growth. This very argument constitutes, in general terms, the central thesis proposed by Piketty. Furthermore, he indicates that the ratio is along the lines of 5:1. The author argues that, as a result, capitalization systems are superior alternatives to their funded counterparts. He also suggests that capitalization systems need to be introduced because they serve to remediate other societal challenges. For example, in many national contexts the costs of transition to a capitalization system would be prohibitive. This would be the case in scenarios such as Spain.

However, Piketty also provides a highly convincing argument that, in many cases, such a transition is totally feasible. Nations such as Chile, Peru, Mexico and

Colombia provide empirical evidence of this hypothesis. This leads many to believe that transitioning to a capitalization system is a viable option for almost every nation within Latin America.

Piketty also views transition as a method to address other issues within society; i.e., challenges such as societal inequities. What the author suggests essentially comprises a tax on capital designed to increase equity. It achieves at no cost to a society's ability to generate wealth. Instead, he seeks to provide an opportunity for workers to access said wealth, in order to truly improve their wages. This is exactly what individual capitalization systems provide: a true opportunity for workers within a given economy to experience higher income levels.

This facet of individual capitalization systems is exactly what proposals from economists such as the Nobel prize-winning Thomas Sargent have attempted to advocate. In light of the foregoing, the obvious question is what type of returns will be generated. At this time, I can only provide evidence on the Colombian case, but I think the data speaks for itself. The accumulated return generated by pension funds has been 8% in real terms. Conversely, our nation's funded systems have only achieved 2% according to most estimates.

With these factors in mind, we generated a stylized model in order to compare the replacement rates generated by capitalization systems to those generated by their funded counterparts. This exercise was performed in a variety of national contexts. In short, we attempted to reinvent history and then project into the future.

We introduced all the variables which I have covered here: demographic compositions and changes, in terms of variations in the ratio of active workers to older adults; variations in life expectancy; and a variety of suppositions regarding the profitability of funded and capitalization systems, measured as has been noted. Lastly, two fundamental suppositions were made. Firstly, it was assumed that 100% formality was achieved in a scenario in which all workers contribute to a capitalization or funded scheme. Of course, the model was also capable of factoring in the existence of informality as well. Secondly, we assumed that the two systems were in equilibrium and received no State funding.

The model is based on the work of Richard Jackson (2015), which he was kind enough to share with us at our ASOFONDOS event held in 2017. An entire series of suppositions were utilized to ensure comparability across national contexts.

I will now share the results. The first exercise measured the impact of a funded system upon the replacement rate at three points in time: 1995, 2015 and 2050. We reviewed the demographic changes in compositions of each cohort for Colombia, Nigeria, Japan Spain and Chile, inter alia. The period 1950-2050, so the volume of data is truly gigantic in scale. In order to perform this type of exercise, we needed to begin at a point fairly far back in history in order to maximize the spectrum analyzed.

One of our first findings, in terms of what occurs to replacement rates in a funded system as a result of a simple change in the demographic composition or population of the nation; i.e., due to a drop in the ratio of active workers to older adults. In contexts involving nations such as Nigeria, if every active worker had contributed to the funded system in 1995, universal formality – vis-à-vis the parameters utilized in this particular model –. would have been achieved. Astronomical replacement rates would have also been generated. Colombia still has an opportunity to avail itself this opportunity. A shift in the demographic structure, over time and in a variety of national contexts, causes a major drop and keeps the system in equilibrium.

Another – albeit more complex – research task involved comparing the replacement rates of funded systems and capitalization systems at two points in time: 2018 and 2050. We introduced the changes and demographic composition for each cohort, random alternative changes in terms of the wage growth rates and real interest rates. We performed analysis for Colombia, Nigeria Japan and Chile and our findings are included in Figures 1 to 4. For 2018, the bottom row contains estimated replacement rates in a funded system scenario. The upper row contains the results in a capitalization context considering different wage growth rates and real yield on capital. The shaded portion of the table indicates where the capitalization scheme outperforms its funded counterpart.

In short, the Colombian data demonstrates that the capitalization system outperformed the funded system in 2018. In terms of the 2050 horizon, almost all of the matrixes indicate that the capitalization scheme would generate higher replacement rates than its funded counterpart.

We also analyze the case of Chile (Figure 1), and as of 2018 practically all of the matrixes indicate that individual capitalization is the superior alternative, thus proving that Chileans chose the best path forward. Projections for 2050 indicate that the performance gap will only increase over time.

FIGURE 1

Chile 2018		Real wage growth rate					
		3.5%	3.0%	2.5%	2.0%	1.5%	1.0%
Real yields	3.0%	31,0%	34,0%	37,4%	41,4%	45,9%	51,1%
	3.5%	35,5%	39,1%	43,2%	47,9%	53,3%	59,6%
	4.0%	40,9%	45,1%	50,0%	55,6%	62,1%	69,6%
	4.5%	47,1%	52,2%	58,0%	64,7%	72,4%	81,4%
	5.0%	54,3%	60,4%	67,3%	75,3%	84,5%	95,3%
	5.5%	62,8%	70,0%	78,2%	87,8%	98,8%	111,7%
	6.0%	72,7%	81,2%	91,1%	102,5%	115,7%	131,1%
	Reparto	59,1%	56,5%	53,9%	51,3%	48,8%	46,4%

Funded Capitalization system generates higher replacement rate

Chile 2050		Real wage growth rate					
		3.5%	3.0%	2.5%	2.0%	1.5%	1.0%
Real yields	3.0%	27,4%	30,1%	33,1%	36,6%	40,6%	45,2%
	3.5%	31,7%	34,9%	38,5%	42,7%	47,5%	53,1%
	4.0%	36,7%	40,5%	44,9%	49,9%	55,7%	62,4%
	4.5%	42,5%	47,1%	52,3%	58,4%	65,4%	73,4%
	5.0%	49,3%	54,8%	61,1%	68,4%	76,8%	86,5%
	5.5%	57,3%	63,9%	71,4%	80,2%	90,3%	102,0%
	6.0%	66,7%	74,6%	83,6%	94,1%	106,2%	120,4%
	Reparto	30,3%	28,7%	27,1%	25,6%	24,1%	22,7%

Funded Capitalization system generates higher replacement rate

SOURCE: ASOFONDOS.

In terms of Spain (Figure 2), the nation would benefit from the introduction of a capitalization system. Several studies indicate this would be the best way forward for Spain. In fact, one study demonstrated that if Spain had adopted a capitalization system 40 to 50 years ago, its older adults would be receiving pensions which are five times greater than those currently being paid out. The projections for year 2050, indicate that these vast improvements would only increase over time in a individual capitalization scenario.

FIGURE 2

Spain 2018		Real wage growth rate					
		3.5%	3.0%	2.5%	2.0%	1.5%	1.0%
Real yield	3.0%	29,2%	32,0%	35,3%	39,0%	43,2%	48,1%
	3.5%	33,6%	37,0%	40,9%	45,3%	50,4%	56,3%
	4.0%	38,8%	42,8%	47,4%	52,7%	58,9%	66,0%
	4.5%	44,8%	49,6%	55,1%	61,5%	68,9%	77,4%
	5.0%	51,8%	57,6%	64,2%	71,8%	80,6%	90,8%
	5.5%	60,0%	66,9%	74,8%	83,9%	94,5%	106,8%
	6.0%	69,6%	77,8%	87,3%	98,2%	110,9%	125,7%
	Reparto	41,1%	39,0%	36,9%	34,9%	32,9%	31,0%

Funded Capitalization system generates higher replacement rate

Spain 2050		Real wage growth rate					
		3.5%	3.0%	2.5%	2.0%	1.5%	1.0%
Real yield	3.0%	26.4%	29.0%	31.9%	35.3%	39.1%	43.5%
	3.5%	30.6%	33.7%	37.2%	41.2%	45.9%	51.2%
	4.0%	35.5%	39.2%	43.4%	48.3%	53.9%	60.4%
	4.5%	41.2%	45.6%	50.7%	56.6%	63.4%	71.2%
	5.0%	47.9%	53.2%	59.4%	66.4%	74.6%	84.0%
	5.5%	55.8%	62.2%	69.5%	78.0%	87.9%	99.3%
	6.0%	65.1%	72.7%	81.5%	91.7%	103.6%	117.4%
	Reparto	24.2%	22.9%	21.7%	20.4%	19.2%	18.1%

Funded Capitalization system generates higher replacement rate

SOURCE: ASOFONDOS.

The results for Nigeria (Figure 3) involve a scenario in which the funded scheme predominates. This is because the nation has a very young demographic composition. As a result, we expect Nigeria to undergo very drastic changes between 2018 and 2050.

FIGURE 3

Nigeria 2018		Real wage growth rate					
		3.5%	3.0%	2.5%	2.0%	1.5%	1.0%
Real yield	3.0%	49,5%	54,4%	59,9%	66,2%	73,4%	81,7%
	3.5%	55,9%	61,5%	67,9%	75,3%	83,8%	93,6%
	4.0%	63,1%	69,7%	77,3%	85,9%	95,9%	107,5%
	4.5%	71,5%	79,2%	88,1%	98,3%	110,0%	123,6%
	5.0%	81,2%	90,2%	100,6%	112,6%	126,4%	142,4%
	5.5%	92,4%	103,0%	115,1%	129,2%	145,5%	164,4%
	6.0%	105,4%	117,8%	132,0%	148,6%	167,8%	190,1%
	Reparto	193,2%	188,2%	183,2%	178,1%	173,1%	168,1%

Funded Capitalization system generates higher replacement rate

Nigeria 2050		Real wage growth rate					
		3.5%	3.0%	2.5%	2.0%	1.5%	1.0%
Real yield	3.0%	43.7%	47.9%	52.8%	58.3%	64.7%	72.0%
	3.5%	49.4%	54.4%	60.1%	66.6%	74.2%	82.8%
	4.0%	56.1%	61.9%	68.6%	76.3%	85.2%	95.4%
	4.5%	63.7%	70.6%	78.5%	87.6%	98.0%	110.1%
	5.0%	72.6%	80.7%	90.0%	100.7%	113.0%	127.4%
	5.5%	82.9%	92.4%	103.3%	115.9%	130.5%	147.5%
	6.0%	94.9%	106.0%	118.9%	133.8%	151.0%	171.1%
	Reparto	147.7%	143.7%	139.9%	136.0%	132.2%	128.5%

Funded Capitalization system generates higher replacement rate

SOURCE: ASOFONDOS.

The situation in Japan (Figure 4) necessitates a drastic change. The need for said change will likely only increase during the time period leading up to year 2050.

FIGURE 4

Japan 2018		Real wage growth rate					
		3.5%	3.0%	2.5%	2.0%	1.5%	1.0%
Real yield	3.0%	28,5%	31,3%	34,4%	38,0%	42,2%	47,0%
	3.5%	32,8%	36,2%	39,9%	44,3%	49,3%	55,1%
	4.0%	37,9%	41,9%	46,4%	51,6%	57,6%	64,6%
	4.5%	43,9%	48,6%	54,0%	60,3%	67,5%	75,8%
	5.0%	50,8%	56,5%	63,0%	70,4%	79,1%	89,1%
	5.5%	59,0%	65,7%	73,5%	82,4%	92,8%	104,9%
	6.0%	68,5%	76,5%	85,8%	96,6%	109,1%	123,6%
	Reparto	28,1%	26,7%	25,4%	24,1%	22,9%	21,7%

Funded Capitalization system generates higher replacement rate

Japan 2050		Real wage growth rate					
		3.5%	3.0%	2.5%	2.0%	1.5%	1.0%
Real yield	3.0%	25.8%	28.3%	31.2%	34.5%	38.3%	42.6%
	3.5%	30.0%	33.0%	36.4%	40.4%	45.0%	50.2%
	4.0%	34.8%	38.4%	42.6%	47.4%	52.9%	59.2%
	4.5%	40.5%	44.8%	49.8%	55.6%	62.3%	70.0%
	5.0%	47.1%	52.4%	58.4%	65.3%	73.4%	82.7%
	5.5%	55.0%	61.2%	68.5%	76.8%	86.5%	97.8%
	6.0%	64.1%	71.7%	80.4%	90.4%	102.1%	115.7%
	Reparto	21.8%	20.6%	19.3%	18.2%	17.0%	15.9%

Funded Capitalization system generates higher replacement rate

SOURCE: ASOFONDOS.

IV. Reform parameters

I wish to close with a few remarks intended to more clearly delineate the general parameters of the pension reform which we wish to implement here in Colombia. To begin with, the discussion must never be allowed to devolve into a turf war over who should administer a given system. The priority is, and always will be, making a determination regarding what the optimum system framework is for the Colombian context.

In light of all the reasons given above, our best alternative is a pension system based on savings and capitalization. Demographic shifts, informality and digitalization of society have rendered the intergenerational contract, which also served as the financial and political justification of funded systems, null and void. Another reason why individual capitalization is the best way forward is that these types of schemes generate higher yields on capital.

Therefore, we need to ensure that the debate focuses on discerning between viable and unviable alternatives. There is no need to waste time arguing about private versus public administration of pension resources. We have already come to the conclusion that both sectors have assets which would optimize system management. Additionally, both sectors have a major role to play.

I would like to address one final detail. Within the purely contributory pillar, we have a noncontributory solidarity pillar known as *Colombia Mayor*, as well as a semi-contributory plan entitled Periodic Economic Benefits (BEPS). I just wish to clarify that my remarks were directed at the purely contributory aspects of this issue. There is a component of this contributory aspect which has generated a fair degree of debate here in Colombia. In order to promote formal sector growth in Colombia, we propose that individuals who have reached the legal age of retirement – and having contributed regularly, have still failed to accrue accrued sufficient retirement savings – receive a pension equivalent to our minimum wage. The idea here is to find said pensions using funds generated within the capitalization scheme; i.e., avoid public outlays.

Regardless of what we finally decide upon, ASOFONDOS will always believe that the rights acquired by individuals who have already retired are and should remain inviolate. The same is true for those members of our society who are about to retire. This means we will have to undertake a transition process. At some point in time, individuals newly entering into the job market will need to sign up with a capitalization scheme. And, here again, I wish to make it clear that a publicly administered pension fund is a completely viable option.

I wish to emphasize the fact that the savings in the BEPS scheme have significantly decreased. We propose that said resources be utilized to provide annuities to individuals failing to accrue a decent pension who are ineligible for the Guaranteed Minimum Pension Fund. In our opinion, the BEPS program needs to be adjusted vis-à-vis these aims.

With regard to the Colombia Mayor noncontributory minimum pension, in our view coverage should be expanded to include SISBEN levels 1 and 2.[3] The amount of the benefit received by program participants should be increased from the current level of USD 20 per month to USD 79 (or COL 250,620). Such a change would ensure that these individuals do not fall below the poverty line. This measure will involve a significant fiscal cost. However, if Colombia eliminates the outlays from the current public funded scheme (which, incidentally, entail 2% of GDP), our efforts will have been worthwhile. Furthermore, such a measure would allow Colombia to significantly increase coverage from 35% to 65% via a highly efficient fiscal policy which would serve to optimize a significant amount of resources, especially when viewed in light of the policy being pursued currently.

References

David, B. (2017). Computer Technology and Probable Job Destructions in Japan: An Evaluation. Journal of the Japanese and International Economies.

Montenegro T., Santiago; Jorge Llano; Karim Fajury and María Camila García (2017). "La inviabilidad de los regímenes de pensiones de reparto en países que aún gozan del dividendo poblacional: El caso de Colombia". Available online at: www.asofondos.org.co/biblioteca-pensional/la-inviabilidad-de-los-reg-menes-de-pensiones-de-reparto-en-pa-ses-que-n-gozan

3 *SISBEN is the system which Colombia utilizes to identify individuals who are potentially eligible for social program benefits.*

CHARTER IV

THE FUTURE OF WORK AND SOCIAL SECURITY

CLAUDIO SAPELLI. Automation and longevity: public policy for surviving the challenge.
LUIS EDUARDO ARANGO. Elements for a new design of the labor market in Colombia.
MTHUNZI MDWABA. The future of work and social security.
FERNANDO LARRAÍN. Labor markets and pensions.

DISCUSSION PANEL ON THE FUTURE OF WORK AND SOCIAL SECURITY.
MARCELA MELÉNDEZ.
FERNANDO LARRAÍN.
LUIS EDUARDO ARANGO.
MTHUNZI MDWABA.

AUTOMATION AND LONGEVITY: PUBLIC POLICY FOR SURVIVING THE CHALLENGE[1]

CLAUDIO SAPELLI[2]

1 *This text is a summary of an eponymous, 48-page study completed by the author in 2018 on behalf of the FIAP.*

2 *Claudio Sapelli pursued undergraduate studies in Uruguay (Universidad de la República) and holds a Ph.D. in Economics from the University of Chicago. Currently serves as professor at the Catholic University of Chile and directs its Institute for Economics.*

Summary

This text includes two proposals designed to address the challenges of automation/robotization and longevity. The first proposal recommends universal social security via the parameters proposed by the Inter-American Development Bank in recent years (i.e., a universal basic pension funded via a capitalization solidarity pillar). The second proposal suggests generating social policy that guarantees a universal basic income via cash benefits funded by a negative income tax.

Automation and robotization

This text is an attempt to address a specific set of public policy challenges which societies currently face. The first major issues which society needs to respond to are automation and robotization, and their combined effect on labor markets. Although Latin America has yet to experience the full impact of these two factors, the challenge is definitely looming on the horizon.

A current theory, which I consider extremely cogent, hypothesizes that the failure of the US to adequately address its automation and robotization challenges resulted in – at least in part – the election of Donald Trump.

For the most part, it is the losers within the globalization paradigm – who lacked sufficient social protection coverage – who are most disenchanted with the existing state of affairs. They are also often the most vocal in terms of a desire to introduce profound economic changes; several of which are in direct opposition to the precepts of global markets. The challenge here is to identify what type of social protection scheme will be capable of ensuring that a significant proportion of the population does not strongly oppose automation and/or globalization.

Clearly, automation merits detailed analysis whereas it is probably going to have a major impact on society. While there will be a significant number of clear winners, we will most likely see more losers than winners. However, this issue is not the primary focus of this text.

The evolution which labor markets have undergone is. As a result of automation processes, the employee-employer relationship has been significantly redefined in recent years. A clear hierarchy no longer exists. It has been replaced by a dynamic that more closely approximates a scenario involving partners or paid consultants. In this new world, the manner in which the social protection system drives the generation of formal sector employment becomes an increasingly relevant issue which clearly merits analysis.

The automation issue has also generated a fair degree of anxiety. It is not surprising that many within society tend to view robots and automation in terms of a looming catastrophe which may lead to widespread unemployment and poverty, etc. Although one might argue that a given individual's level of anxiety is exaggerated, it would be absurd to deny the fact that some level of anxiety is present throughout most of society. And even though automation and robotization will primarily generate benefits for society, no one will benefit from a failure to address societal apprehension. In fact, these higher levels of anxiety mean that the urgency of generating an effective social security framework is more relevant than ever.

The second issue to be covered here is the challenge of longevity. Personally, I have a hard time characterizing increased life expectancy as a risk. We should all have the privilege of living longer lives. Unfortunately, society's failure to effectively address the evolution of its demographic shifts has effectively turned longevity into a risk. Thankfully, we possess the tools to change longevity into what it should be viewed as: an opportunity. This is something which longevity has in common with automation. Both can be converted into major assets capable of improving societal well-being.

With this in mind, what should our social security policy aims be? To begin with, we need to provide some basic social protection floors within our respective societies. Clearly, this will need to occur in terms of our public policy designed to address poverty as well as measures designed to provide social security.

Nations also need to address the enormous challenge of revamping their respective labor markets. In order to ensure automation does not end up driving unemployment rates, we will need to increase the flexibility with which our job markets operate. However, it is equally important to ensure that this reengineering process does not translate into the elimination of our social security networks. Increasing formal sector employment will drive saving rates which will, in turn, at least partially address the challenges of longevity. Another major issue which needs to be addressed by societies – but which we will not cover in great detail here – is the need to foment long term, voluntary saving.

The main purpose of this text is to primarily focus on formal sector employment. In short, our biggest challenge is deciding how to prioritize our public policy efforts.

Once we have that issue sorted, we must then address the issue of political capital. This is to say, we must determine exactly how we are going to employ these finite quantities. Clearly, any reform undertaken on this scale is going to constitute a major political outlay. In my opinion, labor market reform merits a great deal more attention than it currently receives. In fact, I think it should comprise one of society's top priorities. This is because many experts believe that, in general, only better jobs are capable of driving better pensions.

Proposals

The first proposal involves universal social security coverage within the parameters proposed by the Inter-American Development Bank for several years.

The second proposal is broader and utilizes a negative income tax to generate a universal basic income (UBI). UBIs have been discussed quite a bit lately. For example, the World Bank addresses the issue in a draft of its *World Development Report 2019*. The Economic Commission for Latin America and the Caribbean (ECLAC), as well as the IMF, also covered the issue of negative taxes in 2010 and 2017, respectively. The IMF study generated a cost estimate for such a tax measure in a variety of economies. It provided a detailed analysis of eight economies, two of which were in Latin America. More will be said on this issue below.

As will be demonstrated, the aforementioned proposals have the potential to drive formal sector development and productivity, in addition to ensuring individuals possess social insurance. They are efficient yet equitable paths to reform.

The overall fiscal viability of such measures is a highly relevant topic which will be addressed at the end of this text. However, at the outset I wish to make it clear that they are viable alternatives according to IMF and IADB estimates, as well as those generated by our own research team. Although they will require effort in terms of introducing the needed tax reform packages, the measures proposed in this text are fully achievable.

The first proposal

In the near term, our top priority needs to be making a concerted effort to reduce and/ or eliminate informal sector growth. The major challenge, therefore, is determining what strategy needs to be pursued in order to achieve these ends.

The first step is to delineate the traditional diagnosis of the informality problem. The conventional view is that informality results from a combination of high taxes on formal sector wages and significant operational restrictions on formal sector firms. I believe that this viewpoint explains the majority of the informality problem. It also goes a long way towards explaining why formal sector employment has become so scarce within the region. The proposal here is to lower the cost of operating and working in the formal sector.

All the evidence suggests that informal-sector workers tend to enter and exit this half of the economy on an extremely frequent basis. The literature also indicates that this dynamic is present in the majority of Latin American economies. It is important to remember that these individuals are simply responding to their personal needs. They opt for informal sector employment when and where it behooves them. Business enterprises follow the same behavior patterns. They operate within the informal sector because they feel that it is in their best interest and, clearly, because they are allowed to do so vis-à-vis the regulatory frameworks currently in place within Latin American nations. In order to change this pattern of behavior, society must change the equation. Therefore, because informality is the result of measures which tend to restrict formal sector growth, it is necessary to lower the costs associated with operating a business within the formal sector.

The author proposes that governments use general tax revenues to cover the cost of contributions traditionally made by low-wage workers. The term "low-wage" may be defined as nations deem fit. They might use their national minimum wage, an average minimum wage, and/or the equivalent of two minimum wages. This will depend upon the national economy involved, of course.

At any rate, only workers earning above a given reference wage would be obligated to cover their contributions. At this stage of the process, emphasis should not be placed on setting a specific limit. But the limit can be pegged to a given number of minimum wages, a percentage of per capita GDP, or as a percentage of median wages. Determining the level at which worker contributions are triggered will be addressed by nations as they work to delineate the broader parameters of the scheme. A variety of factors will be taken into account; most notably, the amount of tax revenues available to fund the measure.

It is important to point out that the most important component involved here is that societies continue depositing contributions into individual retirement accounts. If individualized accounts are not yet in place, notional accounts can be utilized. The main idea is to ensure that the funds are deposited into an individualized account. This strategy will ensure that funding is available for a universal basic pension. In other words, this proposal allows society to guarantee pension floors and introduce a protection network which provides a minimum income to every member of society regardless of the circumstances involved.

More importantly, under the terms of this proposal firms are no longer obligated to provide contributions for employees who fail to earn the minimum threshold wage. The broader proposal also implies that there is no longer a necessity to cover the wage gap in cases involving workers earning below said minimum. In this new scenario, income tax rates will decrease. This, in turn, will ostensibly remove a major barrier to formal sector employment among individuals currently earning the lowest wages within the economy. Additionally, because the formal sector consistently outperforms its informal counterpart, it is reasonable to expect that increases in formality will translate into increases in productivity.

It should be noted that in a capitalization system individuals are obligated to save for retirement and that said funds remain the property of individual account holders. Therefore, our proposal does not mandate an additional tax; instead, it mandates a benefit. Nevertheless, individuals often do not perceive such measures as beneficial. They may tend to perceive them as a tax, as the effects are fairly similar in terms of the overall impact on household budgets.

A possible scheme for universal social security

In order to ensure that the proposals included in the present text go beyond the merely theoretical, I wish to outline the proposal put forth by the Inter-American Development Bank which was cited earlier. The strategy consists of three major components.

Firstly, the IADB aim is to create a ***noncontributory*** universal pension which is equal to 10% of per capita GDP. But, clearly, a nation always has the option to utilize the different benchmark.

Secondly, the IADB scenario requires that governments ensure all wage earners are complying with contribution rates. This may prove fairly difficult, but it is of paramount importance.

Thirdly, a social security contribution subsidy for all workers is utilized that encompasses all wage earners filing for an income tax return. The subsidy is equivalent to 50% of the contribution rate required for minimum wage earners. In this way, nations are effectively funding one half of the pensions received by individuals earning minimum wage throughout their work life. This percentage falls in proportion to the wage earned, ensuring that the design is progressive.

As mentioned previously, the threshold wage (e.g. median minimum wage) is completely relative. The reference wage is solely utilized for the purposes of generating a concrete model.

Traditional, three-pillar scheme

It should be noted that our proposal is put forth vis-à-vis the traditional three-pillar model. The aim here is to guarantee a minimum funded through the use of general tax revenues (i.e., a so-called solidarity pillar), which is accompanied by a mandatory pillar and a voluntary pillar. There is no plan to modify the mandatory contributory pillar in any way. In terms of the third or voluntary pillar, in my opinion a culture of savings should be inculcated through measures designed to nudge individuals towards a given behavior. I will not go into any great detail regarding how this should be accomplished, but I do believe that measures designed to nudge individuals can be highly effective. For example, societies might introduce scenarios in which the default option is to remain within of voluntary savings program rather than opting out of same.

The second proposal

To properly address automation, integrated social policy is needed

Our second proposal is attempts to anticipate and remediate societal issues generated as a result of automation taking place. It is important to expect that certain sectors within society will question why only the older adult population receives a guaranteed minimum income. Therefore, the primary challenge here is to generate social policy which addresses all members of a given society.

As a result, the second proposal seeks to implement a negative income tax (NIT). Such measures have been discussed and analyzed for decades, but in recent years the discussion has become more frequent, and a great deal more relevant. The primary aim of an NIT is to ensure that the administrator of a nation's tax system is the entity charged with generating the majority of said nation's social policy.

It is proposed that the taxation entities – currently charged with generating revenues among the wealthiest – begin to deliver subsidies to the poorest members of society through the use of a benefits check or electronic transfer of funds. Tax system administrators are already delivering millions of tax returns to the majority of wage earners within a given country. Therefore, ensuring that benefits reach a given individual would fall squarely within their wheelhouse.

The proposal here is to begin to limit social policy to the use of cash transfers.

Generating social policy on the basis of cash transfers has proved extremely successful within Latin America during recent years. The introduction of an NIT would render a number of things redundant, including a number of our respective societies' most revered sacred cows. For example, the entire exercise of setting and readjusting a national minimum wage would be made obsolete. Minimum wages constitute social and policy which is traditionally implemented via the labor market. Such efforts would no longer be necessary because tax policy would address the issue of minimum wage.

A great deal of social programs would become obsolete and societies would simply begin to faze them out. I will address this issue in greater detail below, but it should be pointed out that the United States currently operates a total of 80 separate social programs. And the problem is fairly widespread. For instance, Chile has 350 and India has 1000. Bringing an end to this bureaucratic labyrinth will allow us to fully concentrate our efforts on funding social policy reform.

This is a very important part of the process, because due to the astronomical number of social programs operating in a given nation, it is almost impossible to fully comprehend their respective previews; much less how they interact with one another. If we are honest, no one is really sure about these two issues. Nevertheless, nearly every nation on earth continues to expend a significant percentage of GDP on its social programs. On average, Latin American nations spend 1.5% of GDP. Therefore, eliminating these programs will generate major tax surpluses.

Additionally, removing such programs will go a long way in terms of incentivizing formal-sector employment growth. Many social programs currently utilize benefit caps. This means that if an individual earns even a tiny bit over a certain amount, they lose all their benefits. The use of such fixed thresholds means that if a person earns even one peso above the limit, they are no longer eligible for any help from a given social program. For example, this is how things work in Chile.

As a wage earner begins to approach a given limit, they are faced with a difficult decision. They can either continue earning more wages and lose their benefits, or simply opt for remaining below a given wage limit. Clearly, one manner in which individuals often achieve lower, reported wages is through the use of informal sector employment. In other words, social policy often incentivizes informal sector growth. Other individuals simply shy away from moving up within a given organization, because the costs of a promotion or pay raise are prohibitive. Earning more money often means exposing their families to the loss of benefits such as health insurance. It is easy to see how at times society's efforts to generate well-intended social programs serve to hold people back rather than propel them forward.

The NIT option is such a remarkable alternative. It forces social policy to be wage-centered rather than pegging benefits to nebulous factors such as the condition of an individual's dwelling or the educational level of members within a given household. We live in economies in which individuals experience variations in their wage history. Therefore, the type of home an individual owns is not necessarily the best indicator of whether or not they are combating poverty at a given moment in their work life. Income is the most reliable indicator at our disposal. As such, measures such as NITs provide society with a chance to achieve real progress in terms of social policy design.

Negative income tax (NIT)

To review, NITs provide a scenario in which tax system administrators are charged with delivering benefit payments to lower-income individuals. This is an important aspect of this strategy, because every adult in society is obligated to file a tax return. It is a part of everyone's life.

As the strategy proposed here is to pivot everything from the tax system, a nation's welfare database will need to be merged with that of its tax service. The integration of these two databases is vital because it will allow nations providing universal coverage to prevent high-income individuals from receiving benefits. In the case of Chile, the *Servicio de Impuestos Internos*[3] fused its database with that of the Ministry of Social Development. In this manner, it has been able to identify wealthy Chileans receiving medical care from programs designed to ensure that the most vulnerable individuals within society have access to no-cost medical care.

Filing an income tax return, in this scenario, comprises the proverbial stick. This is not to say that societies are not going to experience some level of difficulty in terms of ensuring every wage earner files a tax return. But it will definitely constitute a step in the right direction. Many individuals within a given society, for example, may have problems completing a tax return form. This is certainly not a new issue, and one which many individuals face in nations utilizing complex forms.

In Chile, however, the national tax service simply suggests a completed filled-out tax return. The taxpayer accepts the suggested form with a click, and awaits their return. This type of measure should prove of great value to any nation seeking to increase income tax compliance rates. Once a nation ensures that every wage earner declares their income, the totality of that society is in some sense operating within the formal sector.

3 *Internal Tax Service.*

The carrot here involves the fact that every person who fills out a tax return form is automatically enrolled in the social protection network.

Incentivizing formality

As noted, one of the main purposes of the social policy reforms put forth here is to come up with a carrot capable of generating the formality levels which Latin America's largely informal economies so desperately need.

The two proposals put forth in this text include four major changes aimed at inculcating formality.

The first change involves eliminating social security contributions paid by individuals earning less than x minimum wages. This measure is included in Proposal 1. It is expected that the elimination of social security contributions (which, in Latin America, often comprise pensions and healthcare) in cases involving individuals earning less than two minimum wages will incentivize formality. This is because the cost of these workers will be significantly reduced. As mentioned before, the choice of utilizing two minimum wages is completely relative and subject to change as nations deem fit.

The second major change, which was delineated in Proposal 2, involves introducing a truly integrated social protection network which eliminates the need for a variety of social policies currently implemented via the labor market (i.e., minimum wages, unemployment insurance and severance pay). These types of policies simply serve to increase formal-sector labor costs. This change will help firms to reduce their severance pay liabilities, which are extremely significant throughout Latin America. When appropriate social protection mechanisms are in place within a given society, the necessity to mandate high severance payouts is in most cases drastically reduced.

Thirdly, the universal nature of our two proposals eliminates disincentives to formal sector growth; that is, disincentives which are the direct result of extremely attractive noncontributory benefits. When noncontributory benefits are on par with contributory benefits, incentives to comply with contribution mandates are significantly debilitated.

The fourth and last change will eliminate the prohibitive benefit caps currently utilized in social policy. As society moves to eliminate these barriers to the career progress of individuals within a given sector, it will also be generating a major incentive to formal sector growth.

Costs and funding

Many readers may suspect that the cost of introducing such measures is prohibitive. This is definitely not the case. These proposals are completely practicable in terms of funding. Although an effort will need to be made in terms of tax reform, as stated, these are clearly achievable objectives.

I will now explain the cost estimates involved in funding these two proposals.

Universal social security: Cost estimates

The program put forth by the Inter-American Development Bank includes a universal solidarity pillar comprised of 10% of per capita GDP. This figure translates into between 0.5% and 1% of GDP for nearly every nation within Latin America. The exceptions are Argentina and Uruguay, where the cost would be slightly higher at 1.1% and 1.4%, respectively. The cost of reducing contributions is projected at 0.4% of GDP. The total cost – 1.1% of GDP – appears to be completely practicable in terms of funding.

Antón et al (2012) estimate the cost of such a scheme in Mexico. The subsidies involved amounted to two minimum wages. The costs of solidarity pillar and the decrease in contributions are estimated at 2.8% of GDP. They propose that said gap be funded via a flat VAT (i.e., exemptions are eliminated), combined with a 1% increase in the VAT rate.

Universal basic income: Cost estimates

The cost of introducing a universal basic pension can be funded using a variety of options. For example, Indian society has financed this type of measure by eliminating 1000 social policy programs. It is not surprising that eliminating such a huge quantity of programs would provide more than enough funding.

In Chile, eliminating poverty through the use of a universal basic income (UBI) translated into 1.8% of GDP. This is an achievable amount of resources. Our research on the Chilean case indicates that the cost of providing a daily UBI of two dollars per person will most likely represent 2.7% of GDP.

According to the World Bank, the cost of providing a UBI in Finland, Italy and France can be financed through the use of taxes on benefits and the elimination of tax exemptions.

The IMF estimates that the gross cost of providing a UBI in Mexico would amount to 2.2% of GDP. It estimated that, in the case of Brazil, the figure would amount to 2.9% of GDP. The scheme evaluated by the IMF involves a basic income fixed at 25% of Brazil's median after-tax income.

While some of these figures may be a bit high, nations always have the option of providing less generous benefit packages. Clearly, attempting to introduce such a measure through the use of a completely unviable payout amount would simply be irrational.

Implementation

Implementing reform on this scale is no small undertaking. Choosing to launch such a measure via a *big bang* approach would definitely not be advisable.

It should be noted that none of the international organisms cited in this text have put forth a strategy for addressing transition. The author also stops short of putting forth a transition plan. Given the fact that the entire transition issue is so complex, nations should first ensure that a proposed reform possesses a minimum level of support within all of the relevant groups. The best way we can ascertain whether or not this is the case is to begin to discuss a proposed reform in public forums.

Expected outcomes

I wish to close by answering the following question: what do we intend to achieve through the implementation of these two proposals?

First, the proposals seek to achieve a reduction in contribution levels which will likely trigger increases in formal sector employment and productivity. This is a rational expectation because formal sector firms have consistently outproduced their informal sector counterparts.

Secondly, the elimination of dozens or even hundreds of small-scale social programs – that typically only harm formal sector employment growth – will increase incentives to work. Here again, this dynamic will serve to generate more formal sector employment.

Thirdly, the aforementioned increases in formal sector employment will increase the flow of contributions into the second pillar – even as they serve to drive GDP growth. It is important to note that an added benefit is that these two factors will increase tax revenues.

The fourth result of these two proposals is that they will optimize labor market efficiency by increasing the flexibility with which said markets operate. This, in turn, will drive productivity. Once we disconnect the social protection network from the labor market and tie it to tax policy, labor markets will be free to operate at optimal levels of efficiency. This is vital because automation means that many of us are going to be changing our current occupations. In this scenario, minimum wages and severance payouts would only serve to complicate an individual's transfer to a new job position. In short, they would only serve to slow the process down and prevent many professionals from fully capitalizing upon the new spectrum of opportunities available in an increasingly automated and robotized job market.

The fifth outcome involves reducing poverty levels through the introduction of a fully integrated social protection network which addresses every demographic in society, and not just the older adult population.

The sixth expected result is that, in terms of social insurance and general risk coverage, society will experience an increased level of security.

Lastly, though certainly not least, these proposals will help to ensure that societies are capable of providing better pensions.

References

Antón, Hernández and Levy (2012). *The end of informality in Mexico*? Fiscal reform for universal social insurance. Published by the IADB.

Sapelli, C. (2018). *Automatización y Longevidad: Políticas públicas para sobrevivir el desafío.* Available online (only the Spanish version) at: https://www.fiapinternacional.org/wp-content/uploads/2016/01/Automatizaci%C3%B3n-y-Longevidad_Claudio-Sapelli_16.08.2018.pdf

ELEMENTS FOR A NEW DESIGN OF THE LABOR MARKET IN COLOMBIA*

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* *Views expressed herein do not necessarily reflect those of the Banco de la República nor its Board of Directors. Any errors are the express responsibility of the author.*

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During the 21st century, the Colombian labor market has undergone a series of significant interventions. These include Law 789 of 2002, Law 797 of 2003 and Law 1429 of 2010, a legislative measure designed to encourage growth of formal employment. Most recently, Law 1607 of 2012 was enacted in order to promote the formalization of Colombian firms and its national workforce. Other measures have also been used to improve the efficiency of the labor market. An example of this effort is the introduction of IT platforms intended to improve matching between job seekers and employers.

Despite all the progress, Colombia's job market exhibits contradictory symptoms. While high job creation and destruction rates –taken together with high firing and separations figures– suggest an important level of job-market dynamism, the nation's labor market exhibits high levels of structural unemployment, a major gender gap in terms of unemployment and a high rate of labor informality. It should be noted that these are just a few of the observed characteristics which lead to believe that the nation's labor market is currently underperforming (see Arango and Hamann, 2013).

In light of the foregoing, the job market likely requires the application of measures designed to improve its overall functioning. A number of such measures are included in a publication on gender-gap employment issues entitled *Desempleo Femenino en Colombia* ("Female unemployment in Colombia"; Arango, Castellani and Lora, 2016). Some of these strategies are: i) reduction of job-search costs and costs associated with matching job seekers and firms, in order to lessen an important driver of structural unemployment; ii) in an effort to reduce the gender gap in terms of unemployment and informality, promote the use of hourly-based work at public and private entities and firms; iii) redouble financial-education efforts, to include family planning issues which address, inter alia, teenage pregnancy in order to reduce structural unemployment and the unemployment gender gap; iv) increase flexibility in parents' vacation time in order to care for newborn infants. As can be seen, the list of potential reforms is fairly wide-spectrum.

The present text will address yet another measure which may serve to trigger the job market by reducing the high informality rates which certain regions in Colombia currently face. Specifically, the intent is to focus on how to ensure that labor productivity and differences in regional job markets play a more central role in the formulation of public policy. As a result, the objective of this document is to argue for the implementation of a regionally-adjusted minimum wage which would be accompanied by the creation of regional entities charged with monitoring workforce productivity.

The issue of a regional minimum wage is not a new idea in Colombia. Such measures have been implemented in the past (Arango, Herrera and Posada, 2008). The last regional differentiation was based upon rural versus urban contexts, and ended in 1984.

The publication entitled *Informalidad laboral y elementos para un salario mínimo diferencial por regiones en Colombia* ("Labor informality and elements for a differential minimum wage by regions in Colombia"; Arango and Flórez, 2017), an in-depth study of labor market informality and elements comprising a regional minimum wage in Colombia, served as the basis of the present text. That is, it generated the ideas that will be addressed here.

Minimum wages, informality rates and labor force productivity

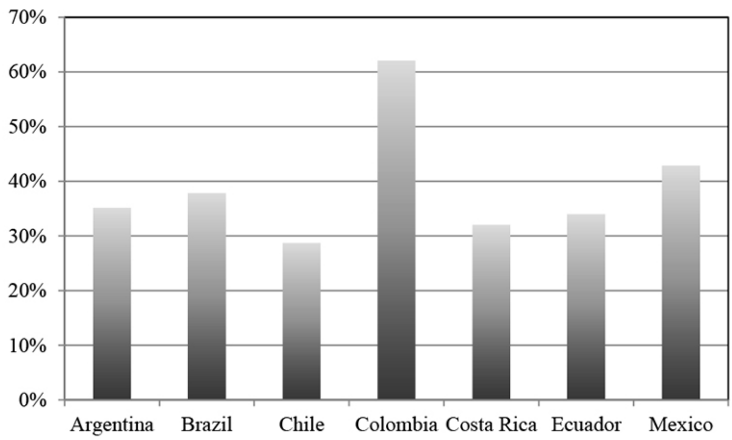
In practical terms, the concept of labor informality is fairly straightforward. It refers to that portion of the labor force that fails to accomplish with the formalities of law.

One of the main drivers which led us to undertake the aforementioned research is the fact that a high prevalence of informal labor constitutes a symptom of a seriously flawed labor market. Additionally, the consequences for workers in terms of well-being, inequality, long-term growth and public finances, inter alia, are highly undesirable. In this sense, Edwin Goñi (2013) suggests that high levels of informality inhibit economic growth, affects productivity, impact firms' production scales, impede their ability to absorb and create new technologies, erode the tax base and constrain redistributive policies even as they impact the social security system".

Although this phenomenon is present in many developing economies, the problem is especially pronounced in Colombia. Figure 1 demonstrates the degree to which our informality rate far outstrips rates observed in other countries of the continent.

FIGURE 1

AVERAGE INFORMALITY RATES WITHIN SEVERAL LATIN AMERICAN NATIONS, 2011-2016



SOURCE: ILO, BASED ON HOUSEHOLD INTERVIEWS. AVERAGE DATA 2011-2016.

As put forth in Uribe (2016), the causes of Colombian informality can be divided into two categories: structural and cyclical. With regard to the former, the interaction between the minimum wage (and other nonwage costs in Colombia such as pensions, unemployment insurance and insurance premiums) and low labor productivity levels comprises one of the fundamental causes. The argument suggests that when a minimum wage exceeds worker productivity levels, they are laid off becoming unemployed and eventually routs them into the informal-sector employment.[2]

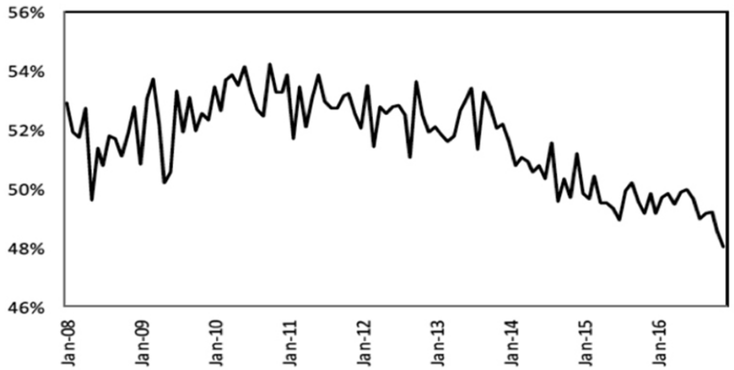
However, the inherent wage rigidity of minimum wages also plays an important role in terms of the cyclical causes of informality. For instance, in the event of a transitory adverse shock to aggregate demand, the formal-sector demand for labor reduces. Whereas the level of imposed wage rigidity outstrips price rigidity, an increase in

2 *Law 1607 de 2012 reduced nonsalary labor costs via the elimination of contributions to the Instituto Colombiano de Bienestar Familiar ("Colombian Institute of Family Welfare", ICBF) and Servicio Nacional de Aprendizaje ("National Learning Service"; SENA), and by obliging employers to cover healthcare contributions.*

unemployment and/or the informal sector is the inevitable outcome. Mondragón, Peña and Wills (2010) found that minimum wages and other non-wage costs tend to increase the probability for transition to informality, as well as the size of the informal-sector[3]. Flórez (2002) and López (2013) have indicated that informality increases during recessions and decreases during periods of economic growth.

Figure 2 presents the informality rate computed following the criteria of *Departamento Administrativo Nacional de Estadística* (National Administrative Department of Statistics, DANE). In this case, the DANE indicator categorizes informal employment as jobs performed at enterprises with up to five workers. According to the figure, the performance since 2010 has been successful to some extent, whereas the informal employment rate has dropped several points – the rate is computed as the number of informal workers divided by the occupied population. In fact, it has experienced a reduction of more than a five percentage points during this period. Although the rate began to decrease before the 2012 reform was introduced, this measure clearly had a positive effect, because the trend has continued.

FIGURE 2
LABOR INFORMALITY RATE FOR 23 CITIES, FIRMS OF UP TO FIVE WORKERS



SOURCE: DANE-GEIH; AUTHOR'S CALCULATIONS.

3 *In terms of potential causes that may be incentivizing structural informality in Colombia, several factors have been identified: income taxes (Lora and Fajardo, 2012), public health care system (Perry et al, 2007; Camacho, Cornover and Hoyos, 2013), firing costs (Kugler, 1999); introduction of Planilla Integrada de Liquidación de Aportes ("The Integrated Form for Liquidation of Contributions"), benefits-payment system (Calderón and Marinescu, 2012), the workforce training and education costs, and, job-search and recruiting costs.*

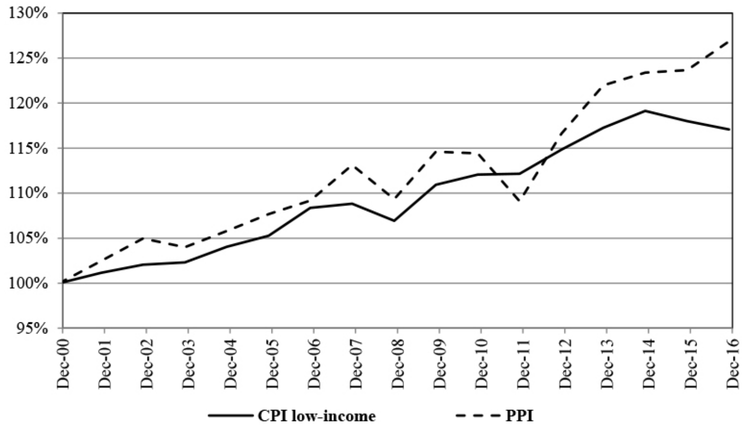
Our primary assertion is that Colombia's minimum wage may be contributing to the poor performance of the labor market. While evidence indicates that it is not an exclusive contributing factor, everything points to a fairly strong correlation. Although the minimum wage was intended to increase quality of life levels among the less skilled workers within the labor force, the long-term overall impact can best be described as negative.

Figure 3 illustrates the behavior of the minimum wage in real terms between 2000 and 2016.[4] Minimum-wage growth has been significant: annual increases of 1%, deflated by the low-wage earner consumer price index (CPI); and, 1.2% deflated by the producer price index (PPI). The upward trend of the minimum wage suggests that any increases should have accompanied by an upturn in labor productivity. However, this is something that did not occur during this period. Furthermore, if labor productivity is calculated by the ratio of GDP to the number of individuals in the labor force, it would be biased upwards whereas the capital endowment per worker also contributes to generating a greater quantity of product in the same units.

4 *The Colombian minimum wage is set annually at the end of the year. Article 53 of Chapter 2 of the 1991 Political Constitution of Colombia addresses social, economic and cultural rights, indicating that "... the labor law must take into account, the minimum vital and mobile remuneration, proportional to the quantity and quality of work as one of its basic elements ..." In accordance with Law 278 of 1996, the Permanent Commission of Agreement on Wage Policies and Labor, must, "[...] establish in a concerted manner the minimum wage of a general nature, taking into account that a decent quality of life must be guaranteed for the worker and his family". The rule says that, "[...] when definitively no consensus is reached in setting the minimum wage for the next year, no later than the thirty (30) of December of each year, the Government will determine it taking into account as parameters the inflation target of the following year set by the Board of Directors of the Bank of the Republic and the productivity agreed by the tripartite productivity committee coordinated by the Ministry of Labor. The contribution of wages to national income, the increase in gross domestic product (GDP) and the consumer price index (CPI) must also be taken into account. In 1999, the Constitutional Court (Judgment C-815/99) stipulated the need to add effective inflation for the year that culminates according to the Consumer Price Index (CPI) to the criteria for setting the minimum.*

FIGURE 3

GROWTH OF MINIMUM WAGE, 2000-2016



SOURCE: MINISTRY OF LABOR; DANE; AUTHOR'S CALCULATIONS.

Figure 4 provides a comparison of the minimum wage vis-à-vis the median salary (50th percentile), 70th percentile, and labor income of non-salaried workers. The population of non-salaried workers in Colombia waver between 10 and 12 million individuals.

Labor productivity is difficult to quantify in accurate terms. However, the primary reference point here is the real wage earned by workers. We cover this issue more deeply below. As Figure 4 demonstrates, during the last 10 years the minimum wage has comprised between 85% and 90% of the median wage; between 58% and 68% of the 70th percentile of the wage distribution;[5] and close to 25% more than the earnings of non-salaried workers.[6] If this constituted a suitable minimum wage, this would mean that the productivity of minimum-wage workers is very

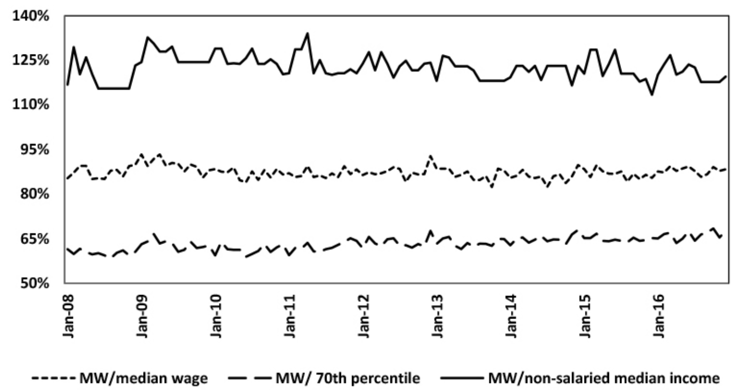
5 *Authors such as Lee (1999) and Lotti (2016) utilize this measurement whereas 70th-percentile salary is less affected by the minimum wage.*

6 *In an earlier presentation in this Congress, Marcela Eslava stated that the gap between informal and formal-sector productivity is approximately 30%. This graph, which is not an ideal indicator, suggests a difference of approximately 25%, on average, during the period of analysis. This is to say, a formal-sector worker who earns the minimum wage is, on average, 25% more productive than their counterparts within the informal sector.*

high as compared to the productivity levels of median workers or workers within the 70th percentile of wages. Given the size of the informal labor share, this is – again – a highly unlikely fact. Colombia's current labor informality rate, which is close to 50%, does not lead to believe that its minimum wage accurately reflects the productivity level of individuals who possess very limited training and experience. Instead, Figure 4 suggests that the minimum wage in Colombia is highly restrictive (Maloney and Núñez, 2004).

FIGURE 4

MINIMUM WAGE AS PROPORTION OF MEDIAN, 70TH PERCENTILE AND NON-SALARIED MEDIAN WAGES

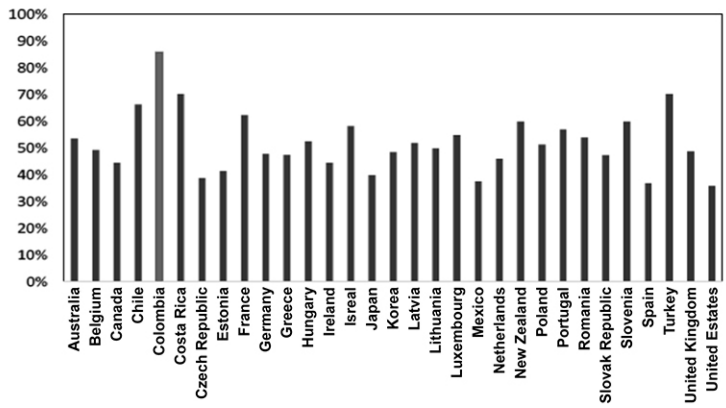


SOURCE: DANE-GEIH; AUTHOR'S CALCULATIONS.

By comparing the ratio of the minimum wage to the median wage in Colombia to that of several OECD nations, we found that this indicator for 2015 (86%) was much higher than the one of nations such as Spain, the United States, Mexico, Japan and the Czech Republic. The minimum wages in these economies only constitute about 40% of the respective median wage. Even worse, Colombia's minimum wage is substantially higher than the sample average of 52% (see Figure 5). Should this ratio would mirror accurately productivity levels of less-skilled workers (compared to the median productivity levels), this would mean that Colombia possesses an unskilled labor that outperforms, in relative terms, its counterparts in the United States and Japan, an unlikely situation.

Figure 6 shows the labor productivity for the aforementioned group of nations using ILO data. Colombian labor productivity is clearly less than the sample group, and far below the average of USD 57,000. As a result, the situation shown in Figure 1 – regarding the relative size of Colombia's informal sector as compared to other nations within the region (i.e., Chile and Mexico) – should come as no surprise. If, as stated before, the primary reference point for wages is labor productivity, from Figures 5 and 6 is easy to conclude that the current minimum wage in Colombia is unrealistic and too high.

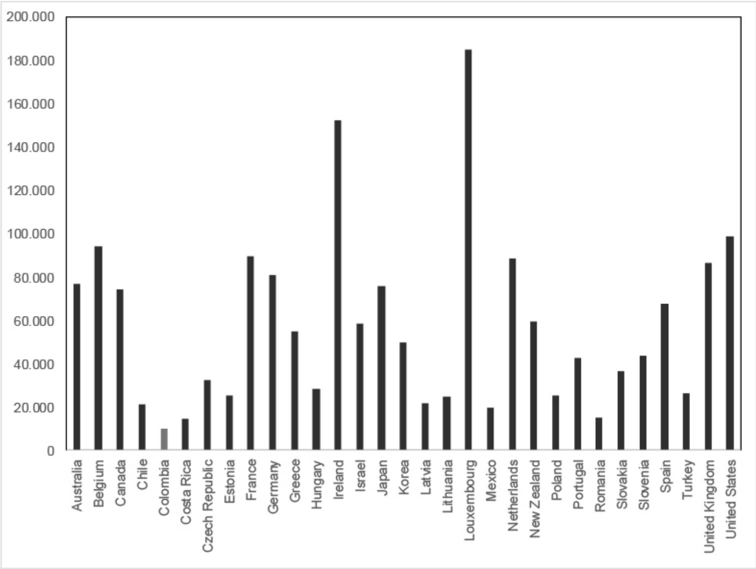
FIGURE 5
MINIMUM WAGE TO MEDIAN WAGE RATIO



SOURCE: OECD. DATA CAPTURED 17 AUGUST 2017 ON OECD.STAT.

FIGURE 6

WORKER OUTPUT FOR 2015 (IN 2005 USD)



SOURCE: ILO. ILO MODELED ESTIMATES, NOVEMBER 2016.

Hypothesis

In terms of productivity of low-skilled workers, an extremely high minimum wage can have a deleterious effect on formal-sector job creation. With this in mind, Arango and Flórez (2017) checks whether the minimum wage has any impact on the prevalence of informal employment levels in Colombia and, if this were the case, verify whether such impact varies throughout the regions. Given that both points are validated, we suggest that minimum-wage increases should be moderate and that a regional minimum wage should be put into place depending on the respective regional labor productivity. This suggests that informality and labor productivity are two sides of the same coin: low labor productivity rates correlate to high informal-sector rates. Additionally, the two forces unfortunately drive one another.

Figuratively speaking, we need to take our foot off the accelerator in terms of the minimum wage and, instead, focus more attention on our productivity levels. This does not mean that we believe that leveling off minimum-wage hikes will necessarily translate into less formality. We are simply suggesting that more effort is needed to boost workforce productivity.

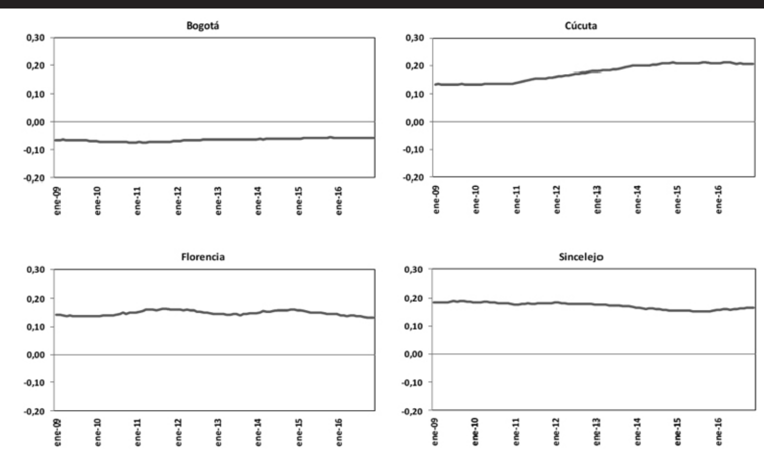
Regional heterogeneity

As a sample of regional heterogeneity in labor informality, which for the purposes of this study is identified with low labor productivity, Figure 7 shows the difference between the informality rates of four selected cities and the average of 23 cities. The differences are calculated using 24-month moving averages for both the informality of the city and the average of 23 cities.

Firstly, it can be seen that Bogotá maintained between 2008 and 2016 informality rates well below the average urban rate. In particular, in December 2016, the difference between this city and the urban average was -6.4 pp. This suggests that Bogotá has structurally different conditions from other cities such as Florencia, where the difference in the informal labor rate with respect to the urban average is 13.1 pp. According to the hypothesis of the work, these wide positive gaps are observed, because the productivity of the less skilled labor in these cities is very low compared to the minimum wage.

FIGURE 7

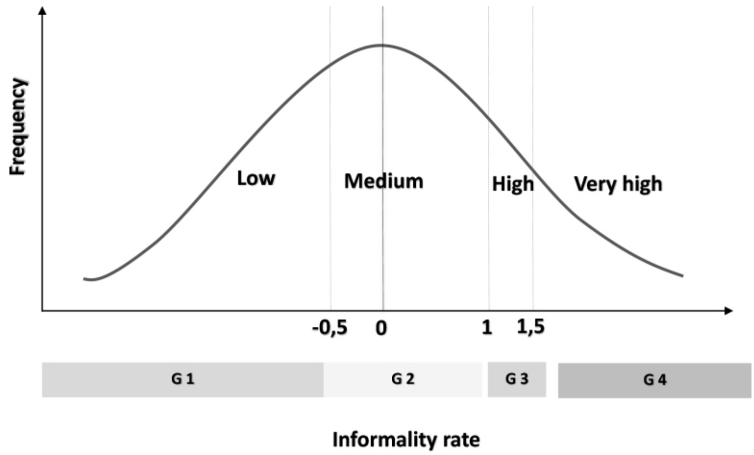
DIFFERENCE BETWEEN INFORMALITY RATE OF EACH CITY AND THE 23-CITY SAMPLE
24-MONTH MOVING AVERAGES



SOURCE: DANE-GEIH; AUTHOR'S CALCULATIONS.

In our study, we established four levels of informality (see Figure 8): i) low informality: more than half standard deviation (SD) below; ii) average informality: between 0.5 SD below and 1 SD above; iii) high informality: rates between 1 and 1.5 SD above; iv) very high informality: rates above 1.5 SD. These categories that we use to classify the 23 cities are arbitrary.

FIGURE 8
FOUR INFORMALITY LEVELS



SOURCE: AUTHOR'S CALCULATIONS.

According to these classifications, Bogotá, Manizales and Medellin belong to Group 1.[7] The second group is comprised of Barranquilla, Cali, Pereira and Tunja, all of which fall into the average informality group. These cities have belonged to Group 2 for the last eight years. Cartagena has been in and out of the group for 90 months, but the last 48 have been uninterrupted. Bucaramanga has experienced medium levels of informality during the last four years, although during the first phase of the sample it was battling high levels of same. Popayán has been in Group 2 for 20 of the last 24 months.

7 *Despite the extremely high commute costs cited by Professor Ricardo Hausmann, Bogotá has managed to maintain a fairly low rate of informality. This is because it has a more highly-educated population than other cities in Colombia.*

In Group 3, of cities with a high informality rate, there are Pasto, Villavicencio, Ibagué, Armenia and Neiva. Finally, in Group 4 are the cities with the poorest performance in terms of informality. The cities classified in this group are: Cúcuta, Montería, Florencia, Valledupar, Quibdó, Riohacha, Santa Marta and Sincelejo. The cities that make up each group can have, although not necessarily, some common characteristics. However, it is expected that the cities of different groups do have distinctive traits, in accordance with the heterogeneity of the Colombian labor market (see Table 1).

TABLE 1
CLASSIFICATION OF CITIES BY INFORMALITY RATE (IN ORDER OF SIZE). 2009-2016

Group	City
1	Bogotá, Manizales, Medellin
2	Barranquilla, Bucaramanga, Cali, Cartagena, Pereira, Popayán, Tunja
3	Armenia, Ibagué, Neiva, Pasto, Villavicencio
4	Cúcuta, Florencia, Montería, Valledupar, Riohacha, Santa Marta, Quibdó, Sincelejo

SOURCE: DANE; AUTHOR'S CALCULATIONS.

Empirical model

The theoretical model, which serves as the basis of the study, is presented in Arango and Flórez (2017). The parameters utilized to generate the estimates suppose that informality and unemployment[8] (individually or jointly, totals or for particular population groups) depend on: i) the minimum wage and other wages in the economy, which we merge into a single variable called "minimum wage relative to the 70th percentile of the distribution of wages, SM / P70". If the coefficient associated with this variable is positive, it means that the greater the variation of that relationship, the greater the change in the rate analyzed (informality, for example); ii) aggregate demand, approximated by the Economic Monitoring Indicator-ISE. In this case, if the coefficient is negative, a greater economic dynamics will reduce the analyzed rate. Likewise, non-wage labor costs and the interest rate are included as determinants of the informality rate and other labor market outcomes.

8 *Variables are in annual first differences.*

Findings

Table 2 presents the results of the long-term effect of the minimum wage and other variables in the indicator of unemployment and informality as a proportion of the labor force, (U + I)/LF, informality of different groups and unemployment rates, for a panel of 23 cities between 2008 and 2016, in quarterly data.

TABLE 2

LONG-TERM EFFECT ON SEVERAL LABOR MARKET VARIABLES
QUARTERLY PANEL, 2008-2016

Variables	Minimum wage 70th earnings percentile (1)	ISE (2)	Non-salary costs (3)	Interest rate (4)
Unemployed + informal workers				
Economically-active population	**0,0338****	**-0,4865*****	**0,1159*****	0,1932
Informality rate, by size	**0,0428**	**-0,3216**	**0,1161**	0,1558
Informality rate, 18-30 years	0,0232	**-0,5221**	**0,0934**	**0,2470**
Informality rate, 31-50 years	**0,0649**	**-0,2830**	**0,1117**	0,2010
Informality rate, women	**0,0383****	0,1487	**0,1871*****	**0,5053*****
Proportion of employed earning less than 95% of minimum wage	**0,0726***	0,0576	**0,536***	**-0,1726****
Unemployment rate, young adults	-0,0236	**-1,0117*****	-0,0236	0,4948
Unemployment rate	-0,0325	**-0,4680*****	-0,0385	0,0761
Employment rate	**-0,0335***	**0,3906*****	**0,1213*****	**0,4852*****
Employment rate, formal sector	**-0,0375*****	**0,3489*****	-0,0249	0,0922

NOTES: * SIGNIFICANT TO 90%, ** SIGNIFICANT TO 95%, *** SIGNIFICANT TO 99%. ECONOMIC MONITORING INDICATOR-ISE SOURCE: DANE-GEIH; AUTHOR'S CALCULATIONS.

As can be seen, the long-term effect of the minimum wage relative to the 70th percentile of wages in the indicator of unemployment and informality, (U + I) / PEA, is positive and significant. According to the coefficient, an increase of one percentage point in the SM / P70 ratio will generate an increase of 0.033 pp in that indicator. Significant reactions generate economic activity (-0.487) and non-wage labor costs (0.116). The interest rate was not significant in this case, although the sign suggests some degree of gross substitution between labor and capital at the urban level.

We also estimate the effect of SM/P70 on each of the two variables, unemployment rate and informality rate, separately and particularizing by demographic groups. Thus, important effects of the minimum wage are observed in the total informality rates measured by size (0.0428), of people aged between 31 and 50 years (0.0649), of women (0.0383) and in the proportion of employed persons with incomes lower than 95% of the minimum wage (0.0726). According to the evidence, there were no effects of the SM / P70 variations neither in the informality rate of people from 18 to 30 years of age, neither in the total unemployment rate, nor in the youth unemployment rate. In contrast, adverse effects are also observed in the total and formal employment rates.

Good economic performance, measured in ISE-percentage variations, was found to have an important impact on the following: total informality by size; 18 to 30-year-old cohort; 31 to 50-year-old cohort; total unemployment rate; and, especially, the youth unemployment rate. In particular, the effect of ISE annual variations on the unemployment rate is especially significant whereas it constitutes clear evidence of Okun's law. In this case, a variation of 1% in economic activity reduces the long-term unemployment rate by 0.468 percentage points.

Non-wage labor costs affect the labor market in indicators such as total informality rates and different demographic groups, although not total or youth unemployment rates. The employment rate is affected by labor costs other than wages, but not the formal employment rate where the sign is negative, although not significant. In short, the informal occupation increases with the variation of labor costs.

The effects of interest rates are less systematic in terms of the various job market indicators. Positive and significant effects were observed in terms of total informality rates, among individuals aged 18 to 30, and women. While interest rates affected employment rates, no impact was identified in terms of formal-sector employment. The effect of interest rates was negative in the case of workers earning less than 95% of minimum wage.

However, it is not enough to demonstrate evidence of the effects of the minimum wage on the scale of the informal sector within a single panel specification. It is also necessary to verify that a substantial number of the estimated coefficients directly related to minimum wage are significant and different across cities. As a result, we used individual, monthly time series between January 2007 and December 2016, and generated estimations using two-stage ordinary least squares.

Table 3 presents some estimates for both the set of 23 cities and for each of them, grouped according to the recent prevalence of labor informality that appears in Table 1. For urban areas as a whole, the minimum wage relative to salary corresponding to the 70th percentile increases labor informality: before an increase of 1pp in this indicator, labor informality increases 0.18pp. Similar magnitudes have the coefficients of the interest rate and labor costs other than salary. The good performance of the economy contributes to reduce labor informality (-0.211).

Table 3 shows that the significant coefficients associated with the minimum wage are now much higher than those of the panel strategy shown above. It is observed, likewise, that the magnitudes of the salary effect are quite heterogeneous among cities. In this sense, the city with the highest increase in its informality rate as a result of an increase of 1pp in the relative minimum wage indicator is Popayán, (with an increase of 0.831pp), followed by Villavicencio, Neiva and Florencia. Although for most cities it is observed that the effect of the minimum wage on informality is positive, there are exceptions such as those of Cartagena and Santa Marta.[9] In 15 of the 23 cities the coefficient is positive and significant, in three others (in Group 2) it is positive and not significant. Two cities generated negative coefficients, while the three remaining had negative yet not significant estimates.

Similarly, we find that economic activity reduces informality significantly, especially in cities such as Manizales and Bucaramanga, where a 1% growth in the ISE reduces the informality rate by 0.98pp and 0.85pp, respectively. The interest rate affects informality in 15 cities, in 11 of them upward and four down; Florencia and Neiva have relatively high coefficients (1.09 and 0.66, respectively). Finally, non-wage labor costs are, in most cities, positive and significant. Faced with a 1pp increase in non-wage labor costs, the labor informality rate increases by 0.107pp. Surely, important effects of the recent reduction of 13.5pp in these costs carried out through the tax reform of 2012 (Law 1607) had important effects on the informality of Quibdó, Florencia and Neiva.

9 *Tunja, Armenia and Valledupar also generated negative coefficients but not significant.*

TABLE 3

LONG-TERM EFFECTS ON INFORMALITY RATES, BY SIZE.
MONTHLY BASIS. 2SLS

Group	City	Minimum wage / 70th earnings percentile	ISE	Interest Rate	Non-salaried costs
	23 cities	0,177***	-0,211***	0,131*	0,107***
Group 1	Bogotá	0,160***	-0,074	0,008	0,064
	Manizales	0,111**	-0,978***	0,531***	-0,129*
	Medellín	0,181***	-0,362**	0,299*	0,183**
Group 2	Barranquilla	0,000	-0,148	0,549*	0,275*
	Bucaramanga	0,173*	-0,849***	0,458**	0,039
	Cali	0,118	-0,555***	-0,348*	0,17**
	Pereira	0,024	-0,310	-0,446*	-0,075
	Cartagena	-0,091*	0,008	-0,542**	-0,025
	Tunja	-0,072	0,376*	0,311*	-0,158*
	Popayán	0,831*	-1,059	0,454	-0,387
Group 3	Pasto	0,16***	-0,518***	0,589**	0,051
	Villavicencio	0,610**	0,259	0,382	-0,124
	Ibagué	0,228**	0,226	-0,645*	0,102
	Armenia	-0,063	-0,674*	0,456	0,257*
	Neiva	0,498**	-0,148	0,658*	0,326*
Group 4	Cúcuta	0,141*	0,684***	0,335*	0,271***
	Montería	0,085*	-0,597***	-0,069	-0,22**
	Florencia	0,357**	-0,446	1,092**	0,366*
	Valledupar	-0,05	-0,341*	0,298*	0,216**
	Quibdó	0,058*	0,987**	-0,272	0,392**
	Riohacha	0,151*	0,48	0,54*	-0,119
	Santa Marta	-0,147*	-0,553**	0,32	-0,175*
	Sincelejo	0,08***	-0,058	0,134	0,209**

NOTES: * SIGNIFICANT TO 90%, ** SIGNIFICANT TO 95%, *** SIGNIFICANT TO 99%. ECONOMIC MONITORING INDICATOR-ISE SOURCE: DANE-GEIH; AUTHOR'S CALCULATIONS.

Regional minimum wages

Differential minimum wages are commonly used throughout the developing and developed world. They vary depending on economic activity, occupation, age, economic region and other factors. According to a report published by the *Biblioteca del Congreso Nacional de Chile* ("Library of the National Congress of Chile") in 2011, nations such as England, Italy, Germany and Finland have a minimum wage differentiated by sectors such as agricultural, metallurgy and technology. In the United States, the federal minimum wage is utilized as a reference point (lower bound) for setting minimum wages at the state level.

In other regions, the issue is a bit more complex. For example, some nations differentiate wages based on economic activity and the number of workers employed by the firms. This is the case in Honduras, for instance. In Mexico, however, the minimum wage varies by region and occupation type, while in the Dominican Republic depends on the economic activity and job type. Some other nations, such as Panama, utilize all three characteristics (region, economic activity and firm size). Others employ a single-factor approach. Guatemala and Nicaragua utilize economic activity, while Costa Rica uses occupation type. Chile employs a fairly simple strategy, paying 75% of the minimum wage to individuals are under 18 or over 65 years old.

As noted in Arango, Herrera and Posada (2008), Colombia has utilized differentiated minimum wage scales in the past. The authors note that "…in the mid-80s, and even before, there was a fairly wide array of minimum wages. For example, Decree 236 of 1963 (which brought Law 1 of 1963 into the regulatory framework) established minimum wages according to provinces and firm size." Decree 240 of 1963 adjusted the minimum wage for agricultural sector workers and individuals under the age of 16. Decree 577 of 1972 set wages by sector (manufacturing, trade, services, transportation, construction, primary, etc.), by geographic zone and by firm size, inter alia. The unification of the minimum wage occurred via Decree 3506 of 1983, in order to "eliminate unfair discrimination against rural-sector workers". This adjustment process ended in July 1983, when a national minimum wage was introduced and applied to all Colombian workers (Ministry of Labor and Social Security, 1983-1984).[10]

Given the evidence presented in the study with regard to the effects of the minimum wage upon informality and the divergence of this effect by city, in the present text we propose a return to the regional minimum wage. Our approach is much more simplified than those utilized in the past, whereas it does not generate unsustainable wage gaps or involve a problematic implementation phase. We propose that cities registering higher productivity levels receive a higher minimum wage than their counterparts with lower productivity levels. Such an approach would ensure a

10 *Guillermo Alberto González Mosquera headed the ministry when the wage was standardized. In his Ministry State of Affairs Report for 1982-1983, Minister Jaime Pinzón López states: "A policy of increase in family income levels will be carried out, based on the increase in productivity, basically in the family with high rates of child and youth labor, through actions that improve the remuneration to adult work." In the Act 001 of Consejo Nacional de Salarios ("National Salary Council") of 1984, Manuel Felipe Hurtado added, on behalf of the CTC, that "not a single worker center agreed with going back to a scenario in which we differentiated between urban and rural minimum wages, whereas the conditions of workers in the countryside were much more difficult than those faced by their counterparts within the city." This footnote is taken from Arango, Herrera and Posada (2008).*

balance between productivity and the minimum wage, and the minimum wage that does not hinder the demand for formal work.

The informality level in a city can be determined by using a 24-month moving average and the 23-city average as a reference point; i.e., an approach similar to that utilized in Figure 7. We established four regional groups in which a minimum wage can be set. For example, if for city j this gap is more than 0.5 standard deviations below the average, we would classify it as having a low informality rate.[11] If the difference falls between 0.5 below, and 1 standard deviation above the average, j would be classified as average in terms of informality. If the difference is between 1 and 1.5 standard deviations, the city is classified as a high level of informality. Lastly, if the difference is above 1.5 standard deviations, we would classify it as possessing a very high informality rate.

As mentioned before, through the use of this simple metric during the last few years, we achieved the group classifications utilized to present the graphs and tables included in the study (this classification being based on informality, by size):

Group 1 (*Low informality*): Bogotá, Manizales and Medellín.
Group 2 (*Average informality*): Barranquilla, Bucaramanga, Cali, Pereira, Cartagena, Tunja and Popayán.
Group 3 (*High informality)*: Pasto, Villavicencio, Ibagué, Neiva and Armenia.
Group 4 (*Very high informality*): Cúcuta, Montería, Florencia, Valledupar, Quibdó, Riohacha, Santa Marta and Sincelejo.

Lastly, whereas rural labor informality in some regions reaches nearly 80%, it is recommended that rural areas be assimilated to cities of Group 4.

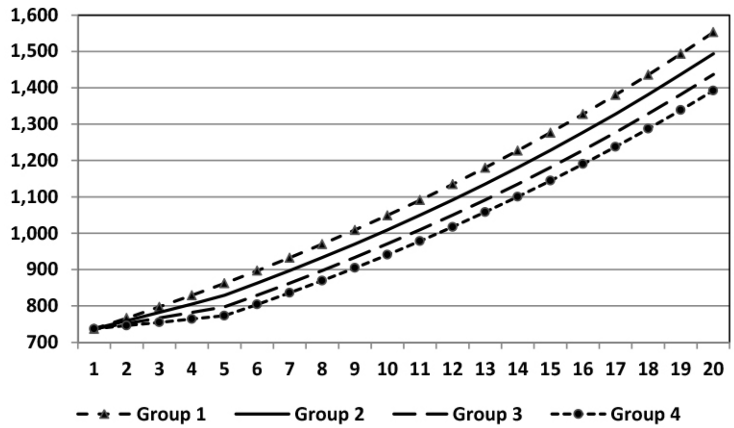
Once categorized into the four separate zones or groups, we propose the following minimum wage adjustment parameters for the first five years of implementation of the differential regional minimum wage. For cities within Group 1, adjustments to the nominal minimum wage might be equal, for example, to the long-term inflation target and an estimate of workforce-productivity annual growth of between 0.5% and 1%. Said growth rate should be set by the *Comisión Permanente de Concertación de Políticas Salariales y Laborales* ("Permanent Commission of Agreement on Wage and Labor Policies"). In any case, increases introduced in the three cities which comprise Group 1 must not be excessive, given that a high minimum wage as percentage of the 70th wage percentile will drive informality rates up. In Group 2, the minimum wage increase introduced between years two and five will equal 75% of the Group 1

11 *Standard deviation is calculated using the 24-month rolling average of each of the cities vis-à-vis the 23-city average.*

increase. Group 3 cities will undergo an increase that comprises 50% of the Group 1 increase during this period, while the cities in Group 4 will see a 30% compared to their Group 1 counterparts.

Starting in year 6, the adjustment of the nominal minimum wage would be full for the four groups of cities. Therefore, the minimum wage-labor productivity gap within the cities comprising Groups 2, 3 and 4 has the potential to be narrowed through the use of a real minimum wage. The respective trajectories of the four regional minimum wages are shown in Figure 9.

FIGURE 9
IMPLEMENTATION OF A REGIONAL MINIMUM WAGE



SOURCE: AUTHOR'S CALCULATIONS.

The strategy we propose for implementing the regional minimum wage has the advantage of ensuring that a city passing into a subsequent group will not undergo any decrease on its nominal minimum wage. Furthermore, no exponential gaps will occur in terms of long-term wage differences. The classification of cities into the respective minimum-wage regions should be performed annually in December on the basis of workforce informality figures generated by the DANE in October of a given year. This is because the standard deviations are calculated using 24-month moving averages; that is, the moving averages utilize regional labor-market performance data from the preceding two years. If in December, moving average data for October indicates that the workforce informality rate has dropped within a city or region and, for example, the city is no longer in two standard deviations of the average but in 1.3 deviations, this city will be no longer categorized as Group 4, instead it would be classified as a Group 3 city.

However, how long should a regional minimum wage be employed within a given context? This question has already been answered by developing and developed nations, whose minimum wages are essentially permanent. In the case of Colombia, a permanent regional minimum wage would allow us to control labor informality and, as far as possible, reduce the heterogeneity labor productivity across regions.

If we wish to ensure that a regional minimum wage also provides a less rigid labor market, Judgment C-815/99 issued by the Constitutional Court must be modified in order to include informal-sector size (based on data generated by the DANE) as part of the criteria for adjusting minimum wages.

The introduction of a regional minimum wage must occur along with systematic measures and actions which allow for increases in labor productivity. In order for this increase to take place, human capital will be of vital importance. Colombia will need technicians who possess the technological know-how to address this challenge. Highly-trained professionals will also be required to lead our efforts. In this sense, more and better educational opportunities must be a permanent goal for Colombia. Ideally, our nation must also support demand for education. Colombia has stated that it plans to be the most educated nation in Latin America by year 2025. Achieving this goal would go a long way in helping us to increase labor productivity and deliver better wages to everyone involved.

References

Arango, L. E. (2013). Mercado de trabajo en Colombia: suma de partes heterogéneas. In L. E. Arango and F. Hamann (Ed.), El mercado de trabajo en Colombia: hechos, tendencias e instituciones (pgs. 167-202). Bogotá: Banco de la República.

Arango, L.E., and L.A., Flórez (2017). Informalidad laboral y elementos para un salario mínimo diferencial por regiones en Colombia. Available on: http://www.asofondos.org.co/sites/default/files/Banrep%20-%20Salario%20M%C3%ADnimo%20Diferencial%20%28BE-1023%29_0.pdf

Arango, L. E., F. Castellani and Lora, E. (2017). Desempleo femenino en Colombia. Banco de la República, Colombia.

Arango, L.E., Herrera, P., and Posada, C.E. (2008). El salario mínimo: aspectos generales sobre los casos de Colombia y otros países. Ensayos sobre Política Económica, Vol. 26, Nº 56, 15-71.

Arango, L.E., Flórez L. (2017) Informalidad laboral y elementos para un salario mínimo diferencial por regiones en Colombia. Borradores de economía, Banco de la República, 1023.

Goñi, E. (2013). Andemic Informality. Assesing labor informality, employment, and income risk in the Andes. Washington: Inter-American Development Bank.

Uribe, J. D., and República, B. d. (2016). Informalidad Laboral: ¿Qué hemos aprendido y que falta? Revista del Banco de la República, LXXXIX(1060), 5-24. Available at: http://www.banrep.gov.co/sites/default/files/publicaciones/archivos/rbr_1060.pdf

Mondragón, C., Peña, X. and Wills, D. (2010). Labor Market Rigidities and Informality in Colombia, Economía, 11(1) (Fall 2010), pp 65-101.

Flórez, C. (2002). The function of the urban informal sector in employment: Evidence from Colombia. Documento CEDE(4): https://economia.uniandes.edu.co/components/com_booklibrary/ebooks/D2002-04.pdf.

Lopez, H. (2013). Mercado laboral Colombiano: tendencias de largo plazo. En L. E. Arango, y F. Hamann (Ed.), El mercado de trabajo en Colombia: hechos, tendencias e instituciones (pgs. 167- 202). Bogotá: Banco de la República.

Lora, E., and Fajardo, D. J. (2012). Employment and Taxes in Latin America: An Empirical Study of the Effects of Payroll, Corporate Income and Value-Added Taxes on Labor Outcomes (No. IDBWP-334). IDB Working Paper Series.

Perry, G. (Ed.) (2007). Informality: Exit and exclusion. World Bank Publications

Camacho, A., Conover, E. y Hoyos, A. (2013). Effects of Colombia's Social Protection System on Workers' Choice between Formal and Informal Employment. The World Bank Development Review, 28(3), 446-466.

Kugler, A. (1999). “The Impact of Firing Costs on Turnover and Unemployment: Evidence from the Colombian Labour Market Reform”, International Tax and Public Finance, Vol. 6, Nº 3, pgs. 389-410.

Calderón-Mejía, V., and Marinescu, I. E. (2012). The impact of Colombia's pension and health insurance systems on informality (No. 6439). Discussion Paper series, Forschungsinstitut zur Zukunft der Arbeit.

Maloney, W., and Núñez, J. (2004). Measuring the impact of minimum wages. Evidence from Latin America. In Law and employment: lessons from Latin America and the Caribbean, 109-130. University of Chicago Press.

Lee, D. (1999) Wage inequality in the United States during the 1980s: rising dispersion or falling minimum wage? The Quarterly Journal of Economics, 114(3), 977-1023.

Lotti, G., Messina, J., and Nunziata, L,. (2016). Minimum Wages and Informal Employment in Developing Countries. Working Paper. Available at: http://jobsanddevelopmentconference.org/wpcontent/uploads/2016/10/LOTTI_Minimum-Wages-and-Informal-Employment-in-DevelopingCountries.pdf

Biblioteca del Congreso Nacional de Chile. (2011). Países con salarios mínimos diferenciados por zona, rama, ocupación y/o tamaño de la empresa. Santiago, Chile: Biblioteca del Congreso Nacional de Chile.

THE FUTURE OF WORK AND SOCIAL SECURITY

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The International Organization of Employers (IOE), the largest private sector employer organization in the world, represents the employers group of the International Labour Organization's governing body as one of the International Labour Organisation (ILO) tripartite constituents: workers, employers and States. Its primary role is to ensure that the policy interests of employers are reflected in the organization's agenda and activities.

The organization is also active outside the ILO. It is increasingly involved in international forums such as the G20, having been part of the B20 from inception, World Health Organization and World Bank, and IOE member-organizations are distributed throughout 143 countries. Serving as IOE global spokesman requires one to be sensitive to the needs of every region throughout the world, and the broader IOE goals are definitely informed by this dynamic. Latin America has been especially supportive of our efforts. As such, it only made sense to come and share ideas here in Colombia.

In March 2018, the ILO – after fourteen years of hard work on the issue – managed to construct a mechanism which will place a great deal of pressure on Venezuela. A commission of inquiry against Venezuela has been convened. At the outset, some member-governments attempted to oppose the measure. Others were unsure of the suitability of such a mechanism. But as time marched on, a consensus began to materialize among IOE employers regarding the desirability of such a commission which was later supported by all the constituencies. Clearly, given the current state of affairs, it was the best way forward. Some amount of pressure needs to be applied in order to achieve lasting solutions. Therefore, it is singularly gratifying to participate at this event alongside an individual like Ricardo Hausmann, who has played such a public and productive role in outlining what needs to be done within the region and within Venezuela.

Before addressing the future of work, it should be pointed out that a great deal has been said on the subject here in Colombia. Topics have included a broad spectrum of areas which, either tangentially or very directly, can be traced back to this wider issue. Presenters have addressed demographics, in terms of trending and changes; the future of social protection, the issue being addressed in this text; and, how social protection policy can be tailored to broader and constantly-evolving scenario.

It is also very important to mention, especially to those closely following the activities of the ILO, that this organization is celebrating its centenary in 2019. Part of its Centennial activities is the Global Commission on the Future of Work. This is a project designed to underline the 100-year mission of the ILO, even as it serves to delineate where the organization is headed during its next century of existence. The Global Commission on the Future of Work has gathered together approximately two dozen internationally-renowned experts from throughout the world. These individuals will be discussing strategies to address how the planet should address the vital issue of the future of work (FoW). Four other, ex *officio* members also serve, through their representation of constituencies.

This chapter is a good opportunity to explain that the future of work is comprised of six clusters which were addressed at the last IOE session.

The six clusters are as follows:

1. The role of work for individuals in society

2. Ending the pervasiveness of women's inequality within the workplace

3. Technology for social, environmental and economic development

4. Managing change during every phase of education

5. New developments for growth and development

6. The future of the governance of work

The last component, related to the future governance of work, becomes exponentially relevant when addressing the future of social security systems. This is because the two issues are so intertwined that we cannot address one without discussing the other. There are two elements which comprise the future governance of work: 1. the trajectory society is on in terms of creating and then adapting social protection floors to the future; 2. how the ILO plans to determine governance for the future of work.

The future of work

Technology and innovation

An especially sensitive and relevant factor within the future of work is the impact of technology. While technology should be viewed as a potential catalyst for innovation, many view it with understandable suspicion. Nations should, however, focus on the benefits which it can bring in terms of helping us to improve the way we innovate the processes needed to adapt social protection and Social Security in the future.The strategies which we are currently employing are clearly not working and need to evolve.The manner in which we analyze processes also needs to change, because it is becoming increasingly unsustainable.

Demographic changes

The ILO recently published a major report entitled *World Employment and Social Outlook: Trends for 2018*. The latest WESO examines "the current state of the labour market, assessing the most recent developments and making global and regional projections of unemployment, vulnerable employment and working poverty".

The document specifically addresses the issue of demographic shifts within the world's population, an issue which will impact every nation's ability to provide social protection. Though many factors are at play, three of the most pressing issues seem to be:

- Over-65 cohorts projected to increase to 15.8 %, from 841 million in 2013 to more than 2 billion in 2050

- Increases in number of potential retirees per active person, thereby increasing pressure on working-age population who sustain system

- Population aging may have a sizable effect on the economy:
  a) slowdown in labor force growth;
  b) changing patterns of savings and consumption; and,
  c) pressures on public social expenditures.

The report explains that the dynamic of rising life expectancy and declining birth rates almost guarantees that the labour force will not be able to keep pace with the exponentially growing pool of retirees. Clearly, the issue is not limited to dealing with the implications of an increasingly older workforce. Demographic shifts will require truly innovative solutions.

Changing nature of work

Globalization is having a major impact on the nature of work. Countries now need to be aware of the entire supply chain, which often stretches through several regions of the globe.

An important factor to take into account when analyzing social protection is vulnerable employment. According to the WESO, the problem is set to worsen in the coming years.

> *As of 2017, around 42% of workers (or 1.4 billion) worldwide are estimated to be in vulnerable forms of employment, while this share is expected to remain particularly high in developing and emerging countries, at above 76 and 46 percent, respectively.*

Here again, it seems that the last thing we need to do is restrain the private sector's ability to remain productive and healthy. Society must identify a way forward in which social protection is provided and the job market remains healthy. Further aggravating an already tenuous situation will only serve to exacerbate unsustainable social security frameworks.

Climate change

Nations can decrease their carbon footprint while maintaining healthy job markets, this much we know. The ILO has many examples of this dynamic among its member-States. The entire climate change issue seems closely related to the challenge of adapting to technology. If we are able to ensure that our educational systems are producing the technicians required to guide our societies through the changes we need to make in order to address climate change, we can come out at the other end successfully. If we choose to procrastinate or hide behind political orthodoxy, we should not expect results to differ from what we have seen during the last few decades. Education policy needs to be much more ambitious if it is to keep pace with the technological changes that necessarily must accompany successful efforts to address climate change.

At the outset, slowing the rate of climate change and moving towards environmental sustainability will cost jobs in some industries. But, according to the ILO, this effort will lead to 24 million new jobs in the green economy. If nations ensure that they are making headway in terms of ascertaining what the demands in the marketplace will be, they will be well-positioned to capitalize upon the new opportunities which environmental sustainability can bring.

Minimum wage

Another issue which will have an enormous impact on the future of work is the minimum wage. If societies are unable to come to a consensus on an issue such as minimum wage, the far more complex challenges of social protection networks will never be addressed correctly.

Any coherent discussion on minimum wage must take into account Convention 131 of the ILO. This is the instrument that made the notion of minimum wage a reality. It addresses a number of considerations vis-à-vis each nation's parameters and constraints, to include: relevant national practices; the cost of living in that particular country; and, of course relevant national legislation.

Article 3 is especially significant, in that it points out the importance of never losing sight of the larger goal of keeping individuals employed and jobs available. It also states that when societies set a minimum wage, wage levels should never damage a nation's ability to achieve economic development or impinge upon its levels of productivity. Productivity is absolutely critical and must be the twin of any minimum wage dispensation.

> *The elements to be taken into consideration in determining the level of minimum wages shall, so far as possible and appropriate in relation to national practice and conditions, include—*
>
> > *(a) the needs of workers and their families, taking into account the general level of wages in the country, the cost of living, social security benefits, and the relative living standards of other social groups;*
> >
> > *(b) economic factors, including the requirements of economic development, levels of productivity and the desirability of attaining and maintaining a high level of employment.*

Article 3, C131 - Minimum Wage Fixing Convention, 1970 (No. 131)

When addressing each of the above mentioned issues, we should remember that the broader ILO policy outcomes serve as a great framework for us to analyze social security floors. After all, the entire agenda and budget of the ILO are focused its ten policy outcomes. Nations should definitely capitalize upon this synergy.

The first policy outcome is entitled More and better jobs for *inclusive growth and improved youth prospects*. Once again, the issue of education cannot be separated from social protection. If society fails to prepare its youth for the job market, employers cannot be blamed. Governments must dialogue with business owners to ensure that public policy is on track where education is concerned. Additionally, it is clear to see that the first goal of the ILO is to protect an individual's access to more and better jobs. Therefore, social protection frameworks also need to prioritize this issue.

The third ILO outcome is entitled *Creating and Extending Social Protection Floors.* The ILO webpage for this outcome contains a related thematic which eloquently addresses the future of work. The schema laid out in the thematic would serve as an effective framework when leadership is tracing out parameters for debates and discussions on social protection.

It is also important to take a good look at the fourth policy outcome, which addresses promoting sustainable enterprises. This is due to the fact that sustainable enterprises are imperative to the success of achieving all of the above mentioned goals. Additionally, ILO Policy Outcome 4 states that most international labour standards are implemented within the private sector by small and medium-scale companies. Employers, therefore, are also important to the cause of social justice. Governments should ensure that entrepreneurs who are focused on their workers' well-being have an opportunity to flourish.

Policy Outcome 6 is entitled the Formalization of the Informal Economy. It states that "the informal economy comprises more than half of the global labour force and more than 90 per cent of micro and small enterprises (MSEs) worldwide". Here again, the issue of tailoring solutions which meet the needs of different regions is paramount. We cannot simply design a solution which is then imposed upon a society, region within the nation or a specific enterprise sector. Employers, workers and governments need to come up with new ways to address the new informal dynamic, which is without precedence in modern times.

The Global Commission on the Future of Work is attempting to address informality. We are extremely motivated to identify ways to do things differently, and given that there is tension in terms of how nations should move forward, this process has to be handled correctly. To be frank, societies have never achieved what might be described as truly inclusive economies. They have also fallen short in terms of the ability to put forth proactive policies which adequately address how to bridge the formality-informality gap. However, this seems to be a challenge which nations are more than capable of surmounting. Again, we just need to ensure that all three parties are at the table.

Hopefully, this web content and the comments of the author will inform the reader's perspective with regard to how societies should proceed in both the short-term and mid-term. Above all else, this text was designed to encourage individuals to open their minds and consider these issues from a new perspective.

While many leaders choose to hide behind ideological orthodoxy, others refuse to even remark on the unsustainability of social protection systems in public. This dynamic must change immediately, as it is outdated and untenable even within the short term. An individual is not necessarily betraying their political beliefs if they are open to considering new approaches to old problems. We can no longer afford to write off potential social protection solutions because they do not square with the other party platform or ideological bent. Employers and governments, in particular, must be willing to innovate.

While it is important to impact attitudes at the national level, individual view points also need to change. For instance, many still have a problem with vocational education. While we may give lip-service to its desirability, yet when it comes to our own families we fall short of encouraging our children to pursue a trade. In many job markets, however, this can be especially undesirable whereas artisans often earn far more than their university-educated counterparts. This obsession more with status orientation needs a radical and urgent shift - attitudinal change is critical.

This simple example serves to underline how interconnected social protection and the future of work are. Gains made on one front will necessarily pay dividends on the other. As society addresses its FoW issues in a responsible and viable manner, it will see progress on its social protection issues. We simply have to maintain an open mindset and have the courage to point out where we have gone wrong thus far. The test of insanity involves always doing the same things and hoping for a different outcome.

As we proceed into the future of work, old labels used to define formality and informality need to change or be replaced. The old labels regarding how standard work and non-standard work are perceived have already begun to evolve.

An underlying, but extremely relevant, theme being discussed here at our event in Colombia is that those of us who serve at the International Labour Organization need to come up with new ways of thinking. Based upon comments from colleagues here at the event, a fair amount of research needs to be done on this issue. Said research, in addition to the information gathered at this type of event, will be of great value to the IOE and the commission on the FoW in terms of ensuring that all of the regions involved have an opportunity to express their viewpoints.

This is important because, for example, in the case of African and other developing economies there is a proverbial elephant in the room. This involves the fact that, in the past, things have always been influenced by the same group of people/individuals from outside. The point here is not to specifically point out who these individuals are, per se. The point is that, to date, what has been tried has not achieved success. We need new people and new kinds of thinking at the table. As the global commission meets May 15-17, it would be outstanding to receive papers from FIAP colleagues and ensure their inclusion. In the minds of many, this is necessary and a great way to ensure that new thinking is utilized. Inclusivity is key.

The future governance of work

As nations gather to speak about the future governance of the world of work, we need to remember this entire process also represents an excellent opportunity to jointly lay out a framework for issues such as formality, informality and the minimum wage. When we speak about how to bridge the gap on these issues, we need to ensure we have new ways of looking at the problems and that we open our minds. I have already mentioned that we need new players at the table. While we have 187 Member States at the ILO, we hear the same voices all the time. We say the same things over and over again.Over time, we somehow begin to believe that something truly innovative will result, or has resulted from, such a dynamic. This too needs to change. The ILO must itself change and must change far more fundamentally in order to lead the new world of work.

The future of social protection

While States have played a role in the problem, a tripartite approach dictates that they help develop a viable solution. When one looks at the third ILO policy outcome, Creating and Extending Social Protection Floors, vis-à-vis its broader institutional agenda and budget, a determination must be made regarding how private-sector representatives such as the IOE can influence the creation and evolution of social protection floors. This is because, here again, any truly viable solution will result from discussions based on tri-partisanism; i.e., discussions which involve employers, trade unions and the member-States. Employers cannot be expected to deliver optimal results if open, non-judgmental channels of communication do not exist with labour and governments. Additionally, it should be pointed out that the governments which the IOE deals with in the International Labour Organization are part of the reason that this body has failed to make more progress on the future of social protection.

The only way to ensure that governments are part of the solution is by dealing with the issue within a tripartite forum such as the ILO. This is because the State is not the only actor which has the floor in such a forum. The other two parties must also be allowed to participate in the debate, discussion and analysis of the issue; processes which are normally limited to, and performed by, the State. This will help ensure that the opinions of the Member States, Trade Unions and Employers all have an opportunity to be heard. Here again, the old solutions have not worked. Logic dictates that a tripartite approach may be our best hope for success.

New systems will need to address gaps in social protection across typical life events including periods of education, raising families, work (including career gaps), retirement, and elder care. Taking care of transitions is crucial. Consideration for each country's and uniqueness is needed, because concepts and means of delivery for social protection schemes will change according to the national circumstances.

Employer viewpoint

At the IOE, we have made a considerable amount of effort to ascertain what the private sector expects from the social protection debate.

Employers have highlighted the need to:

- Start discussions
- Collect more data
- Prioritize feasibility and affordability
- Ensure a healthy, well-functioning and competitive economy
- Explore different funding options
- Consider revisiting individuals who are most in need of assistance
- Encourage up-skilling, re-skilling

Surely society can address these issues. Failure to do so would indicate that we did not approach the problem correctly, because these are important factors which merit review.

Innovating analysis

Optimizing a nation's ability to perform diligent analysis will increase its probabilities of objectively evaluating its existing social protection frameworks. Additionally, solid analytical skills can be characterized as self-perpetuating, whereas they help a nation ensure its analysis capabilities constantly evolve.

The level of objectivity involved here will necessitate a fair amount of courage from leaders, who will need to ensure that their nations are arriving at solutions which do not create strains on the broader issue of economic sustainability. Leaders must also have the nerve to point out and then effectively address unnecessary costs, which currently exist and/or those which may arise as nations roll out next-generation social protection networks. When societies manage to ensure that social protection systems are subject to the same parameters and opportunities as the rest of the economy and labor markets, social protection networks of the future will have a higher probability of remaining viable in the face of economic fluctuations.

A disruption will need to take place if society is to address these issues through innovation. Well meaning and much needed bodies such as the ILO will need to be disrupted by individuals such as those seated at this event in Colombia. Failure to do so, in a measured and astute manner, is essentially providing passive approval for failed strategies.

LABOR MARKETS AND PENSIONS

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I wish to clarify at the outset that no proposals will be put forth in this text. On the contrary, the primary aim is to generate a series of questions regarding labor market and pension sector issues.

To date, the majority of the debate on the latter issue has focused on the general parameters involved; i.e., how much retirement ages or contribution rates need to be increased. At the end of the day, however, the pension sector is just a direct reflection of what is occurring in our respective labor markets. As a result, should society fail to address its labor market issues, it is never going to make any headway on its pension sector issues.

Initially, I wish to briefly review figures which have been previously cited at this forum. Although it may seem a bit repetitive, we should take another look at why Denmark and Holland lead the world in terms of their ability to address pension sector issues. Additionally, this exercise will help us to ascertain why Chile comes in at number nine on the list and Mexico much further down.

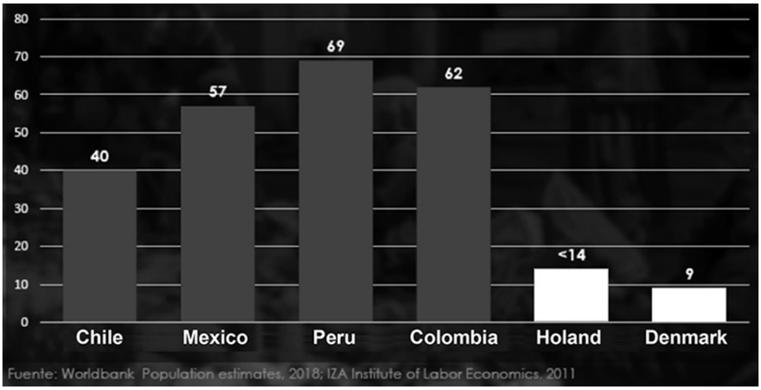
In Denmark and Holland, contribution density tracks at about 90% of an individual's work life. However, in nations such as Chile and Mexico, the populations rarely reach 50% density rates. For example, the average woman in Chile contributes during a 15-year period. She is then faced with the challenge of financing a retirement that typically lasts 30 years. Having retired at 60, most Chilean women live to be about 90. Clearly, 15 years of retirement savings will never generate a pension which meets expectations for 30 years nor match the salary level an individual earned during their economically active years.

The second issue I wish to address is our informality levels throughout the region. Regardless of the source cited, one thing is undeniable: informality within Latin America is high (see Graph 1). Whether within a funded or individual capitalization context, the obligation to contribute resources is a duty of any who claim a right, or even simply have a desire, to receive a pension. In Latin America, a labor market trend from formal-sector to informal-sector work has been underway for decades.

Clearly, contribution density rates will more than likely decrease in this type of scenario, especially due to the fact that no mechanisms are in place to ensure informal-sector workers actively accrue retirement savings on a regular basis.

GRAPH 1

INFORMALITY RATE (PERCENTAGE OF NONAGRICULTURAL EMPLOYMENT)



SOURCE: WORLD BANK POPULATION ESTIMATES, 2018; IZA INSTITUTE OF LABOR ECONOMICS, 2011.

In terms of the informality challenge, I believe that the only thing society needs to do is become more creative in terms of generating solutions. This is to say, we must never limit efforts to simply compelling individuals to comply with contribution policies over a given period of time. In every discussion on the topic in recent times, one almost immediately reaches three basic conclusions:

1. Our current social security framework is failing to provide adequate coverage. This issue needs to be remediated as soon as possible.
2. The line between the formal and informal sector is becoming increasingly blurred. Sectors where firms such as Über operate, individuals working in retail, and the latest generation of individuals entering into the workforce are facing much higher levels of informality. And this dynamic is definitely not limited to Latin America, whereas developing countries have their own issues to deal with in terms of informal sector scale.
3. The foregoing scenario will unquestionably have an impact on tax revenues. Therefore, initiatives aimed at strengthening the zero pillar via public resources will become increasingly relevant.

What is the future of labor markets?

Millennials and entrepreneurship

What is currently occurring within job markets? To begin with, I think the paradigm needs to be analyzed through the use of a completely new perspective. We have always approached this subject via a very traditional line of thinking: a person enters the job market at a young age, contributes for 40 years, retires and receives a pension. This type of approach presupposes working at a private firm or public entity during extremely long periods of time and very well-defined work schedules and job responsibilities. However, the current job market no longer involves these axiomatic parameters.

Therefore, we need to analyze the evolution of the modern job market in terms of young people who are operating more and more frequently as entrepreneurs. Nowadays, young adults want to be self-employed, change jobs much more frequently and explore different types of careers. They want to own their own businesses, and often categorically reject the notion of investing huge amounts of time working so that another individual can reap the profits. This demographic, as is the case with many other age groups, increasingly requires more flexible workweeks. In fact, the evidence suggests that the issue of work-life balance is an extremely relevant issue for at least one half of the workforce.

For individuals who are currently age 20, it is fairly unlikely that they will spend their entire career at a single firm. In fact, most will probably go through about 20 different jobs during their lives. The question of whether or not this is a good or bad thing is basically a value judgment, but I do believe that it will be a reality for almost every individual within the workforce. Therefore, we better get used to much higher levels of job changes and begin to accept the fact that an individual may end up working at several jobs during their career.

In fact, cities will need to begin to compete for human capital. This is because individuals can work from a variety of sites nowadays. So it is clear that the workforce paradigm is definitely evolving. The real question is: How does society plan to respond to such a fundamental shift in labor market dynamics?

Another major factor to take into account is the impact that said labor market shift will have on the pension sector. Clearly, the employee-employer relationship is rapidly evolving into something completely new. In future, it will be much more open and, at the same time, grow more nebulous. Work relationships will be much shorter, performance-based and depend largely on an individual's capacity to remain motivated. The combination of these factors will mean that individuals are going to be entering into the formal workforce at a later stage in life.

This last factor is especially interesting. What is the relative importance of delayed entry into the workforce in terms of the broader pension issue? In order to address this very question, allow me to utilize a fairly simple example involving three individuals: Esteban, Jacinta and Diego (see Table 1).

TABLE 1

MILLENNIALS – IMPORTANCE OF ENTRY INTO WORKFORCE

	Years of savings	Time period	Accrued contributions	Final balance
Esteban	40 years	25 to 65 years of age	UF 800	UF 2772
Jacinta	20 years	25 to 45 years of age	UF 400	UF 2072
Diego	20 years	45 to 65 years of age	UF 400	UF 772

SOURCE: AUTHOR.

Esteban has the opportunity to contribute during a 40-year career. He is what we would traditionally classify as a typical case within the pension sector: an individual between the ages of 55 and 60 who has complied with every single obligation within the system. These individuals begin working at the age of 25 and, as stated, contribute to their pension plan for 40 years. Due to the fact that they are able to achieve an annual contribution level of UF 20 in Chile, this group is able to accrue a total of UF 800 in pension contributions during their work careers.[2] This generates a final payout amount of UF 2772, which is currently approximately equivalent to USD 109,679.[3]

Jacinta chooses to limit her contributions to all the 20 years; i.e., between the ages of 25 and 45. She manages to accrue UF 400 in contributions, and when she retires at age 60 generates a final balance of UF 2040 (approximately USD 80,716).

For his part, Diego manages to accrue the exact same amount in contributions as Jacinta. However, the major difference is that he is self-employed during many years and only enters the formal job market at age 45. He is married and now

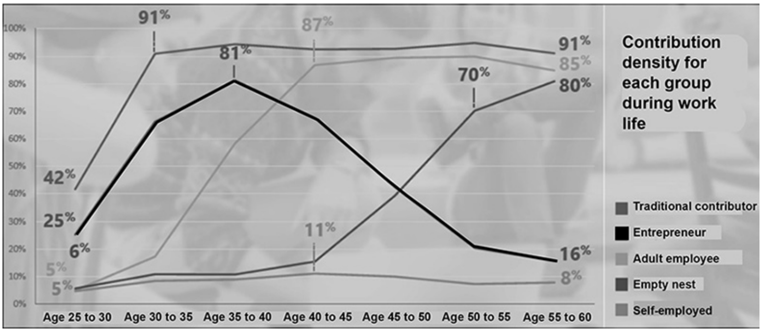
2 *Unidad de fomento (UF): An adjustable unit of account authorized for use by the Central Bank of Chile as per its institutional bylaws entitled Ley Orgánica Constitucional (Article 35, Item 9).*

3 *Calculation based on UF value, exchange rate as of 31 October 2018 (i.e., 1 UF = CLP 27432.10; and 1 USD = CLP 693.31).*

has children, a situation which has forced him to pursue formal-sector work. He contributes to his retirement plan for 20 years until retiring at 65. His account balance of UF 772 (approximately USD 30,546), however, is only a third of the account balance which Jacinta has been able to generate. This example explains how between 35% and 40% of total pension assets are generated during the first few years of an individual's work life. As a result, it is extremely important for young workers to contribute to their retirement plan over a long period of time.

Graph 2 illustrates the current state of affairs in terms of pensioners in Chile. It provides a breakdown of contribution density rates for each group throughout their careers. It is important to note that the vast majority of individuals accrue very little retirement savings during the early stages of their work history; this is to say, between the ages of 25 and 30. Furthermore, the respective pension payouts do not differ significantly; which is to say, despite variations in contribution rates. At the end of the day, if individuals fail to generate a solid contribution history during the earliest phases of their work career, they are going to face a relatively low pension payout upon retirement.

GRAPH 2
CONTRIBUTION DENSITY FOR EACH GROUP DURING WORK LIFE



SOURCE: AFP HABITAT.

Technology

The second major challenge which people face in terms of recent job-market shifts is technology. The latest evidence suggests that 54% of the European Union job market is currently subject to being automated. This amounts to a potential loss of nearly 180 million jobs in Europe. The same dynamic exists in the United States, where approximately 45% of jobs are subject to automation processes replacing human workers. If one begins to analyze the situation in Latin America, where jobs are historically even harder to come by and the proportion of self-employed is higher, it is reasonable to expect that it would be easier to replace workers with robots in such a scenario.

Advances in technology will only serve to drive automation within the manufacturing sector, decentralize firms and work, generate new labor platforms and increase digitalization. Clearly, change on this scale is going to require a complete reengineering of our respective regulatory frameworks.

These changes also mean that society is going to have to rethink its pension systems. This is especially true in terms of how we plan to finance pensions 30 to 40 years from now. To date, not much has been done to address the ramifications of technological progress vis-à-vis future pension system constraints. For instance, the evolution of the labor market will have a major impact upon the pension sector. It is basically going to generate the existence of a new sharing economy that will, in turn, trigger huge shifts in consumer behavior. Demand for entrepreneurial and collaboratively-structured products will undoubtedly increase. The scenario will also generate a dynamic in which labor market shifts are going to drive the technology sector, which will, in turn, be obligated to deliver the tools needed to meet the evolving demands of the new job market.

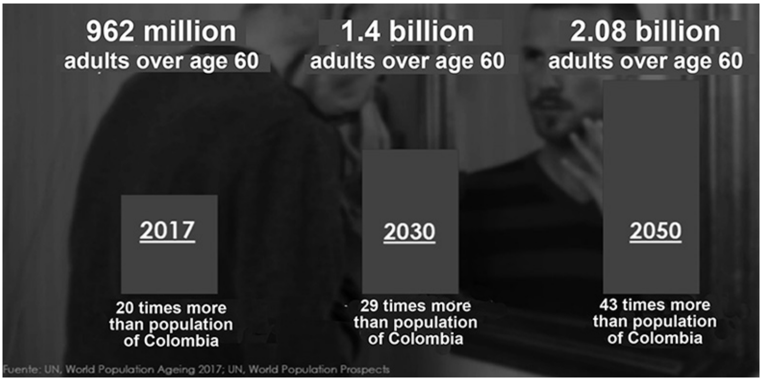
Therefore, it is vital for society to begin to analyze the future of work from this perspective. We also need to take into account the fact that micro-entrepreneurship is also going to increase. For its part, the decentralization of work will continue apace – if not increase – in coming years. Nations must take these three factors into account when addressing pension sector reform.

International trend towards population aging

One of the greatest shifts which will occur in our nations is that the older adult population is going to play an increasingly significant role in society. Whereas public parks are now often full of children, as years go by they are going to become filled with older adults. There are currently approximately 1 billion individuals over the age of 60 on the planet. This figure is approximately equivalent to 20 times the size of the current population of Colombia. By 2030, said population will comprise 1.4 billion individuals, or a group which is 29 times larger than the population of Colombia. When we extrapolate this factor out to year 2050, the over-60 population is currently on track to double; i.e., 2.1 billion older adults or the equivalent of 43 times the current size of Colombia. We refer here to approximately *one-third* of the Earth's population (see Graph 3).

This is a radical change, and its ramifications will certainly not be limited to the pension sector. Given the current scenario, the dependency rates which we are currently generating within funded systems will be looked back upon with envy. This is because it will take almost 600 million additional workers within the labor force just to *maintain* our current dependency rate (see Graph 4 and Table 2).

GRAPH 3



SOURCE: WORLD POPULATION AGING 2017, UN; WORLD POPULATION PROSPECTS, UN.

GRAPH 4

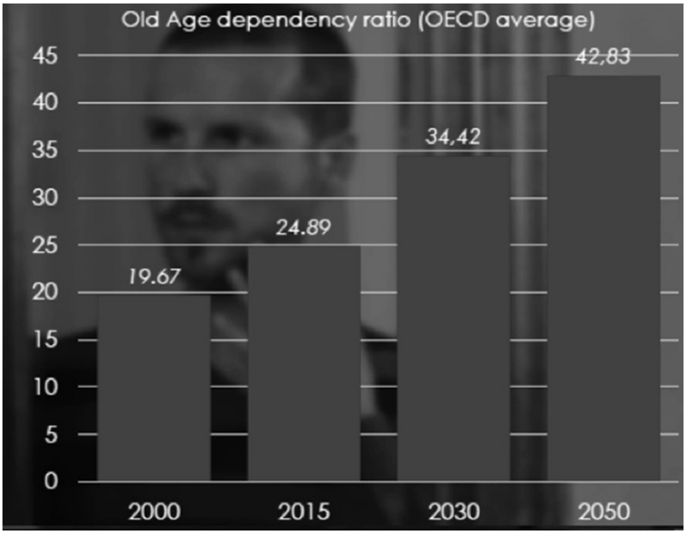


TABLE 2

ACTIVE WORKERS PER RETIREE

	2000	2015	2030	2050
OECD average	~5	~4	~3	~2
Chile	~9	~7	~4	~3
Colombia	~14	~10	~5	~3

SOURCE: OECD POPULATION PROSPECTS; WORLD BANK.

As I mentioned at the outset, society has opted for focusing almost exclusively on *what age* an individual should retire at. Maybe it is time to begin asking what other factors need to be looked at in terms of pension sector reform. Secondly, perhaps the entire notion of a retirement age is not as relevant as many perceive it to be.

Along these same lines, it is also time to begin asking ourselves if the current labor market is up to the task of addressing the new spectrum of short-term and long-term challenges it faces. For instance, the older adult population will grow so large that we need to rethink our whole approach to urban planning and other such issues.

Final remarks

To introduce a bit of disruptive thinking into the mix, I wish to broaden the scope of this text and comment on the remark made by Professor Hausmann in this forum. This issue of Scrabble tiles which the gentleman referred to seem highly relevant to the question of how one moves through one's respective city; in this instance, how one gets from point A to point B as an older adult. We currently hear a great deal about how individuals are going to have to work longer, and retire at an older age. However, what if society were to pursue an approach designed to generate practicable solutions through less complex mechanisms?

I wish to share some remarks on an initiative which I believe fulfills the aforementioned criteria. It is an extremely innovative measure known as *RedActiva* (Active Network). The urban planning and optimization strategy was put forth by the Chilean AFP Association, the Center for Public Policy and the School of Design at the Catholic University of Chile. RedActiva seeks to offer a strategy to cities so they can address the challenge faced by the demographic shift which is currently occurring in their respective older adult populations.[4]

The overall aim is to challenge Chilean society to rethink everyday occurrences, such as crossing the street, finding a bathroom, walking to the park or utilizing public transportation. As the RedActiva webpage suggests, these issues often go unnoticed by the vast majority of urban inhabitants. However, as an individual grows older, these issues can be determinant in terms of an older adult staying active or slowly becoming a recluse.

RedActiva provides increased public transport options to the older adult population, and actively seeks to foment a culture of active aging. This dynamic can be a real asset to a nation's job market and, in consequence, serve to increase its ability to string together more letters on the metaphorical economic Scrabble board.

4 *https://www.redactiva.cl/.*

This is the perfect opportunity to stop and ask ourselves why individuals fail to regularly contribute to their retirement saving accounts. Might it be that they lack confidence in the institutions involved? At any rate, those of us within the sector are clear about what our primary objective needs to be: generate higher levels of confidence within the minds of the public. In modern-day society, it is ironically much easier to consume than to save. This is to say, a person can go online and get a preapproved loan with only a single click of the mouse. However, at times the process involved to open a savings account is exponentially more complex. Clearly, it is time that individuals within the sector and society begin to introduce disruptive innovations into the mix which will hopefully serve to erode the current paradigm.

In closing, I believe that game-changing solutions are needed. The small-scale adjustments made thus far have failed to deliver lasting, tangible results. As Mthunzi Mdwaba suggests, it is time to interrupt processes and generate truly *disruptive* innovations.

DISCUSSION PANEL ON THE FUTURE OF WORK AND SOCIAL SECURITY

MARCELA MELÉNDEZ.
FERNANDO LARRAÍN.
LUIS EDUARDO ARANGO.
MTHUNZI MDWABA.

Moderator: Marcela Meléndez

Marcela Meléndez holds an MBA from the Yale School of Management and PhD in Economics from Yale University, having earned a BS in Economics from Universidad de los Andes. Primary area of expertise: applied microeconomics. Founder and director of ECONESTUDIO, where she heads research projects and advisory services. Collaborates with senior economists affiliated with or on staff at said think tank.

Former deputy director and research fellow at FEDESARROLLO. Currently serves as adjunct professor of economics at Universidad de los Andes. Served as consultant at IADB, the World Bank, the United Nations and USAID, inter alia. Policymakers in Colombia frequently seek out her counsel given her trajectory in research and advisory services. Author of several books, publications in peer-reviewed journals.

Panelists

Fernando Larraín

Director of the Chilean AFP Association (Chile).

Luis Eduardo Arango

Chief Researcher, Banco de la República (Colombia).

Mthunzi Mdwaba

Vice-President of the International Organisation of Employers (IOE) and Vice-Chairman of the Governing Body of the ILO (South Africa).

Marcela Meléndez:

Thus far in the seminar, the presentations have made it patently clear that a high degree of informality exists within a group of workers who will lack protection during old age. Additionally, nations are facing the challenges of population aging and the automation of society, which is changing the job market.

These issues will only serve to further complicate the task of generating a viable social protection network for older adults. Furthermore, they may also serve to impede society's efforts to inculcate a culture of voluntary savings within the economically-active population.

The aim of this discussion panel is to focus on these issues, with an eye to generating possible solutions to said scenario.

The first question I wish to ask is, in the opinion of our panelists, what are the pros and cons of nations opting to allocate resources to fund pension systems which provide universal coverage? In order to get the discussion going, I wish to mention that Colombia currently expends a huge amount of public resources on pensions. Researchers have determined that the subsidies involved comprise approximately 2.3% of GDP on pensions. The evidence also indicates that said resources are primarily subsidizing the pensions of high-income retirees rather than their lower-income counterparts.

Mthunzi Mdwaba:

I believe one issue is clear. And in order to illustrate my point, I will be borrowing a term which Fernando Larraín utilized during his presentation: *disruption*. Certain individuals here at the seminar are extremely adept at disrupting processes. One of the forums which I wish we would disrupt – albeit in a completely constructive manner – is the institution which I represent: the International Labor Organization (ILO).

This is because we have member-Organizations and countries which need to come to the realization that it is time to change their worldview.

Marcela Meléndez:

But with regard to the central question, do you agree with the proposal of Claudio Sapelli in terms of the need to provide a guaranteed universal minimum pension, as well as the feasibility of States funding such floors? The idea being that one would begin by directing a significant amount of subsidies towards the most vulnerable sectors of society.

Mthunzi Mdwaba:

To begin with, I am always concerned when we use the adjective universal to describe any measure. In my view, the notion of universality necessarily comprises every nation on earth. How are we to ensure that a given solution addresses every national context on the planet?

While I agree there is a need to generate new strategies which are both creative and innovative, I am not completely convinced that a universal measure would be viable. But, to clarify, I came here with an open mind and am ready to listen to the arguments in favor of such strategies.

Fernando Larraín:

One of the primary challenges facing nations within Latin America is the fact that States lack the high levels of revenue which would be required to bring off such a measure. Therefore, it would be difficult to fund a universal pension that provides coverage to every member in a given society. Personally, I advocate a strategy in which nations begin to take concrete steps towards eventually achieving universal pension floors. I believe that this is one of the major ways we can begin to resolve the issues of coverage and solidarity. However, in nations where the needed revenues are simply not available, perhaps the best alternative is to begin by focusing on the issue and then progressively increase the number of individuals receiving pension coverage.

However, establishing a pension floor for every member of society will clearly guarantee a level of social security which I believe would be an admirable achievement.

Marcela Meléndez:

If I understood the proposal of Claudio Sapelli correctly, he is not advocating that pensions be subsidized. Rather, the aim is to subsidize the pension contributions made by low-wage workers.

Fernando Larraín:

I completely agree. Our first pillar includes a minimum pension for those who fail to accumulate a sufficient amount of retirement savings. This measure covers 60% of our most vulnerable population and the State matches contributions made by workers. To be clear, I believe that the primary challenge here is to strengthen this first pillar.

Chile currently expends 0.7% of GDP to fund this measure, whereas the OECD average is approximately 6%. Clearly, we need to make further headway on this issue. But as Claudia Sapelli indicated, when we formulate public policy, priorities need to be set and decisions made. In this case, Chile prioritized free education rather than pensions and the job market. Unfortunately, everything seems to indicate that this is exactly the opposite of what we should have been done. The job market and pensions should have been our priority.

Luis Eduardo Arango:

I believe that Claudia Sapelli makes an interesting argument. (Far from) coming out in favor of the proposal, I have several doubts about its overall viability. While we both agree on the issue of providing pension floors to the most vulnerable in Colombia, I question whether providing benefits to every worker within the job market is the best way forward. I know Colombians, and I am not convinced that this is the best option for our particular national contexts. This is because I cannot categorically state that everyone within our society will take the necessary steps to ensure they receive an old age pension.

Another aspect of the Sapelli proposal which makes me anxious is the impact this type of strategy would have upon long-term growth. For instance, I would especially like to ascertain what the scale of said impact would be upon general equilibrium. I think I would need to review the issues involved a bit more before pronouncing one way or another on such a measure. This would allow me an opportunity to analyze the incentives involved, as well as the overall impact upon long-term growth. Clearly, if it fulfills these criteria, I would be the first to advocate for the implementation of Professor Sapelli's proposed strategy.

Marcela Meléndez:

A remark you made during your presentation was especially interesting. You stated that, while Columbia currently expend 2.3% of GDP on subsidies and pensions, the majority of these resources wind up in the hands of our wealthiest citizens. I would like to know what your thoughts on negative income taxes are. It would also be interesting to hear your remarks on the possibility of eliminating a wide variety of social policy programs through the use of a direct cash transfer. If introduced jointly with the other fiscal proposal, these program cuts might partially fund the subsidies or contributions made to the subsidized pension fund.

Luis Eduardo Arango:

Here again, my first impression is that this is a thought-provoking proposal. I believe that we are all endowed with the right to expend our resources as we deem fit. Each of us should have the ability to optimize our resources in the pursuit of happiness. But I am a bit concerned that, in this instance, it will not be the State – i.e., our elected leadership – that will ensure these resources are allocated to the ends which most serve our future interests: more education and better healthcare.

Therefore, I would need to delve deeper into this subject before coming out in favor or against such a measure.

Marcela Meléndez:

But I believe that is exactly what Claudio Sapelli proposes: eliminating the entire spectrum of social programs, at no cost to education or healthcare.

Luis Eduardo Arango:

That may be the case, but I did not hear the proposal delineated as such during his presentation.

Fernando Larraín:

At first glance, I believe that the proposal is pointed in the right direction. But I have a concern about the overall viability of the strategy in terms of political economy. I do not believe it is rational to expect that politicians will fully commit to measures designed to permanently eliminate social programs. For example, in Chile we have a program known as the Directorate for the (Elimination) of Childhood Malnutrition.[1] Though there are not any malnourished children in Chile, this has not stopped us from continuing to fund projects designed to fix the problem.

This would be an excellent question for the discussion of discussion panel being held later in the day: Will politicians be able to summon the courage needed to confront these challenges?

At any rate, any improvement – in terms of optimizing the use of our nations' limited resources – would be a step in the right direction; especially in terms of formulating viable public policy.

1 *Dirección del Presupuesto de Desnutrición Infantil.*

Marcela Meléndez:

Mthunzi, I want to reframe the question. Luis Arango performed a fairly comprehensive study in which he found that changes in regionally-based minimum wages may comprise a means to reduce informality. Are you aware of any such measures which have been introduced into the various regions of a particular country? Additionally, would you be willing to remark on the advisability of introducing such a measure; i.e., as opposed to the traditional route of utilizing a single national minimum wage?

Mthunzi Mdwaba:

While I am personally not aware of any such programs currently underway, I think it is an issue which merits review. I am open to trying new alternatives; because the strategies that we have tried to date have failed to produce results.

And this dynamic has played out in many nations. Many societies struggling to address the challenges of poverty have failed to come up with workable solutions. Clearly, this is not an expressly Latin American issue. Consequently, I believe this is an issue which we need to take a long, hard look at.

We also need to determine whether an alternative exists which, in terms of productivity, does not generate unworkable levels of bureaucracy and paperwork. This is to say, a scenario in which the bureaucratic labyrinth becomes so complex that we fail to generate a lasting solution to the original problem. Regional minimum wages should be introduced vis-à-vis a given region's standard of living. We must also respect regional labor practices and ensure someone is monitoring wage levels. Convention 131 of the ILO dictates that society must provide mechanisms to ensure that the minimum wage is viable within a given marketplace and is subject to periodic adjustments vis-à-vis the changes which take place within labor markets.

Is a schedule of regional minimum wages viable within many national contexts? I believe it might be.

And as I stated, Marcela, part of my mission – and the primary reason I attended this event – is to make a determination regarding whether or not our societies possess the political will necessary to effectuate change. It is vital that politicians understand that the measures put forth thus far have failed. They need to also be aware that, should this dynamic continue apace, society will collapse.

The central question here is: How can we bring an end to the current paradigm and achieve true innovation?

Marcela Meléndez:

Thank you.

And now, on to our last question. Colombia is currently beginning to undertake a pension reform due to certain fiscal policy constraints. During the debate regarding reform parameters, the *public versus private* issue has arisen. I would like to hear your remarks on this issue.

In terms of a well-designed system that provides the entire population with coverage during old age, it would be interesting to hear some remarks regarding whether or not the panel feels that the public sector possesses the same capacity to address needs as the private sector (represented, in this instance, by the pension fund sector). Does a comparative advantage exist between the public and private sector?

Fernando Larraín:

I believe that two major dynamics are at work here. Firstly, the term *reform* tends to provoke a fair degree of anxiety within Latin American societies. Evidently, however, it is time to get accustomed to the fact that our systems are going to undergo adjustments on an increasingly frequent basis. This is to say, we can no longer afford to reform once every 20 years.

Secondly, in terms of the *public versus private* question, the debate should not be framed in terms of the State versus the marketplace. Both sectors have an important role to play within the pension sector. Clearly, in terms of the universal minimum pension, the State will need to provide the needed resources. Ideally, this will occur through the use of general tax revenues. The broader question, in terms of the contributory pillar, is fund administration. If the plan here is to establish a State-run entity which performs the exact same role as private sector firms, I would prefer we utilize said resources on health care, education or other such necessities.

Although competition is typically a good thing, when one analyzes the available evidence, it is difficult to determine if both sectors are operating under the exactly same set of rules. Therefore, it will be vital to clearly delineate the proposed role which pension funds will play within the sector.

This will mean that the State will have a decisive role to play in terms of the solidarity pillar. With regard to the contributory pillar, it makes no sense to pit the State against the private sector. The private sector may have a role to play, but it should never be put in a position to directly compete against the State.

In terms of their respective yields and the overall security of assets, pension sectors operating in a variety of national contexts have proven to be extremely trustworthy. To date, there have been no cases of fraud or outright collapses. And in terms of the yields generated, the results have been more than satisfactory.

Permit me to throw in one last, albeit controversial, remark. I am dead set against the creation of a public pension-fund administrator designed to compete against its private-sector counterparts.

Mthunzi Mdwaba:

When I first began to analyze the Colombian case – for example, when I began to read the IADB report –what surprised me the most was discovering that a highly-convincing, rational argument existed in favor of introducing individual capitalization.

Furthermore, these principles which we constantly cite to seem to beg the following question: How does one address the principle of solidarity within the pension question? Perhaps we need to introduce a hybrid pillar system in which the solidarity pillar serves as the primary pillar. This would be accomplished by strengthening said pillar in order to ensure it serves as the distribution network for the broader system. But any such measure would need to ensure that the solidarity pillar fulfills a complementary role, whereas the primary role would be fulfilled by the private sector.

Obviously, if we introduce a private-sector solution we need to ensure that proper mechanisms are in place to safeguard the transparency, trust and predictability of the processes involved, and at every level therein. And how is one to arrive at such a solution? The solution is fairly simple: through the use of a combination of taxes. Of course, this will all need to be clearly delineated before the measure enters into the operational phase.

To clarify, I believe that it is rational to expect that society is capable of generating a pension system which addresses the broader principles of solidarity.

Luis Eduardo Arango:

In terms of reform, I believe we have heard a fairly wide spectrum of alternatives. And we clearly need to reform the current system. In years past, I always said that our primary objective needs to be the reform of the job market; i.e., that our efforts need to begin there. Once that process is underway, we can then ascertain what our best option is in terms of reforming the current pension system.

In terms of the *public versus private* issue, I believe that both need to be involved in any reform process. As the other panelists have stated, the use of public resources is essential; especially in terms of funding the solidarity pillar. I am confident in the individual capitalization system's ability to operate responsibly. However, if our aim is to ensure that the two systems function in tandem efficiently, then we apparently need to reform, adjust and – most importantly – improve the governance of the funded system.

Marcela Meléndez:

I wish to thank the panelists, as well as the event organizers, for providing us with the opportunity to have this discussion.

CHARTER V

PENSION SYSTEMS

LEONARDO VILLAR. Elements for the reform of the old-age, economic protection system in Colombia.
ANDRÉS SANTA CRUZ. Demography and pensions.

ELEMENTS FOR THE REFORM OF THE OLD-AGE, ECONOMIC PROTECTION SYSTEM IN COLOMBIA[1]

LEONARDO VILLAR[2]

1 *This text is based on a broader article published by the author with coauthor David Forero, and the support of María Adelaida Ortega. Available online in Spanish at www.fedesarrollo.org.co (Cuadernos de Fedesarrollo No. 58, March 2018).*

2 *Holds an undergraduate degree and Master's degree in economics from Universidad de los Andes, as well as a Master's of Science in economics from the London School of Economics, where he also pursued doctoral studies. Currently serves as executive director on the board of directors of the international monetary fund, and when he participated in the IMF Congress he was the executive director of FEDESARROLLO. Served as Vice President for Development Strategies and Public Policy, as well as chief economist, at CAF – Development Bank of Latin America. Member of the board of directors at Banco de la República, and served as Technical Vice Minister at the Ministry of the Treasury and Public Credit (Republic of Colombia).*

I. Diagnosis of the pension system

The problems of the Colombian pension system are well-known and can be categorized under the following four headings: (i) enormous fiscal costs; (ii) extremely low coverage; (iii) highly inequitable in terms of impact on income distribution; and (iv) current scenario – involving two, competing systems pursuing two separate aims (COLPENSIONES: average premium; RAIS: individual capitalization) – generating major inefficiencies and provoking arbitration against the State.

The government currently dedicates nearly 4% of GDP to financing the pension¬-system deficit. That means that 27 out of every 100 pesos paid by Colombian taxpayers are utilized to fund said shortfall.

The most disconcerting aspect of such huge fiscal outlays is that, despite every effort to address the deficit, pension coverage has remained extremely low. In fact, household surveys performed by the DANE[3] indicate that only 24 out of every 100 older adults in Colombia receive a pension.

Furthermore, there is a significant degree of inequity in terms of the profile of individuals who receive pension benefits. Of every 100 pensioners, 57 are located within the nation's top three income deciles, while only 9 are from its lowest three. Furthermore, the subsidies implicit to an average premium scheme are concentrated within the highest income group; a factor which serves to further exacerbate the already highly unequal distribution of income which characterizes Colombian society. To this one can add that workers failing to meet pension criteria, which typically occurs due to their time in informal sector work and low wage levels, end up effectively subsidizing those in society who do qualify for pensions. In the average premium scheme, they receive the real value of their contributions; however interest earned is not acknowledged. This is to say, they lose their real yield in order

3 *Colombia`s national bureau of statistics.*

to subsidize the pensions of other individuals who typically earn higher wages. In the case of the RAIS individualized saving scheme in Colombia, which includes a solidarity component, individuals failing to qualify for a pension who withdraw their funds receive their capital with interest. However, funds contributed to the Minimum Guaranteed Pension Fund, or FGPM, are not returned to workers; even though if they fail to receive a pension. As a result, these contributions become what is best described as a tax. The amount of money involved is equal to 1.5% of income subject to withholding, or 13% of funds deposited into an individual capitalization fund. Thus, individuals who work the majority of their life within the informal sector are forced to pay an additional income tax during the periods in which they are fortunate enough to find formal-sector work. In addition to impeding formal sector growth, such measures also serve to transfer capital from the poorest to the wealthiest members of society in a nation. Far from inculcating formality, the net effect generated in Colombia has been completely regressive.

The fourth aspect of the Colombian pension system which I will address is that a fair degree of competition is being generated between the average premium scheme (APS) and the RAIS scheme. This competition, in turn, drives a dynamic which in no way serves the interests of the State. As compared to replacement rates generated within the APS, RAIS rates are very low. This is partly due to the high subsidies necessary to operating an APS system. However, it is also the result of revenues generated from taxes on RAIS participants. These revenues are used to fund the FGPM minimum pension, as well as the Fondo de Solidaridad Pensional.[4] This all leads to a scenario in which the majority of the population takes the easiest route to retirement: workers contribute most of their work life to the RAIS scheme, and then transfer into the APS scheme during their last few years of work. Clearly, the actuarial dynamics involved here take an enormous toll on State resources.

II. Constraints involving political economy and pragmatism

Before delving deeper into the proposed strategy, it is important to mention that the strategy set forth herein would not be the same were Colombia able to simply from scratch; i.e., if we did not have to deal with the limitations imposed by our national institutions, as well as the legacy of our current pension system. The proposals we put forth below were generated vis-à-vis an objective assessment of the current system state of affairs, as well as constraints involving political economy and pragmatism; three of which merit special mention:

4 *Pension Solidarity Fund.*

1. *Minimum pension based on legal minimum wage*

The first issue we must address is the fact that the Colombian Constitution dictates that a minimum pension, equal to the sum of a single minimum wage, be provided to citizens upon retirement. Though clearly well-intentioned, this constitutional norm has had the exact opposite effect. It has actually complicated the process by which millions of Colombians, who fail to qualify for a pension, might receive some form of minimum coverage. Many of these individuals who currently lack all pension could be given some amount of resources, albeit less than the legal minimum wage. Unfortunately, the aforementioned constitutional measure prevents such action from being taken and has resulted in three out of every four older adults lacking pension coverage in Colombia.

Simple economics would seem to dictate that, as has been proposed by the National Association of Financial Institutions, Colombia needs to contemplate the possibility of utilizing a pension floor which is below the national minimum wage.[5] This would be the most efficacious route to increasing the number of individuals covered.

Unfortunately, in our view the constraints of political economy involved in introducing an amendment to the Constitution would be nearly insurmountable. Therefore, the best approach would be to propose a plan that operates within the constraints of the current constitutional provision. Thankfully, the constitutional reform carried out in 2005 also created the Periodic Economic Benefits (BEPS) program. BEPS is a means to provide benefits below the minimum-wage threshold. Our proposal is to fully capitalize upon the flexibility of the BEPS option.

2. *While the war on informality must continue apace, pension reform packages should assume rates will remain high*

Another element on which most sector analysts agree on is that the extremely high levels of informality in Colombia mean that many workers fail to actively participate in a pension system – or do so only very sporadically. The exceptionally low contribution rates generated by informality go a long way to explain why so many workers in Colombia fail to qualify for a pension. In this sense, we obviously need to introduce workforce reform that will address the issue of widespread informality. However, such a measure must never turn into an argument for putting forth pension reforms which fail to address the reality of high informality levels. Unfortunately, informality is a reality which we are going to be dealing with into the foreseeable future. Although we have continued to make headway on the issue in recent years, we must never put forth a pension reform package which fails to account for significant levels of informality.

5 *Elementos para una reforma estructural pensional, ANIF (2017). Available online here.*

3. *Phasing out APS scheme – to recoup resources contributed by current EAP to fund future pensions – is simply not realistic in current fiscal scenario*

The third facet involves simple pragmatism. There is a need to decrease the short-term, fiscal impact of a transition from APS (i.e., defined-benefit) to individual capitalization. The benefits of defined-contribution, individual capitalization systems are well known in terms of long-term sustainability, contribution to financial savings, and overall impact upon savings and investment. However, any strategy designed to transition a nation from a funded system to individual capitalization must take into account the short and midterm fiscal costs of such a move, in order to avoid generating large-scale intergenerational inequities.

For example, a worst-case scenario would involve a redirection of all public system contributions into the individual capitalization scheme, with no change in public system payout levels. In this situation, the funding constraints would become completely impracticable, which would be particularly dangerous vis-à-vis the projections of FEDESARROLLO in terms of Colombia's public coffers during the next few years. Additionally, transition-generation workers would be forced to cover a huge amount of costs. This would be hard to justify because the high levels of outlays would be generated by the dual need to fund their own future pensions (through contributions), as well as current pensions being paid to older adults (through the use of general tax revenues).

III. Basic proposal: Complementary pillars, instead of competitive pillars

In light of the foregoing scenario, the primary component of our proposal is to transform the actual scheme – wherein the APS competes directly against the RAIS alternative – into a system comprised of complementary pillars. In this sense, the proposal can be summarized into the following two elements:

In instances involving income above the legal minimum-wage threshold, worker contributions would be made to COLPENSIONES and individual capitalization funds.

Secondly, in terms of pension payouts, all pensioners within the proposed system would receive a payout comprised of three components:

i. An annuity corresponding to assets accumulated in individual capitalization fund;
ii. An annuity provided by COLPENSIONES corresponding to an amount funded through the use of resources contributed to COLPENSIONES. Said income, expressed as a percentage of a single minimum wage is what we term the Basic Replacement Rate, or BRR.

iii. An additional income subsidized by the public sector equivalent to the Basic Replacement Rate in order to meet minimum-wage threshold, having deducted from said amount 25% of the annuity funded via assets accumulated in individual capitalization funds.

Our proposal is delineated in Graph 1. It utilizes the example of a woman who retires at age 57, after having met the legal minimum of 1150 weeks of contributions, which were primarily made during the initial phase of her work history. The vertical axis shows the different annuity values which would be paid out this individual, and are expressed in terms of quantity of minimum wages; which correlate to the amount of accumulated contributions. The horizontal axis shows the values of the actuarial reserve; said values increase in direct correlation to increases in the basic contribution wage.

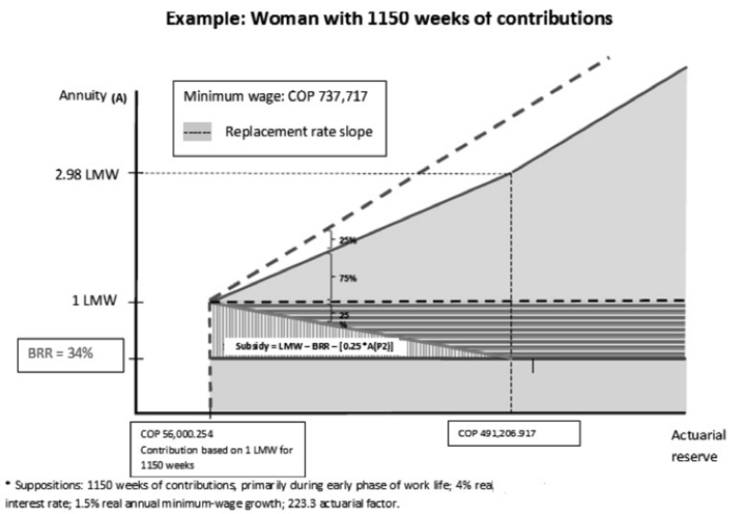
Given the standard suppositions delineated in the footnote of Graph 1, the BRR in this case amounts to 34%. This means that, in the absence of subsidies, the contributions corresponding to a single minimum wage would allow the individual in our example to receive a pension equal to 34% of one minimum wage. If the woman contributes strictly based on one minimum wage and, as a result, fails to accrue any savings in individual capitalization funds, the monthly subsidy which she would receive from COLPENSIONES would amount to 66% of one minimum wage. Therefore, the pension would more than meet the minimum legal threshold.

However, if the woman in our example contributes amounts above the legal minimum wage (LMW), the eventual payout would clearly be greater; although the value of the subsidy would slowly decrease until completely tapering off at the level in which 25% of the annuity generated in the individual capitalization fund fully covers the gap required to generate a minimum wage in the COLPENSIONES program.

The proposal which we put forth in this document has similarities with the strategy put forth by Minister of Labor Rafael Pardo in 2014. In our estimation, the plan he suggested was an important step in the right direction. However, under the Minister's proposal pensioners received a subsidy equivalent to the difference between the minimum wage and the BRR.

Our proposal involves a subsidy which gradually decreases as an individual's wages increase. We feel it constitutes a major improvement, for at least two reasons. On the one hand, it is a more progressive proposal in terms of income distribution, as it completely eliminates subsidies paid to high-income individuals. Secondly, it is more sustainable because operation will require less public outlays.

GRAPH 1



IV. Parametric reforms

The second component of our proposed reform relates to pension system parameters. Adjustments in said parameters are suggested, on the one hand, in order to reduce the amount of public outlays needed to fund pensions. Furthermore, the adjustments are designed to improve the benefits provided by the individual capitalization system to its participants. The parameter changes can be categorized into the follwing six points:

(i) Increase retirement ages and lessen gap between men and women

Since 1993, life expectancy has increased by six years for women and eight years for men. However, we have only increased the retirement age in Colombia by two years. If we fail to address this issue via increases in our retirement ages, defined-benefit (or APS) pension payouts will increase. This will also mean that our fiscal situation will become even less tenable than it currently is. In terms of the individual capitalization system, a failure to increase retirement ages vis-à-vis increases in life expectancy will make replacement rates increasingly less viable. This would probably only serve to further exacerbate the issue of dissatisfaction within the older adult population. The Federal Commission on Public Outlays and Investment, which met in 2017 and which I had the privilege to serve on, unanimously recommended that the retirement age for men and women be set at 65 years and that an automatic adjustment mechanism, pegged to changes detected in life expectancy levels, was needed.[6] Of course, this process should be carried out gradually over time in order to ensure that acquired rights are not infringed upon and that the rulings of Colombia's Constitutional Court are fully complied with.

(ii) Eliminate contributions to the FGPM minimum-pension fund and the FSP solidarity fund, whereas they constitute income taxes and barriers to formal-sector growth

The FSP fund provides the resources needed to operate the *Colombia Mayor* program which, in turn, is utilized to ensure the nation's poorest older adults receive benefits. In my view, the program does a great deal to ensure equity in Colombia and has helped us to reduce poverty. The FGPM, for its part, is the mechanism through which minimum-wage pensions are funded for individuals who – though meeting all the other necessary criteria to receive a pension within the individual capitalization scheme – have failed to accumulate enough retirement savings to fund the necessary annuity. While the objective of these schemes is certainly laudable, it is truly unfortunate that such large-scale programs are funded through taxes on contributions. Said taxes only serve as disincentives to formal-sector employment growth and, as such, increase the possibility that more Colombians will fail to receive a pension. With regard to the FSP, the tax is comprised of a surtax of between one and two percentage points on the contribution of individuals earning more than four legal minimum wages.

In the case of the FGPM, the situation is more complex and involves higher levels of iniquity due to the fact that, as cited, it involves a 1.5% income tax on every worker who actively contributes to a pension fund, including individuals who have spent a significant portion of their work lives within the informal sector and, as a result, have no possibility of receiving even a minimum-wage pension upon retirement. In these cases, the measure constitutes a singularly regressive tax which must be paid by the poorest members of society in order to fund pensions for which they do not qualify.

(iii) Reform survivor benefits

We propose that spouses' survivor benefits be adjusted from the current 100% – a level which is commonly seen across the globe – to 75% of the deceased individual's pension.

6 *The final report published by the Commission is available online in Spanish at: https://www.fedesarrollo.org.co/sites/default/files/LIB2017COMISION.pdf*

(iv) Link pension-fund administrator fees to amount of resources administered, instead of amount contributed

We propose that fees paid to individual capitalization funds be based on the amount of resources under management. This is the strategy employed in the majority of nations, and in Colombia voluntary pension funds already utilize this alternative. The current method of charging fees based on the amount contributed generates inequities and skewed incentives. It also generates a great deal of confusion, due to the fact that participants often feel that they immediately lose part of their savings upon deposit.

(v) Raise contribution rate

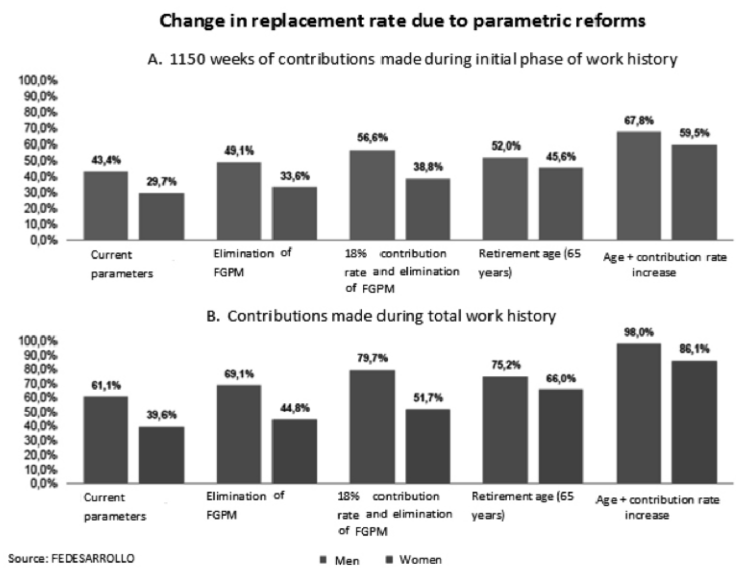
We propose that an 18% contribution rate increase for all workers be introduced, in order to standardize the rate to the level currently utilized by Colombia's highest income bracket. Such a measure is clearly going to constitute an unpopular tax measure that may generate disincentives to formal-sector employment growth, but we view it as indispensable to maintaining the broader financial equilibrium of the public pension system. It will also be of paramount importance in terms of achieving better replacement rates within the individual capitalization scheme.

(vi) Standardize the minimum number of contribution periods required to qualify for minimum wage pension

Lastly, we propose reducing the minimum number of weeks required to qualify for pensions within the COLPENSIONES program; i.e., from 1300 to 1150 weeks, which is the same threshold utilized in the individual capitalization scheme. Additionally, the measure would immediately increase the number of Colombians receiving pension coverage.

Graph 2 illustrates the manner in which a public policy including the aforementioned parametric reforms would positively impact replacement rates. A significant increase in said rates is fundamental in terms of making the individual capitalization scheme more viable. It would also constitute an effective means to reduce the level of subsidies within the current funded (defined-benefit) scheme; i.e., COLPENSIONES.

GRAPH 2



V. Transition scheme and fiscal impact

In terms of undertaking transition, the Constitutional Court has clearly delineated that acquired rights exist which must not be infringed, and that said instances include individuals who have already retired as well as those who possess a reasonable expectation of receiving a pension under the current terms.

In terms of regulatory reform, it is proposed that:

- Workers who are between 10 and 20 years away from retirement be obligated to permanently opt for remaining within the current RAIS scheme, the current COLPENSIONES scheme or the pillar scheme.
- Workers who are more than 20 years away from retirement be enrolled into the pillar system.
- No changes occur with regard to current retirees or individuals who are less than 10 years away from retirement. However, it is proposed that a tax be introduced on high pensions along the same lines as the measure put forth by

the Tax Reform Commission of Experts in 2015; i.e., retirees would be subject to an income tax under conditions similar to wage earners, taking into account that wage earners in Colombia are subject to income tax upon earning more than five minimum wages. Our proposal, as well as that put forth by the aforementioned Commission of Experts, recommends that pensioners receive an income tax deduction which correlates directly to the healthcare contributions being made by said retirees.

It is very important to clarify that our proposal in no way impacts the accumulated balances of individual account holders currently enrolled in private pension funds. Additionally, the proposal is restricted to new flows of assets and does not affect assets under management.

Under the terms of the proposal, subsidies to high-income pensioners would be eliminated, thus achieving a significant reduction in the scale of the pension sector's current actuarial deficit.

In the short and medium term (i.e., the ensuing 30 to 40 years) and in light of the current composition of the working population's income in Colombia (84% contribute at a level below two minimum wages), the new pillar system would have a positive impact upon public coffers. As the State currently finances the pension sector deficit, this decrease in public outlays would have a direct and immediate effect on the fiscal deficit in Colombia which, according to our estimates, would comprise approximately 0.6% of annual GDP.

VI. Informality, Colombia Mayor and BEPS

In closing, I wish to outline our ideas in terms of the reforms which need to be carried out within the *Colombia Mayor* and BEPS programs. Due to limitations of space, complete details on the proposed changes are available in a related FEDESARROLLO document published by the author.[7]

The current Colombian pension system is based upon the premise of a legal minimum-wage threshold which, as has been noted, is one of the primary reasons why system coverage has remained so low. Half of all Colombian workers are currently employed within the informal sector, where they do not actively contribute to the pension system. A significant proportion of their formal-sector counterparts fail to regularly contribute, a situation which leads them to also fail to accumulate the necessary contribution periods required to qualify for a minimum-wage pension upon retirement.

7 *Available online in Spanish at www.fedesarrollo.org.co (Cuadernos de Fedesarrollo No. 58, March 2018).*

The pension reform put forth in this text will have some measure of impact upon coverage, because it will reduce the number of weeks required to qualify for a pension within the public scheme. However, such a measure will not address the challenges that labor market informality currently generates, and will continue to generate in Colombia during the ensuing decades.

Colombia utilizes a direct-subsidy welfare program entitled *Colombia Mayor* which provides coverage to individuals within its lowest-income population who lack pension coverage. The benefit amounts to a bit more than US$20 which is paid to older adults each month. In cities such as Bogotá, the payment is bolstered by additional resources. However, this is clearly a very limited amount of funds. Additionally, a huge proportion of the population that lacks pension coverage is above the SISBEN 1 o 2 targeted-poverty thresholds[8] utilized to determine eligibility for the *Colombia Mayor* program.

Fortunately, the constitutional reform of 2005 provided the opportunity to create the BEPS (Periodic Economic Benefits) program. Based on individual savings accounts involving State-matched contributions, BEPS has the potential of becoming the tool with which Colombia addresses the needs of its population within the aforementioned coverage gap. It is a highly flexible means of providing additional old-age economic protection to individuals receiving welfare benefits from Colombia Mayor. In terms of this issue, our proposal is summarized in the following seven points:

1. Increase the amount of subsidy provided through *Colombia Mayor* to approximately 100% of program participants, in order to bring benefit amount above abject poverty threshold.
2. Integrate Colombia Mayor with BEPS via a gradual transition process designed to stimulate savings.
3. Integrate BEPS with contributory pension system. To achieve said aim, the following must occur:
   a. Prohibit withdrawal of funds from BEPS accounts for the purposes other than funding annuities or transferring funds to individual retirement accounts.
   b. Mandate the transfer of BEPS assets into individual retirement accounts upon an individual reaching retirement age.
   c. Mandate the transfer of individual retirement account assets into BEPS account in cases where said assets are not converted into a pension. In cases involving the withdrawal of individual account assets, all assets must be removed; which is to say, to include contributions made to FGPM fund

8 *System for the Identification of Social-Program Beneficiaries.*

– as does not currently occur. In instances involving COLPENSIONES substitute indemnifications, real interest earned on contributions must be acknowledged.

4. Mandate contributions to BEPS, at least in the following three instances:
   a. Work contracts involving duration of less than 30 days or part-time employment.
   b. Non-work contracts, such as those addressing piece work.
   c. Informal sector business owners or self-employed workers who contribute based on gross income (single tax).
5. Acknowledge BEPS contributions as a minimum social security floor. I.e., business owners shall be deemed formal-sector compliant in the aforementioned three cases when said contributions are made.
6. Redesign BEPS subsidy such that the current subsidy of 20% is calculated based on the interest generated by BEPS account; i.e., in addition to the worker's flat contribution amount. The possibility of increasing said subsidy level to 50%, in order to stimulate BEPS savings, also needs to be evaluated.
7. Eliminate savings eligibility criteria. The foregoing regulatory changes render the existing complex regulatory framework obsolete, as access to BEPS accounts and to the corresponding subsidy (i.e., 20% or 50%) would be limited to individuals failing to qualify for a pension.

VII. Final remarks

Taken in its totality, the pension system reform we propose has a clearly redistributive component, even as it contributes to increased system fiscal sustainability in the short and mid-term. The proposal clearly reduces the privileges currently provided by the defined-benefit scheme whereby individuals receive, by Colombian standards, relatively high pensions. Our reform has the added benefit of achieving all this at no cost to inculcating a culture of savings. It also ensures that Colombians who currently lack pension coverage receive benefits through subsidized schemes such as *Colombia Mayor* or an ostensibly redesigned BEPS program.

DEMOGRAPHY AND PENSIONS

ANDRÉS SANTA CRUZ[1]

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As one analyzes Graph 1, it is clear to see that the birth rate in Chile decreased significantly during the 20th century. In 1950 the national rate was nearly six live births per mother, whereas that figure is currently at 1.79.

GRAPH 1

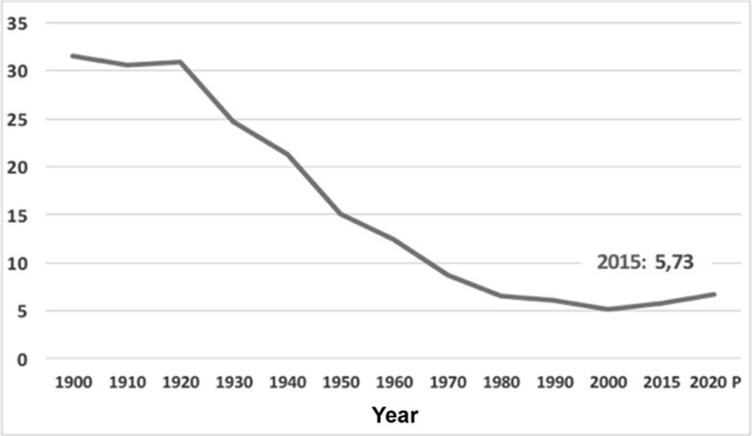
BIRTH RATES: CHILE, LATIN AMERICA, OECD (1950-2015)

SOURCE: NATIONAL INSTITUTE OF STATISTICS (REPUBLIC OF CHILE), CEPALSTAT AND OECD DATA.

As we turn to the gross mortality rate included in Graph 2, the figure has thankfully risen to 5.73 per 1000 inhabitants. As was the case with the shift in the birth rate, this demographic change has had a fairly widespread impact. One of the principal causes of the drop in mortality rates has been Chile's ability to substantially reduce its infant mortality rate, which is currently the lowest in Latin America.

GRAPH 2

GROSS MORTALITY RATE
(NUMBER OF DEATHS PER 1000 INHABITANTS)

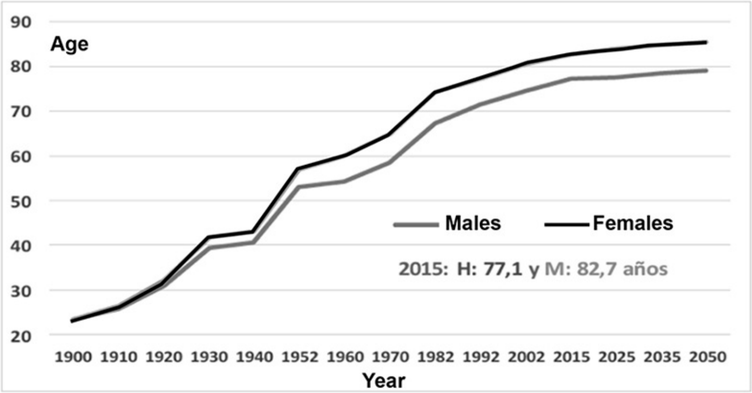


SOURCE: NATIONAL INSTITUTE OF STATISTICS (REPUBLIC OF CHILE).

In 2015, life expectancy at birth for Chileans was 77.1 years for males, and 82.7 years for females. This factor has also undergone a major change. At the beginning of the 20th century life expectancy at birth for both sexes was only a bit more than 20 years (see Graph 3).

GRAPH 3

AVERAGE LIFE EXPECTANCY AT BIRTH (YEARS)

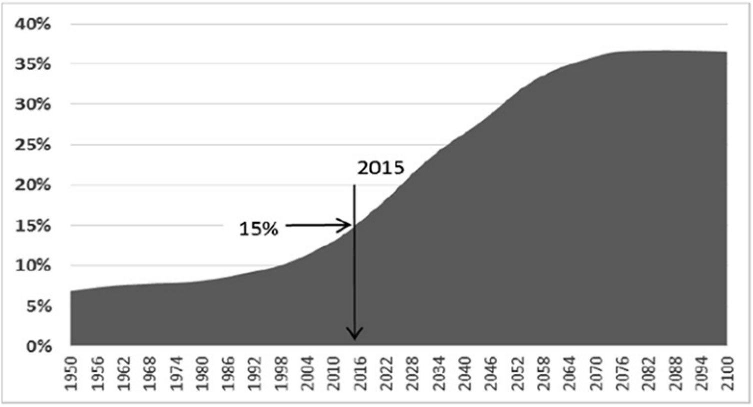


SOURCE: NATIONAL INSTITUTE OF STATISTICS (REPUBLIC OF CHILE).

A brief analysis of the older adult population within Chile reveals that it currently comprises just over 15% of the total population. This trend is expected to increase significantly and surpass 35% of said population by year 2100 (see Graph 4).

GRAPH 4

OVER-60 POPULATION IN CHILE (1950-2100)
% OF TOTAL POPULATION



SOURCE: AAFP RESEARCH UNIT, USING 2017 CELADE DATA.

The consequences of demographic shifts

Chile, not unlike the rest of the planet, is currently undergoing an advanced stage of demographic shift brought on by low birth and death rates. The international birth rate is 1.79 children per mother, while the gross mortality rate is 5.7 per 1000 inhabitants.

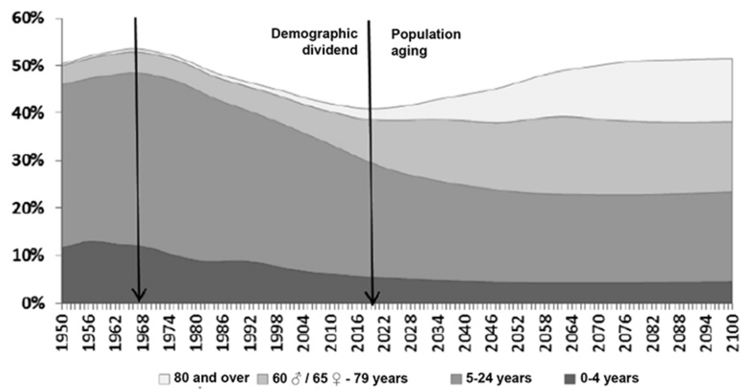
The drops in birth and death rates are slowly aging our national populations. The life expectancy at birth for males is 77.1 years, while their female counterparts are expected to live 82.7 years. Therefore, the older adult population will comprise an increasingly larger percentage of the population; which is to say, the 15% figure which it currently represents is set to surpass 30% by year 2050.

One of the expected effects of these phenomena is that birth rates will drop even lower than the current level, which fails to even fulfill the minimum replacement rate. Furthermore, changes in causes of death and increases in overall life expectancy will further impact upon national healthcare and pension systems. Population aging will also result, inter alia, in a smaller working-age population, a larger dependent population, and generate a major shift in the composition and structure of families.

As our respective older adult populations grow, families within Latin America and the rest of the world will be facing important challenges in terms of adapting to living with and, at times, caring for older family members who are inactive or incapacitated by the effects of old age. As we analyze Graph 5, it is clear to see that individuals over the age of 80 comprise an important proportion of the dependent population. Clearly, the demographic dividend has come to an end. Additionally, the 0-4 age cohort will remain fairly unchanged into the foreseeable future. This means that the older adult population will undergo a shift and grow, even as the group comprised of young children and newborns remains constant.

GRAPH 5

DEPENDENT POPULATION IN CHILE (1950-2100)
BY AGE COHORT (%)



SOURCE: AAFP RESEARCH UNIT, USING 2017 CELADE DATA.

Addressing negative effects of demographic shift

How might one characterize the coming demographic shift and its impact on society? This question is best answered utilizing the following expected outcomes:

1. A decrease of labor inputs into economic growth, due to lower birth rates resulting in a smaller workforce. An increase in the number of retirees will mean a concomitant decrease in the number of skilled workers.
2. Decrease in contributory pensions due to increased life expectancy levels.

3. Decrease in internal saving rate due to increase in overall dependency and average population-aging rates.
4. Increase in the level of public outlays on old-age social security benefits (i.e., pensions, health care, long-term care) may result in tax increases, higher fiscal-funding risk premium, and eventually increased macroeconomic instability.
5. Debate over scarcity of fiscal resources may tip balance in favor of increased levels of consumption and transfers; that is, to the detriment of saving levels and public investment.

While Chile utilizes an individual capitalization system, population aging together with a low contribution rate has generated a scenario which merits immediate attention. Therefore the central question would seem to be: what can be done to counteract the effects of the demographic shift currently underway in Chile?

One of the first issues which we need to address is increasing the workforce participation rates among women. And this is clearly not an expressly Chilean challenge. Every nation within Latin America needs to address the issue. The current female workforce participation rate in Chile is 49.4 % according to the National Institute of Statistics. This is a relatively low figure, which I feel comprises a major challenge in need of resolution.

We also need to address the issue of total factor productivity (TFP). During the last 10 years, this indicator has remained almost completely flat. Despite efforts in Chile to significantly expand educational coverage during the last few decades, the TFP dynamic has remained relatively unchanged. It should be noted that there is a possibility that advances in terms of improving Chilean workforce formalization may trigger an increase in our TFP; which is to say, as a result of a reduction in the number of unskilled labor positions.

Another bulwark against the negative impacts of the current demographic shift is the flexibility of the three-pillar pension system; i.e., one comprised of a solidarity pillar, an individual capitalization and defined-contribution pillar, and a voluntary pillar.

Lastly, Chile will need to put forth a clearly-defined, efficient immigration policy and achieve relatively low initial levels of public debt and a sufficient amount of fiscal resources. These would seem to be two key issues that any viable strategy must address.

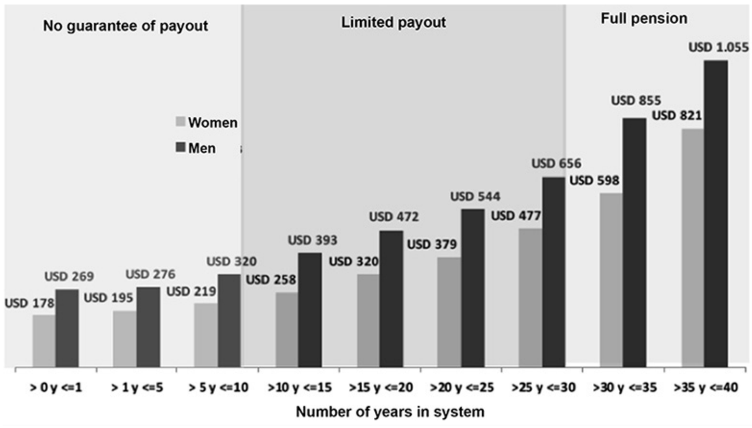
Correlating pension payouts to contribution periods

Within Chile, a constant criticism of the individual capitalization system has involved the fact that the average pensions among certain groups are fairly low. A major contributing factor is the unreasonable expectation of many Chileans in terms of feeling they deserve 100% of the wage they earned upon retirement – despite having, in some cases, contributed 12 months or less.

Graph 6 illustrates the various pension payouts available, and directly undermines the assertion that individual capitalization systems are not viable alternatives in terms of providing decent, sufficient and reasonable pensions in a variety of national contexts. If one analyzes these figures, it immediately becomes apparent that individuals who fail to achieve 10 years within the individual capitalization system should not expect to receive what one would characterize as a pension vis-à-vis ILO standards. Furthermore, Chilean pensions are generally more than satisfactory. And this is so, despite the fact that said payouts have involved relatively low contribution rates (10%).

GRAPH 6

AVERAGE OLD-AGE PENSION PAYOUTS, BY CONTRIBUTION PERIODS



SOURCE: AAFP RESEARCH UNIT, USING FEB 2018 DATA FROM PENSION SUPERINTENDENCY (REPUBLIC OF CHILE).

Population aging generates a variety of sociopolitical impacts

Principal challenges:

- Demographic dividend has ended and Chile has begun population-aging phase.
- Chile has a relatively small amount of time to undertake pension system reform and improve pension payouts: increased contribution rate (OECD suggests 19%); find the courage to broach the subject of a possible increase in retirement age (EU average is 67 years for both sexes); and, incentives to generate increased solidarity and more compliance with contribution policy.
- As the older adult population becomes proportionately larger, a number of risks are generated: society may begin to believe that providing better benefits through a funded scheme is a viable alternative; transfers from investment to consumption which slow growth before development is achieved.
- We have a unique opportunity to achieve optimal conditions in terms of attracting capital: institutions; investment climate; higher skilled workforce.
- Chile needs to improve its regulatory framework and fully capitalize upon its older adult workforce. Labor law needs to address the digital revolution, and leave the issue of class struggle in the 20th century; in order to focus national efforts on optimizing the labor market.

Primary OECD recommendations

The OECD has consistently stated that pension systems should diversify the funding resources they use to generate retirement income; which is to say, they should utilize funded as well as capitalization sources. Therefore, system design must address the manner in which these two channels interact with one another with an eye to optimizing available synergies.

In this respect, it should be noted that Chile currently utilizes a funded component: the solidarity pillar. The OECD suggests that this type of component be funded through the use of general tax revenues. Conversely, the use of an income tax on workers is overwhelmingly viewed as regressive and inequitable.

The Chilean individual retirement account system fulfills the best international practices put forth by the OECD. The organism does, however, suggest that the State take a larger role in the operation of pension systems in terms of generating better payouts to low-income retirees, as well as ensuring increases in fiscal outlays are kept to a minimum.

CLOSING REMARKS

Please allow me to extend a special thanks to the presidential candidates, esteemed colleagues and each of the FIAP members for attending the event. I also wish to state that, after two extremely intense days of work, we should return home fully convinced that – as we suspected – the sector is squarely situated on the right path forward.

Having once again analyzed the root causes of the challenges facing our respective pension systems, I believe we reached what might only be described as a complete consensus in terms of the diagnosis and the source of our primary challenge. The issues which our societies face are population aging, decreases in the interest rate and the relatively high levels of informality throughout the Americas.

However, as we have listened to each of the experts who have joined us, it has become increasingly clear that a high degree of unanimity exists in terms of what the best solutions are. The most efficacious route forward is undoubtedly inculcating a culture of savings within our societies. And while increased life span is great news for all, it also means that we will need to find ways to finance longer retirements. Therefore, society as well as the individuals which comprise it will need to muster more resources to address this new challenge.

Although all the relevant sector actors have agreed upon the diagnosis, as well as the spectrum of solutions available to nations, unfortunately the strategies generated during national and regional debates have failed to generate policies which address the root cause of pension-sector problems.

Why have we failed to target these root causes? Why have viable solutions not been put forth?
This is a decidedly difficult question to answer, especially when we have all reached the exact same conclusions in terms of what the problems are and what the solution should be. Inexplicably, leadership has advocated agendas which have failed to remediate the central issues. Worse still, they have frequently only served to exacerbate the problem.

At our forum here in Colombia, we all heard how some nations are even beginning to return to the outdated – and discredited – funded model. It seems many would place their confidence in a model which was characterized by Prof. Sala-i-Martín as nothing more than a Ponzi scheme which society has perpetrated upon itself. If we are completely honest, all would agree that his assertion is completely on target, as funded models do tend to exhibit all the characteristics of a pyramid scheme. In fact, truer words have probably never been spoken at one of our forums. When one remembers that the demographic dividend is no longer a factor, the funded model becomes even less viable. The end of the demographic dividend can only mean that our respective national population pyramids have either been completely inverted or are undergoing said process.

And yet, several nations have insisted on pursuing strategies aimed at reintroducing funded systems. Others have simply refused to face the reality that the defined-benefit model is just not feasible vis-à-vis modern demographics. We must also not forget that the funded system never was a workable strategy, as it failed – generation after generation – to eradicate older-adult poverty.

As far as I can ascertain, our top priority needs to be analyzing yet again exactly what challenges we are facing. Then, each society needs to determine what the best solutions are. Focusing on these two issues will help us to remain focused on generating clearly delineated solutions which treat root causes.

It should be pointed out that no one is attempting to assert that free will is not a significant part of the individual capitalization paradigm. Clearly, freedom of choice necessarily implies a wide spectrum of benefits and risks. However, it seems to me that this is exactly why we elect leaders within representative democracies. Our presidents and senators seem to have a responsibility to attempt to calm fears generated by the prospect of making a decision which will affect one's retirement.

And I think we would all agree that this responsibility to guide – and lead – is even more relevant in terms of the most vulnerable sectors of society.

This is also the perfect opportunity to clarify that the worst-case scenario would be one in which leaders opt for endowing the State and its respective officials with greater power, to the detriment of civil liberties. If we are completely honest with ourselves, every society within the Americas has come to realize that the threat of such a scenario is constantly looming on the horizon.

Therefore, the public sector needs to fulfill its obligation to calm the anxiety generated by public policies aimed at providing the coverage that the most vulnerable of our citizens deserve. However, the pension sector also has a major role to play in terms of informing the public. It too must do its part to educate individuals so that they have more confidence in their decision-making abilities.

As I mentioned in my opening remarks, at times our leaders choose the easier route of engendering irrational expectations within our populations. This is especially contemptible when one takes into account that all of us within the pension sector, as well as our elected leaders, are fully aware that it is our children and grandchildren who will reap the chaos brought about by our inability to take action. It is they who will live through the economic and societal upheaval brought about by our procrastination; not to mention, our collective failure to enact public policies we know to be optimal.

Again, thank you for your attendance and interest. I can only hope that the conversation will not stop here, and that we will continue analyzing and addressing these issues at future FIAP forums.

Guillermo Arthur
FIAP President

EARLIER FIAP PUBLICATIONS

EARLIER FIAP PUBLICATIONS

One of the aims of our Federation is to make known the advantages of pension systems based on individual saving and support the governments that wish to adopt them. With this in view, one of our regular activities as a Federation is the organization of seminars and round-tables. As a result of these activities, FIAP has published fifteen books, which summarize the presentations given at those seminars, and are sure that these have contributed towards improving the literature on this subject. These books are described below:

"Regulación de los Sistemas de Pensiones de Capitalización Individual: Visiones de los Sectores Público y Privado" (Seminario Lima-Perú, diciembre 2002).[1 2]

This publication tackles aspects such as the challenges of the new pension systems, the models and priorities of supervision, collection of contributions and management of individual accounts, coverage, regulation and supervision in the area of benefits, price formation in the social security industry, regulation and supervision of marketing and sales, and regulation and supervision of pension fund investments. The authors deal with these subjects from different points of view, which contribute to an enrichment of the debate on the subject of pensions in the countries that have carried out social security reforms, especially in Latin America.

1 *This book is the only one on the list that was published not by FIAP, but by the International Labour Organization (ILO). However, it is included on this list because the seminar on the basis of which it was written was organized jointly by the International Association of Pension Fund Supervisory Authorities (AIOS) and FIAP.*

2 *This book is not available in an electronic version on the FIAP website.*

"Pension Reforms: Results and Challenges" (Seminar held in Cancun, Mexico, May 2003).

In this book an analysis is made of the results of the new social security systems, both in Latin America and in Central and Eastern Europe, from the point of view of how they have influenced improvement in pensions and contributed to the growth and economic development of the countries. In order to do this, it reviews the rates of return of the investments of social security resources and matches them with the growth of workers' wages. At the same time, it measures the impact of the reforms on savings and investment, thereby attempting to measure the contribution that they signify for the economic development of the country. There is also an analysis of the main challenges in the social security area for the industry, the regulators and the political system.

"Pension Reforms in Eastern Europe: Experiences and perspectives" (Seminar held in Kiev, Ukraine, May 2004).

This book summarizes the experiences of social security reforms in the countries of Central and Eastern Europe, such as Bulgaria, Croatia, Hungary, Poland, Kazakhstan and Kosovo. Also presented are the main perspectives for reform in Slovakia and Macedonia. The common denominator in all these countries is that they possess individually-funded systems in expansion. The book follows with an analysis of the challenges for implementing reforms, in terms of the regulation and supervision of pension funds and their fiscal and economic impact. The book concludes with an analysis of the conditions necessary to ensure the success of the reforms.

"Pension Fund Investment" (Seminar held in Lima, Peru, November 2004).

This book contains a diagnosis of pension fund investment regulation in Latin America. It contains an analysis of the improvements to that regulation, dealing especially with the case of the multi-fund system in Chile, Mexico and Peru. It also looks in depth at the development of the capital markets and analyses the political risks of pension fund investment in the region. Among the most important conclusions to be drawn from the aforementioned subjects are the role of the return of the investments as a deciding factor in improving pensions and the need for greater diversification, including investment abroad.

"The Strengthening of the New Pension Systems: The Role of each pillar in the Solution of Pension Problems" (Seminar held in Cartagena de Indias, Colombia, May 2005).

This publication analyses reforms to social security systems that have included mandatory individual capitalization/funding systems in their second pillar, in response to the criticisms and objections that are being leveled at them, and analyses future improvements. The role of each pillar within the social security system is highlighted and an in-depth study made of the structure of first pillar (non-contributory) programs in Latin America. The key issues of mandatory contribution programs in the second pillar are reviewed and experience in the area of voluntary social security saving (third pillar) is described. One of the most important conclusions arising from the discussion is that the criticisms made of the mandatory individual saving systems are seen to include aspects that, though part of social security, are not the responsibility of the contributory systems, as is the case of coverage.

"Pension Funds Investment Perspectives" (Seminar held in Santiago, Chile, May 2006).

This book discusses which the best investment alternatives for pension funds are. The facts show that 1% of additional return over the course of the whole working life of a member of a pension fund administrator may result in a pension that is 30% higher. To corroborate this, an in-depth analysis is made in this publication of issues such as the historic performance of the pension funds in Latin America, the regulation and control of investment risks, the best portfolios for social security funds, the characteristics of the multi-fund systems, the strategies for the international diversification of pension funds, the financial impact that occurs in the stage just prior to retiring age, and the importance of corporate governance in pension funds.

"Funded Systems: their contribution towards solving the pension problem" (Seminar held in Varna, Bulgaria, May-June 2007).

In the first instance, this book shows the political economics of pension reforms, taking into account the experience of countries in Central and Eastern Europe and also the pension reforms in Bulgaria and Mexico. Secondly, it analyses the results of the pension reforms for the workers, separating the effects on the labour market and on redistribution of income. An analysis is also included of the workings of the Disability and Survivorship Insurance (DSI) in the Chilean case. Thirdly, it shows how to structure an effective multiple-pillar system in the light of the new Chilean pension reform, the public/private ratio in the pension reform, the design alternatives for non-contributory pension programs (social pensions), and the fiscal effects of the pension reform in Chile. A fourth set of issues analyzed here concerns the investment policies and strategies of the pension funds, experiences and trends in multi-fund systems and regulation and monitoring of investment risk in mandated, defined-contribution pension systems. Finally, the book culminates with a number of different views of the prospects for the pension reforms in Europe.

"Pensions for the Future: Developing Individually Funded Programs" (Seminar held in Lima, Peru, May 2008).

This book analyzes the performance of the new pension systems in Latin America and Central and Eastern Europe, describes the progress of pension reforms in countries that have recently begun to implement them or are about to do it in the near future, and identifies best practices for improving the design of regulations in the individual capitalization programs. It examines issues related to the lessons of pension reforms, investments regulation, supervision models, coverage, pension options, pension business management, and disability and survivorship insurance in the cases of Argentina, Chile and Mexico. It also discusses the pension reforms in China, Philippines, Romania and New Zealand. It also analyzes the future of pensions in Peru, addressing the issues of pension coverage, quality of social protection, capital markets, and the supervisor´s vision. Finally, the book ends with a discussion on whether the battle of public opinion regarding the pension reform has been won.

"Investments and Payouts in Funded Pension Systems" (Seminar held in Warsaw, Poland, May 2009).

The book is divided into nine chapters. The first four chapters refer to subjects related to the pension accumulation phase, whereas the other five chapters show issues inherent to the payout phase. The first chapter of the book deals with the pension fund investment performance. In the second chapter, the book asks how much financial risk level a funded system may accept, showing the life-cycle risk perspective in the context of pensions. The third chapter shows a close relationship between economic cycles and pension funds. Chapter four shows the current tendencies of pension fund investments and presents the views of three outstanding speakers on infrastructure investments, thematic investments and Exchange Traded Funds (ETF), respectively. Regarding the pension payout phase, chapter five refers only to the issue of explaining the optimal pension modes in a mandatory pension system. Chapter six analyzes the market of annuities and programmed withdrawals under the commercial and descriptive perspectives. Chapter seven contains issues that are of vital importance for an adequate development of the pension market: the keys for success in the annuities market, the challenges involved in the selection of products during the payout phase and an explanation on why the funded pension systems will be more capable to face the demographic challenges than the PAYGO systems. The second-to-last chapter deals with the perspectives of the Polish pension system. Finally, the book finishes with chapter nine, where it is reviewed the future of mandatory pension funds in Europe and beyond, describing the financial crisis implications for the private pension funds, commenting the lessons derived from the crisis for the funded pension systems and stating the medium-term challenges to reform the mandatory pension funds in Europe and other industrial countries.

"Developing the Potential of the Individually Funded Pension Systems" (Seminar held in Viña del Mar-Chile, May 2010).

The publication provides the reader with several works that seek to identify means and instruments whereby pension fund managers can extend the contribution they make to solve the pension problem and, in more general terms, improve the quality of the population's social protection. Papers presented by renowned academics and authorities are featured at the beginning of the book. They address the seminar's subjects with a practical and objective focus aimed at highlighting the characteristics and concrete results of policies, products and organizational and management models that can serve as a reference for innovating and improving the processes and regulations of pension fund managers and regulators.

The book is divided into three parts. The first part, "How can the Coverage of the Individually Funded Programs be Extended?", explores different ways in which the funded programs can extend their coverage to sectors of the population that are not currently engaged in pension saving. The second part, "New Products", explores ways in which the pension industry can use its experience and capacity to advantage for attending to other social security protection needs of the population. The third part, "The Quest for Excellence", is divided into three chapters. The first one, "Pension Information and Education," analyzes the role played by financial education within the context of defined-contribution pension systems from the standpoint of the industry and the supervising agencies. The second chapter, "Ideas for Improving Operational Efficiency," analyzes the organization and process alternatives that enable the operational management and efficiency of the industry to be improved. Finally, the third chapter, "Ideas for improving the impact of investments on local economies," analyzes the investment alternatives available to the pension funds in housing, infrastructure and micro-companies.

"Advancing in the Strengthening and Consolidation of the Individually-Funded Pension Systems" (Seminar held in Punta Cana, Dominican Republic, May 2011).

This book provides the reader various studies analyzing different issues related with pension fund investment (best practice in the design of investment policies; impact of pension funds in the development of infrastructure projects and securitization of assets) and the benefits granted in the payout phase (pension options, advantages and disadvantages; replacement rates and adequacy of contributions), and also presents experiences and proposals that enable continued progress in strengthening and consolidating individually-funded pension systems, after the global financial crisis of recent years. Additionally, the book analyzes, from the points of view of the industry and the international organisations, the topic of the implicit and explicit public debt generated by pension systems, its accounting and impact on the creation and development of individually-funded programs, in light of recent events in Central and Eastern Europe.

"Opportunities and Challenges for Individually-Funded Systems in a Globalised World" (Seminar held in Cancun, México, May-June 2012).

This publication look into the opportunities and challenges being faced by the authorities and administrators, to boost the development and stability of individually-funded pension programs and obtain adequate replacement rates in a globalised world, with more volatile financial markets, imperfect labour markets and more demanding clients.

The book is divided into three parts. The first part analyses the spheres of responsibility and limits corresponding to pension funds, in the performance and public information of the companies in which they invest the pension funds under their management, and how these can contribute towards the development of the corporate governance of such companies. The second part evaluates the extent to which the design and characteristics of the individually-funded programs, especially contribution rates and retirement ages, are appropriate and consistent with the replacement rate targets expected of such programs, given the conditions of the labour market and the trends in life expectancies. Also this second part examines the contribution that can be made by voluntary pension savings in funding pensions and meeting the defined targets. Finally, in the third and last part of the book are analysed the basic conditions required to ensure the stability and development of the individually-funded pension systems, and the opportunities and challenges being faced in order to improve their public image and strengthen their relationship with their members in a globalised world where clients have become increasingly demanding.

"Individual Savings: Better Pensions plus Economic Development" (Seminar held in Cartagena de Indias, Colombia, April 2013).

This book starts by giving the reader an analysis of the lessons learned from the international recession with regard to managing risk and investing portfolios. It then goes on to describe the pension reforms that have been implemented recently and the trends that are being seen in pension systems, especially in the programs based on individual funding, as also the impact of these and the effects that they may have on the efficient functioning of the funded programs and their consistency with the fundamental principles on which these programs are based.

The book also analyses the most significant challenges facing the pension systems in achieving the aim of providing adequate pensions for their members in the long term, pointing out the aspects of design and operation in which changes should be made in order to enable the individually-funded programs to meet their target of providing adequate pensions, plus the limiting factors that are being faced due to shortcomings in the operations of other related markets. In particular, the book describes the virtuous circle between the development of the individually-funded programs and the countries' economic development, and finally it explains the interdependence between the labour market and the pension system and the experiences, lessons and recommendations that emerge for implementing public policies in matters of labour and social security.

"Reinforcing the Foundations of the Individually-Funded Pension System to Ensure its Sustainability"(Seminar held in Cusco-Peru, May 2014).

This book provides the reader with several papers, which based on the principles of economic freedom and individual savings, identify the mechanisms that enable underpinning the foundations of the sustainability of the individually-funded pension system. The book is organized into six parts: (i) Expanding coverage and promoting pension savings; (ii) Yield and risk management; (iii) Efficiency, competition and administration costs; (iv) The type and quality of pensions in the Individually-Funded Systems; (v) Corporate governance, transparency and relationships with members and pensioners; and (vi) Coexistence of alternative contributory pension systems. The book also, initially shows the work presented by the economist Herando de Soto, on the theme "Individual Savings and Economic Freedom". At the end the book shows the work of the 2011 Nobel Prize in economics, Thomas Sargent.

"Multi-Pillar Pension Systems: Investing in the Future" (Seminar held in Montevideo-Uruguay, September 2015).

This book analyses the lessons and recommendations stemming from experiences gained when applying the multi-pillar pension systems in sundry countries - including the so-called fourth pillar - and also tackles all proposals aimed at increasing the expected long-term investment returns and security, as well as the pension amounts the affiliates can get. The book encompasses 7 chapters: (i) Multi-pillar pension schemes showing the trends recorded amid OECD countries and what initiatives can be adopted for strengthening the multi-pillar pension schemes; (ii) Pension improvements and risk reductions, together with the analysis of topics such as the role likely to be played by a "longevity insurance" when it comes to an overall improvement of pensions; (iii) Promotion of the relevant pillars for the voluntary pension savings; (iv) Securing profitability increments via alternative investments; (v) Communicating with the affiliates and financial education issues; (vi) Financial integration of pension fund systems within the Pacific Alliance member countries; and (vii) The Regulator/ Watch Dog viewpoints. At the end of the book there are some noteworthy paragraphs highlighting the work contribution from Mr. Moshe A. Milevsky, a distinguished professor of the Schulich Business School, York University, who is also the Executive Director of the IFID Centre in Toronto, Canada.

"Opportunities and challenges of the investment of pension and voluntary pension savings funds" (Seminar held in Panama City, Panama, May 2016).

This book is organized into 4 chapters: (i) Optimization of the investment of pension resources", which presents the experiences and proposals regarding the alternative investments of the pension funds; (ii) "Future challenges for the investments of the pension funds", which analyses the impact of demographic trends on the capital markets and pension funds, and measures that can be adopted to expand the range of financial instruments in which social security resources can be invested within the countries of the Pacific Alliance; (iii) "Corporate social responsibility and corporate governance", which sets out the experiences, lessons learned, trends and best practices in corporate social responsibility, corporate governance and sustainable investment; and (iv) "Enhancing the contribution of voluntary pension savings to the provision of pensions", which describes the current situation of Voluntary Pension Savings (VPS) in Latin America and the lessons that can be learned from different experiences to encourage this type of saving, stimulate collective VPS and encourage the participation of low and middle-income workers. In the initial chapter, the book presents the paper delivered by the renowned economist Felipe Larraín, on the topic "Latin America and the emerging countries on the global stage.", followed by the study by Rafael Rubio, Doctor in Constitutional Law, on the topic "Communicating in times of mistrust."

"The Role of Defined Contribution Programs to Pensions: Challenges and Proposals" (Seminar held in Mexico City, Mexico, October 2017).

This book highlights the following topics: (i) Achievements and recent challenges of defined contribution pension systems, presenting observations regarding the status of individual savings pension systems in Latin America; (ii) The challenges of an aging world population, analyzing current and future demographic trends and the social security challenges they entail, decumulation strategies that can be adopted for successful retirement, and the improvements required in the decumulation phase in individually funded systems; (iii) Saving habits in the region, discussing the role of voluntary pension savings in the construction of workers' pensions and describing the savings habits of Millennials; (iv) The social responsibility of pension funds, responding to the standard criticism of investment criteria based on Environmental, Social and Governance (ESG) factors, and presenting evidence on the advantages of investing in green bonds.

For your information, these publications are available in an electronic version on the FIAP website, <http://www.fiapinternacional.org>, in the "Publications/FIAP´s Books" section. Copies of these publications may be obtained writing to e-mail: <fiap@fiap.cl>.

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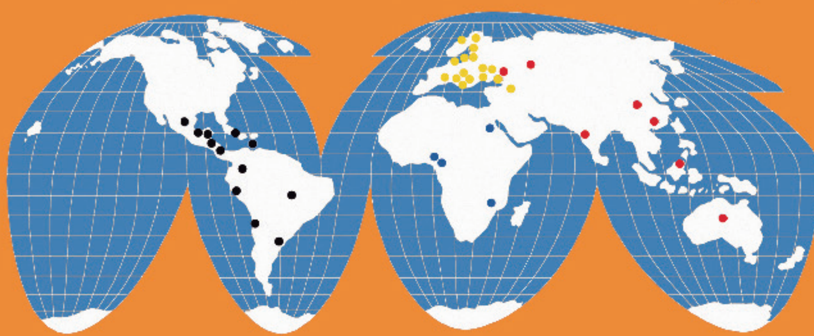
Recently, FIAP has also organized seminars on "Alternative Assets" and "Voluntary Pension Savings," which were attended by experts and regulators from all of the FIAP member countries. FIAP maintains open channels of communication with pension-sector regulators within FIAP member countries, as well as international agencies concerned with pension issues (OECD, ILO, IDB, IMF and the World Bank).

Lastly, FIAP carries out research on the issue of individually-funded systems, and compiles statistics which may be of use to member countries. Sent data is available online at: www.fiapinternacional.org. FIAP's publications include Pension Notes, which are brief documents addressing different matters of interest in the area of pensions. Titles include: "Demographic reality forces European countries to introduce individually-funded pension systems"; "The role of technology and behavioral economics in increasing pension savings: recent experiences in Chile, Colombia, Mexico and Peru"; and "Unsustainability of public PAYGO systems: The cases of Colombia, Argentina and Brazil".

COUNTRIES WITH REFORMED SYSTEMS (1)



LATIN AMERICA AND THE CARIBBEAN | EUROPE | ASIA AND THE PACIFIC | AFRICA

Chile	1981	Poland (2)	1999	Australia	1992	Nigeria	2005
Peru	1993	Sweden	1999	Kazakhstan	1998	Ghana (**)	
Colombia	1994	Latvia	2001	Hong-Kong	2000	Egypt (***)	
Uruguay	1996	Bulgaria	2002	China	1997	Malawi (**)	
Mexico	1997	Croatia	2002	India (*)	2004		
El Salvador	1998	Estonia	2002	Brunei	2010		
Costa Rica	2000	Kosovo	2002				
Panama (*)	2002	Russian Federation	2003				
Dominican Republic	2003	Lithuania	2004				
Brazil (*)	2013	Slovakia	2005				
Honduras	2016	Macedonia	2006				
Curaçao (***)		Romania	2008				
		United Kingdom	2012				
		Turkey	2017				
		Armenia	2018				
		Georgia (**)	2019 (3)				
		Czech Republic (**)					

The year given corresponds in each case to the start of operations in the mandatory pension system based on individual funding.

(1) Information updated to December 2018.

(2) Poland: On February 1st, 2014, a new pension reform law took effect that, among other things: (i) makes second-pillar individual accounts voluntary for all new entrants to the workforce; and (ii) allows current participants to opt out of the second pillar and transfer their account balances to the public first-pillar notional defined contribution (NDC).

(3) Georgia: As of January 1, 2019, a new mandatory system of individual accounts (compulsory for all workers in the public and private sectors and for self-employed workers under the age of 40) begins, with private administration and State supervision.

(*) Reform for public employees.

(**) Reform approved, but not yet implemented.

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