



PENSION NOTES

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PENSION REFORM STRATEGIES FOR IMPROVING PENSIONS

Executive Summary

What novel pension reform strategies can be implemented for improving pensions? This is undoubtedly a very important question to answer, in the light of the growing demands of society, high expectations of the population, low levels of financial and pension education, changes in the labor markets, the growing longevity of the population, the fiscal pressures on governments and the decreasing trend of interest rates worldwide, among other factors.

In the 4th National AFORES Convention, held in Mexico City on October 9 and 10, prominent speakers shed light on the pension reform strategies that could be implemented for improving both mandatory and voluntary savings results, and thereby, workers' pensions.

Mariano Bosch proposed five key strategies that can be implemented immediately to improve pension systems. First, the pension objective of the pension system (in terms of replacement rates) must be clearly defined, to inform workers as to whether they are close or far from achieving the stated goal. Second, it is essential to commit to an effective oversight policy aimed at combating high levels of labor informality. Third, it is crucial to implement and develop modern voluntary savings systems that take advantage of the benefits of behavioral economics (for example, automatic enrollment) to overcome the restrictions associated with the political economy of pensions (for example, difficulty in increasing the mandatory contribution rate). Fourth, the key parameters

of the pension system must be automatically adjusted to enable achieving the desired pension objective, taking into account the demographic changes that occur over time. And fifth, a sound mechanism of accountability to citizens must be created, clearly stating how their tax money is being spent.

According to Robert Merton, one must move from a conventional perspective, in which the focus is on the accumulation of savings, and success is defined in terms of the amount of pension wealth accumulated, towards a new approach based on retirement income, to inform workers how close they are to reaching their retirement income objectives, using a dynamic, customized asset allocation strategy. Thus, he is emphatic in stating that although there are times when the accumulated fund appears to be very large, it is insufficient when translated into a pension it can finance. This is why it is advisable to pay attention to the pension being financed. To this end, the existing regulations of the defined contribution systems should be modified, making it mandatory to inform workers of their funded ratio, which is the periodic pension amount that can be purchased with the total accumulated fund, divided by the retirement income objective. Thus, if the worker is far from fulfilling his retirement income objective (for example, he has a funded ratio of only 40%), he is automatically assigned to a target date fund (TDF), based on his personal characteristics, with an appropriate asset allocation. With this new approach, workers will also be aware of the need to apply corrective measures to

improve their retirement prospects (for example, increase their savings rate). Mexico was the first country in the world to introduce this measure. South Africa is discussing the introduction of said reform, and the United States is planning to make the change soon.

Finally, Brigitte Madrian identifies some of the central aspects of the worker's architecture of choice, and how it can be used to generate better voluntary pension savings results. At least four conclusions are derived from the evidence: (i) the results of automatic enrollment are robust, with an increase of between 28% and 33% in pension plan enrollment rates; (ii) simplified automatic enrollment messages are effective in increasing the participation rate, doubling the percentage of workers who choose to enroll in a pension plan (compared to a non-simplified message); (iii) individuals respond more eloquently to the needs of their "future self," when they have the opportunity of seeing a physical image of themselves in the future, choosing to save more in the present; and (iv) strategies for contacting contributors are more effective in increasing savings when contact is made at the beginning of their monthly spending cycle (shortly after they receive their salaries).

Introduction

In order to shed light on the pension reform strategies that could be implemented for improving both mandatory and voluntary savings results, thus improving workers' pensions, some presentations addressing these issues were included in the 4th National AFORES Convention. This Pension Note discusses the main aspects identified by three leading experts who spoke at the aforementioned Convention: Mariano Bosch¹,

¹ Mariano Bosch is the Principal Specialist and pensions coordinator in the Labor Market and Social Security Division of the Inter-American Development Bank (IDB). Since joining the Bank in 2011, he has led research projects in the labor markets and pension and welfare policies area, and has published several articles on labor markets and development in prestigious journals.

Robert Merton² and Brigitte Madrian³. One aspect on which Bosch and Merton agree is that a clear pension objective must be established to inform workers of their status in terms of achieving pension sufficiency, i.e., whether they are close to achieving their objectives. Bosch and Madrian also agree that it is important for reforms to consider the positive results of behavioral economics in achieving modern voluntary savings systems (such as the automatic enrollment feature in the British NEST pension plan).

I. Pending reforms to pension systems

Mariano Bosch points out that the pension challenge is an issue that will intensify within the next few years if the structural reforms of the pension systems in the region are not adequately addressed. The author proposes five key strategies for improving pension systems that can be implemented immediately. They are useful if the government is introducing a pension reform, or if such reform is being discussed in parliament. In the absence of a concrete reform, these strategies can also be of help in moving forward while deciding what kind of reform the country requires.

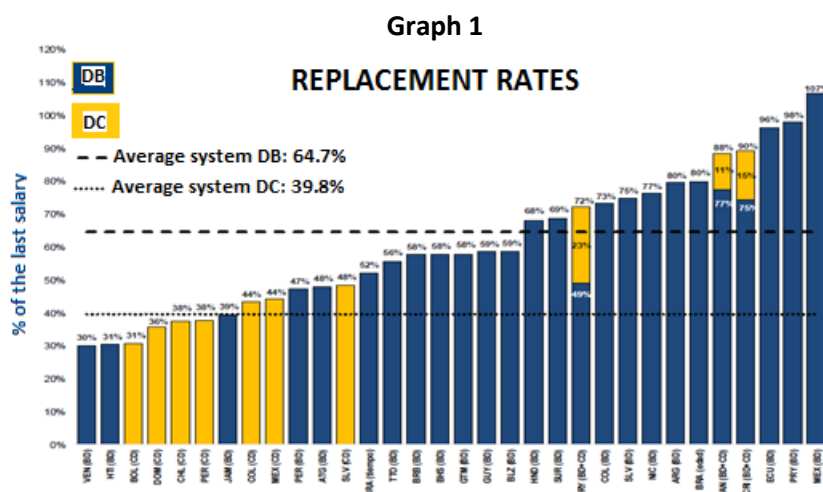
² Robert Merton was awarded the 1997 Nobel Prize in Economics for designing a new method for calculating the value of derivatives. He is a Professor of Finance at the Massachusetts Institute of Technology (MIT) and the John and Natty McArthur University Professor at Harvard University. He is the Resident Scientist at Dimensional Holdings, Inc., where he created the Target Retirement Solution, a global and integrated system of retirement funding solutions. He has received multiple awards and is the author and co-author of several academic publications on finance and pensions.

³ Brigitte Madrian is the Dean and Marriott Distinguished Professor at the Marriott School of Business at Brigham Young University, where she holds a joint chair in the Department of Finance and the George W. Romney Public Service and Ethics Institute. She is an acknowledged expert in Behavioral Economics and Household Finance. Her research is particularly focused on household savings and investment behavior. Her research work has been a point of reference in the design of savings plans and has influenced pension reforms in the United States and other countries worldwide.

Five strategies:

1. **Pension objective:** A prerequisite to any pension reform is an in-depth discussion in civil society regarding the target replacement rate that the PAYGO or individually funded pension system will generate. This rate could be 20%, 40% or even 60%. The important thing is to have a stated objective, because clarifying this point makes the discussion much easier. If there is no clear objective, it is impossible to inform participants in a pension system of their status in terms of achieving pension sufficiency, i.e., whether they are close or far from achieving the stated objective. This indicator also helps public policy-makers to understand whether or not the stated objectives are being achieved. It also helps to align investment schemes in achieving such objectives.

The IDB conducted a study on replacement rates in 2018 (see Graph 1). It was found that average individuals who contribute throughout their working lives in Latin American and Caribbean countries will obtain very varied results depending on their respective national context; i.e., depending on the type of system in place in their countries. For example, there is an issue of intergenerational injustice in Mexico, since individuals enrolled in the former system are entitled to a replacement rate of 100% or more, whereas the replacement rate varies between 20% and 40% in the New Mexican system. Hence, there is a very significant intergenerational justice gap.



Source: Mariano Bosch.

2. **Redouble oversight efforts:** A meaningful challenge in the region is that many people do not believe that the pension systems are viable. They believe that all systems are destined to fail, due to the high informality of labor markets in Latin America. This is undoubtedly a significant factor, but while engaged in talks with the countries involved, the IDB team noticed that there is a significant gap in terms of committing to an effective oversight policy aimed at combating high levels of informality.

For example, the Peruvian economy has one of the most informal labor markets in Latin America. Only 20% of Peruvian workers actively contribute to a pension system. The IDB team and the social contribution oversight agency jointly introduced a very simple measure. We started sending notifications to companies with more than 50 employees that were liable for contributing to their workers' pensions. Merely informative messages were sent at the outset. Companies then

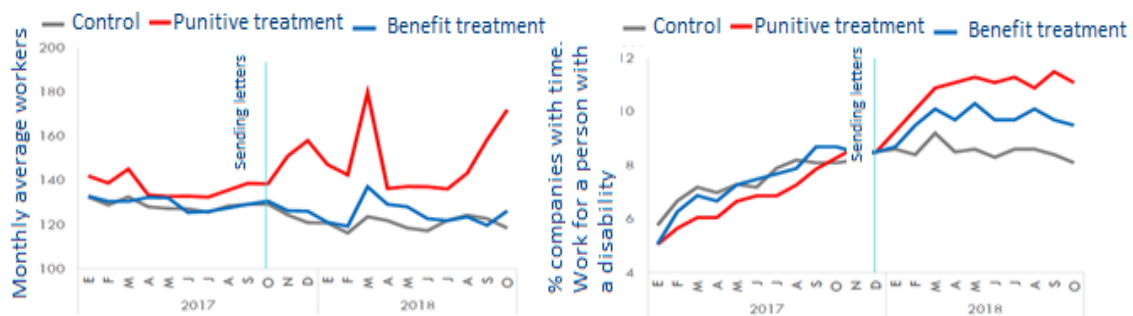
started receiving much more emphatic messages; i.e., we warned them that they would be subject to fines if they did not comply with the pension regulatory framework.

Figure 2 shows that sending notifications regarding possible fines (represented by the

red line) had a very marked impact in terms of the number of companies that chose to formalize their workers. So, while it is important to acknowledge that there are indeed significant impediments within labor markets, nothing prevents us from advancing in the fight against informality.

Graph 2

Boost active coverage: formalization

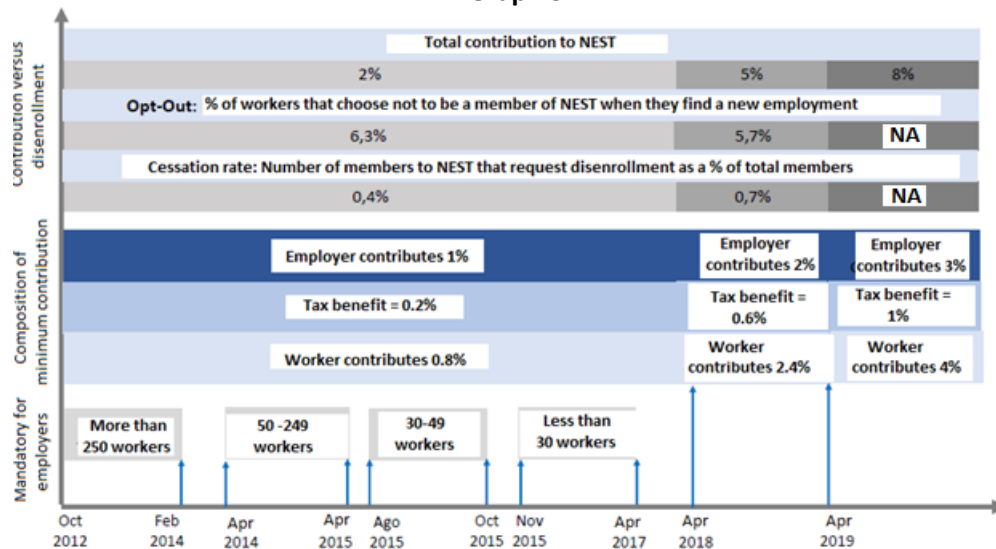


Source: Mariano Bosch.

3. **Modern Voluntary Savings Systems:** To overcome the restrictions associated with the political economy, in terms of increasing contributions and achieving the objectives of pension systems, a viable alternative is to implement and develop modern voluntary savings systems. There are very useful examples from a variety of national contexts, but the NEST (*National Employment Savings Trust*) example stands out, since it makes it mandatory for all formal companies to offer a voluntary savings program to their workers. There is a government option for companies that fail to find a plan provider.

The program began in 2012, focusing on bigger companies, i.e. more than 250 workers. It started with very low contribution rates of around 1%, with minimal government assistance to workers, in addition to an employer's contribution. Smaller-sized companies were gradually included. They recently began increasing the contribution rate. Enrollment has increased dramatically thanks to the introduction of this program and few people have opted for not increasing the voluntary contribution rate (see Graph 3).

Graph 3



Source: Mariano Bosch.

Thus, in countries such as Mexico, Colombia and Peru, where voluntary savings programs are already in place, a regulatory effort and some supervising agency initiatives are required to initiate the process. This alternative is already available, does not require a pension reform to implement it, and would be very useful in countries that have to increase their mandatory contribution rate, although there are considerable political constraints that prevent its significant growth.

4. **Automatic parametric adjustments:** It is ever less feasible to hold pension debates every five years in our region. The discussions we have seen in Chile, Colombia and Peru have highlighted a new reality: introducing unpopular pension reforms implies a high political cost for social security policymakers. Changes must therefore be introduced through automatic adjustments that occur on their own as a result of demographic changes over time. Automatic adjustments are very strongly related to the first strategy, since the definition of a pension objective justifies

the parametric adjustments necessary to achieve it.

Some countries have introduced adjustment rules. There is a pension startup rule in Brazil that is adjusted up to the time that an individual retires. Discussions on how to adjust the defined benefit system were recently held in Spain. Hence, these are measures that must be considered in reform processes.

5. **Accountability:** Finally, it is important to introduce much stricter measures regarding accountability to the population. The most significant public expenditure of almost all Latin American countries is, and will continue to be, the proportion of resources assigned to covering pensions. Thus, the authorities must be held accountable to citizens, clearly explaining what the money is being spent on. Many Latin American pension systems are extremely regressive and not at all transparent. This type of evolution is necessary to address the challenges of current and future reforms.

II. Dynamic allocation of assets based on generational models as an optimal solution for financing pensions

Set a rational, attainable and adequate pension objective

In order to be able to discuss an optimal pension framework, Robert Merton points out that it is preferable to determine the overall objective of the system. The challenge of pension sufficiency must therefore be addressed, defining what we mean by an adequate pension.

“An adequate pension is a lifetime income that enables maintaining - through protection against inflation - the same standard of living that a person has at the end of the economically active phase.”

It is worth mentioning that the focus is on pension income rather than the amount of assets accumulated in an account. Hence, pension sufficiency should not be defined in terms of a balance of, for example, 20 million or 200 million pesos. On the contrary, the ability to generate the level of income necessary to attain a certain standard of living in the future must be assessed. In other words, although there are times when the accumulated fund looks very large, it is insufficient when translated into a pension that it is capable of financing. This is why it is advisable to pay attention to the pension being financed.

The new solution: Structural determinants for achieving an adequate pension

The following list contains the fundamental factors required for designing an optimal pension framework, without limiting flexibility and innovation:

1. Set a single pension objective: income substitution.
2. Address risks in terms of pension income; i.e., assess the risk of income deficiency rather than the volatility of returns.

3. Generate an asset allocation strategy that addresses the risks of pension income deficiency.
4. Make efficient use of all pension assets.
5. Offer a customized service based on the characteristics of each individual account.
6. Adjust to market changes, as well as the personal circumstances of members.
7. Generate strategies that address the potential apathy or lack of interest of some contributors.
8. Provide only relevant data to contributors, as well as available action alternatives for improving their pensions.
9. Offer robust and low-cost investment strategies.
10. Ensure impeccable transition and flexibility in the decumulation stage.

How does the new solution differ from current practice?

Table 1 shows the difference between traditional Target Date Funds (TDFs) and the proposed new solution. The first difference is that traditional TDFs do not usually specify a well-defined objective. Nor do they inform members of the relevant parameters necessary for determining their pension sufficiency status. TDFs aim to boost the accumulation of retirement savings. I.e., instead of focusing on pension sufficiency, they focus on the generation of pension wealth. The new solution, however, focuses on setting a clear and tangible goal, in this case, the amount of money workers will need to maintain a certain standard of living.

The conventional strategy employed by the TDF sector focuses on portfolio returns to measure the risks involved, whereas the new strategy focuses on potential income deficiencies; i.e., on the volatility of the funded ratio. The *funded ratio* is the amount of income that can be purchased with the total accumulated fund, divided by the pension income objective.

The conventional perspective defines success in terms of the amount of pension wealth accumulated, whereas the new solution aims at

providing a clear explanation of how close an individual is to achieving his pension income objective. Hence, this is about communicating the situation in terms of the so-called *funded ratio*, i.e., achieving a financing ratio of 90% means that I have achieved 90% of my pension income objective.

The last difference between these two approaches has to do with the asset allocation strategy. In a traditional TDF, the parameters

are based on age. In other words, the personal data of the fund's individual contributors are not taken into account. Nonetheless, although TDFs are not the best option, they are better than what was available before they were introduced. The new solution, in turn, uses both the age and the personal data of workers to inform them of the construction of their pensions.

Table 1

	Conventional Target Date Fund (TDF) approach	New Solution
Investment Goal	Accumulation of savings <i>There is no specific savings target</i>	Retirement income <i>Desired income target stipulated</i>
Risk assessment	Portfolio return volatility	Volatility of the funded ratio <i>Revenue deficiencies</i>
Measuring success	Amount of pension wealth accumulated	Funded ratio <i>Relative to the desired income target</i>
Asset allocation strategy	Generic proportions <i>Only based on age</i>	Dynamic and customized <i>Based on age, income, funded ratio</i>

Source: Robert Merton.

Impact of interest rates on pension financing

If an individual buys \$ 100,000 of lifetime income (protected against inflation), how do you calculate how much that level of income costs? Everything is based on a single factor: the interest rate; i.e., the higher the interest rate, the lower the cost.

Graph 4 shows how much it costs to buy a fixed amount of pension income in the US market. The most impressive aspect is that it is not a straight line. In fact, it fluctuates almost as much as the stock market. This implies that once we determine how much wealth we have, we must consider that there is a high risk in terms of how much pension income we can

buy, which is directly proportional to the risk generated by the interest rate.

Interest rate risk for retirees during the fund accumulation phase

Graph 5 gives an idea of pension income in the Mexican market. It shows the behavior of real and nominal interest rates between 2006 and 2018, i.e., the performance of long-term bonds in the Mexican economy. The difference in income for someone retiring when interest rates are highest versus that same person retiring when interest rates are lowest, is 29%, whereas when repeating the exercise with the nominal interest rate, this difference is 37%.

The average time required to protect an immediate life annuity is 11 years for the real

interest rate and 9 years for the nominal interest rate. Since the regulations require members to be informed of assets under management, asset managers usually place more emphasis on the volatility of wealth than on the volatility of retirement income, thus opting for shorter than appropriate durations,

which increases the pension level risk as the worker approaches retirement age.

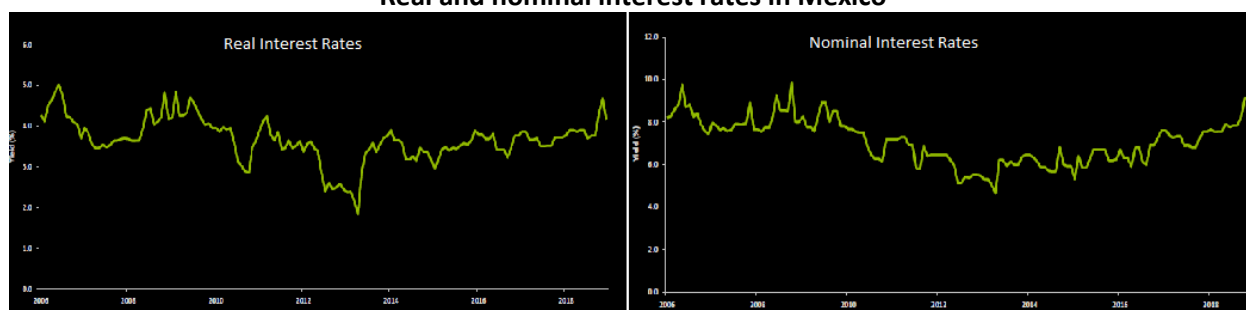
There is a fairly simple way to remedy this scenario: modify the regulatory framework of the defined contribution systems, making it mandatory for them to report on the funded ratio.

Graph 4
Assessing the cost of retirement income over time



Source: Robert Merton.

Graph 5
Real and nominal interest rates in Mexico



Source: Robert Merton.

Funded ratio versus net asset value

Graph 6 is presented as an additional example. On the left one can see the returns on US Treasury Bonds at 90 days, which are quite stable. However, in terms of pension income, US Treasury Bonds at 90 days are one of the riskiest assets that an individual can have. Individuals must determine which hedge asset is the most appropriate in terms of their retirement objectives. For example, the volatility of Treasury Bonds implies a minimum

level of risk when considered only as an asset value. However, when these instruments are assessed in *funded ratio* units, high levels of risk are detected (see the right-hand side of Figure 6).

Risk and return: wealth versus pension income

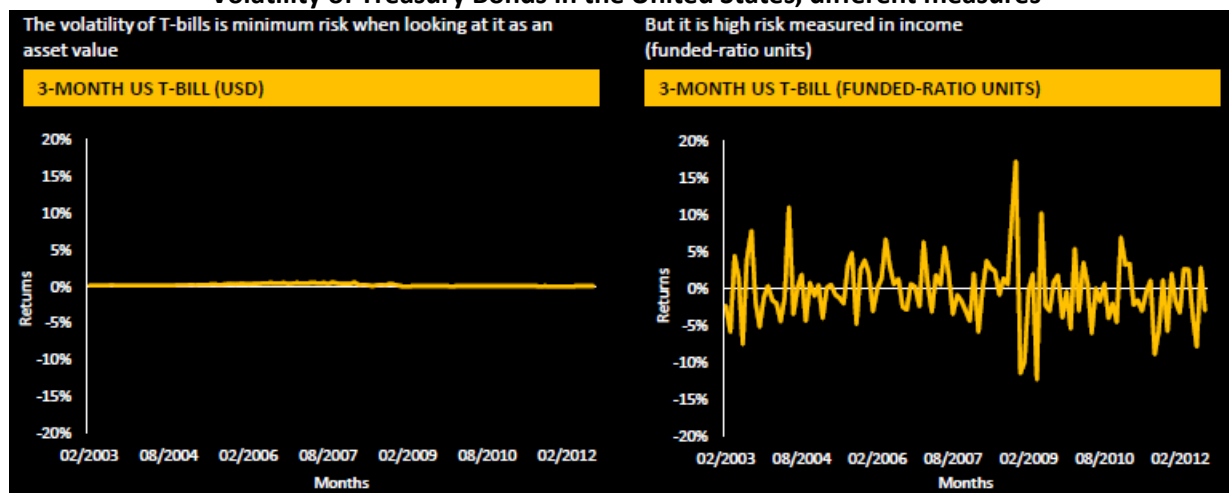
The dynamics between risk and return require proper management. To this end, the first step is to measure the risk-return *trade-off* correctly. The left-hand side of Graph 7 shows the usual

assets [treasury bonds (low risk, low return), shares (high risk, high return) and life annuities (low return, high risk)] and the risk- return trade-off is measured in US dollars. However, when the risk-return trade-off is measured in terms of *funded ratio* units, the life annuity turns out to be completely risk-free: it pays a pension income for life, no matter what. Shares,

on the other hand, while generating impressive returns, also generate very high levels of risk. Treasury Bonds, in turn, generate almost the same level of risk as shares, but with much lower potential returns. Thus, in these circumstances, Treasury Bonds are almost the worst available alternative.

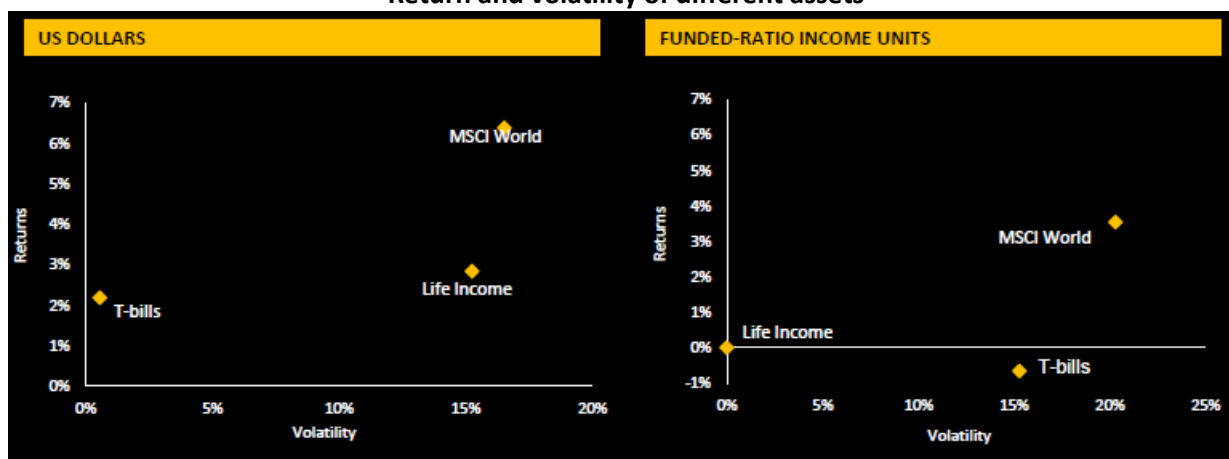
Graph 6

Volatility of Treasury Bonds in the United States, different measures



Graph 7

Return and volatility of different assets



Fortunately, the recent reform implemented in Mexico enables fund participants to avoid a particular situation that occurs in the United States economy. Table 2 shows the target date of some funds (the year in which the worker begins to decumulate funds), as well as the average duration of US fixed income assets included in the portfolio, expressed in numbers

of years. This scenario demonstrates how TDFs usually allocate funds to very short-maturity instruments. This is disconcerting, since the fact that a fund does not start paying pensions until 2035, and then continues paying for another 20 years, implies a relatively long horizon.

What explains the preference for so many short-term instruments? This means that

almost all TDFs in the United States are exposing their fund members to huge interest rate risks. What is the logic behind such a position? This is mainly due to the fact that asset managers focus on showing the value of the asset under management for financing participants. If they take out long-term bonds and interest rates improve, great value volatility is created. People do not like to see this kind of dynamics; they get upset and maybe switch to another TDF. Therefore, in order not to upset people, asset managers generally tend to follow extremely inadvisable investment strategies, as

a result of the pressure to show positive results in terms of asset value.

Many critics may claim that the public will feel uncomfortable if they switch to a strategy geared toward the level of income in retirement. However, no one is suggesting that asset managers should not disclose the value of the funds. They are simply suggesting that the pension income level should be our main concern and that the value of the funds should be of secondary importance.

Table 2

<i>Target Date</i>	<i>Average duration of fixed income assets, in years</i>
2005	4.99
2010	5.14
2015	5.10
2020	5.37
2025	5.61
2030	5.88
2035	6.18
All years	5.43

Source: Robert Merton.

The above is a much better way to explain pension adequacy issues to people. If an individual, for example, earns \$ 50,000 per year, and sees that he is on his way to having \$ 30,000 per year during retirement, he will be more motivated to take corrective action today, and he will be aware that he needs to increase his savings rate. We can immediately determine where we are in the retirement income spectrum. On the contrary, if we simply tell a participant of a Mexican fund that he has \$ 2 million in his account, he will have no idea how this situation relates to the income he will obtain in retirement.

Now you have the opportunity to teach members another way to look at their income status in retirement, through changes in regulatory frameworks. Mexico was the first country in the world to introduce this measure. South Africa is discussing the introduction of said reform, and the United States is planning to make the change soon.

How the new solution is built

In order to build a new solution, an optimal trajectory for active allocation at every moment in time must be found, applying the life cycle theory to consider the evolution of human and financial capital, gradually becoming more conservative over time. Thereafter, one must ensure that the combination of assets provides reasonable growth through diversified exposure to hedged shares and assets. Finally, the risk management of the level of pension income must be addressed by identifying the balance of the assets that enables reducing uncertainty in relation to each member's pension objective.

Thus, all sources of retirement income must be integrated, in order to generate a personal "balance sheet" for each contributor. Table 3 contains a list of all sources of retirement income for a middle-class contributor in Mexico.

Table 3

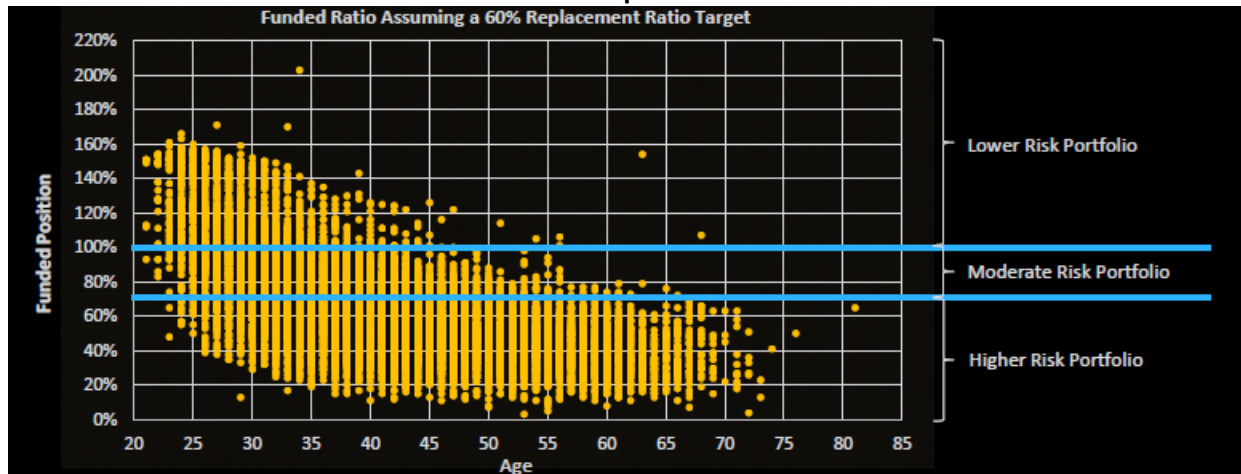
Assets	Liabilities
SIEFORES/ISSSTE Defined-contribution plan Defined Benefit Occupational Plan Basic State Pension Projected contributions (i.e. human capital)	Pension income objective

Source: Robert Merton.

In this case, the main determining factor is the asset denominated “projected contributions.” If an individual is 30 years old, he will be paying contributions over the next 35 to 40 years. However, if a person is 55 years old, he will most probably be able to pay contributions for another 10 years. Thus, young workers have an enormous amount of human capital in terms of their future contributions. Most of the assets that workers have, in terms of their ability to generate future pension income, are relatively safe. It is therefore logical for younger people to use a more aggressive investment strategy. This concept is the underlying logic of riskier asset allocation.

Graph 8 shows the status of individuals compared to their retirement income goal in an occupational pension plan in Canada. Clearly, contributors within the same age group require portfolios with different risks, because while many are achieving their pension income objectives, others need to take corrective measures to close the gap between their projected and target pensions. Therefore, in strictly empirical terms, the assumption that all individuals in the same age group have the same pension income needs is problematic, even in scenarios where all participants in a given fund work in the same place.

Graph 8



Source: Robert Merton.

To perform dynamic asset allocation, it is first necessary to consider the balance generated in the pension account, the contributions, salary, age, expected retirement date, and the pension income objective. All this will enable determining how close the workers are to achieving their retirement income objective.

Subsequently, the dynamic allocation of assets for each participant, in terms of changes in the market, as well as in the particular circumstances of individuals, must be assessed. At the end of the day, it is an allocation based on the *funded ratio* and human capital.

While it is possible to generate a TDF for each participant within a given group, categorizing

individuals in groups is slightly more efficient. Robert Merton has designed these types of customized solutions, and solutions can be generated for each contributor with a relatively low-cost plan. However, it is much more common to classify contributors into groups based on a certain set of characteristics.

The first step is to collect data on individual participants, for which the best strategy is to use the information already available in the group construction databases. On this basis, the contributor's proximity to his pension income objective is determined and a more appropriate combination of assets is assigned. After 12 months, contributors are assessed in terms of their financing coefficient, salary, labor changes and other factors. The best TDF is determined in this way, and the change is made. In these circumstances, people move dynamically from one TDF to another based on their *funded ratio*, as well as any individual and market factors involved. Traditional TDFs do not perform this analysis, and simply remain focused on the age of an individual, to the detriment of all other factors involved.

Implementation

A contributors' information system, based on data focused on pension income, is much easier to introduce than an adjustment within the TDF sector. Fund managers may fear that this type of strategy will undermine their total return strategies, but this is not the case. One needs to see reports providing information on pension sufficiency as a simple transition towards another currency. For example, a fund manager in Mexico will have no problem to start managing the resources of people living in the US. The only factor that changes in this scenario is the currency involved. General investment strategies do not change. We must therefore perceive the pension income as the new currency, which is replacing the previous currency: pension wealth. Although this is a significant change, the degree of difficulty involved for the pension sector is limited.

The most complicated aspect of implementation involves cases in which portfolios move a lot. Given the amount of managed assets involved, issues such as their liquidity become increasingly relevant. Thus, efficient and profitable allocation of assets must be ensured.

The most efficient way to improve rates of return in Mexico is to increase the international diversification of the portfolios. But all of a sudden, an important regulatory change occurred, after Mexico became the first country to incorporate pension income in the dynamic allocation of assets.

III. The influence of behavioral economics on voluntary pension savings results

Behavioral economics incorporates perspectives from the economy, as well as other behavioral disciplines such as psychology and sociology, for the purpose of enriching economic models and improving our ability to understand and predict human behavior, market results and public policies.

Brigitte Madrian points out that a concept borrowed from behavioral economics that is particularly applicable to financial decision making is the "architecture of choice." The literature states that, in the same way that architectural parameters are applied to physical spaces, with a view to designing a space that meets the requirements of the users of a building and providing a positive experience within that space, the architecture of choice can also be evaluated in terms of its ability to generate a scenario that optimizes the results for individuals through appropriate decision making.

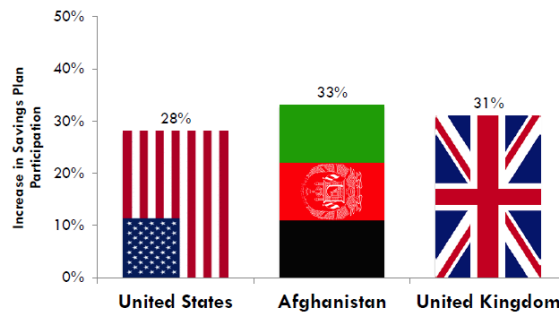
Some of the central aspects of the architecture of choice, and how they can be used to generate better results in pension savings in societies, are identified below.

1. The decision-making process

There are two typical scenarios in terms of the strategies that an employer can use to foster a culture of savings in the workplace. In the first scenario, the plan requires workers to take responsibility for enrolling in a plan and start accumulating savings (the default option is "do nothing"). In the second scenario, the employer ensures that workers are automatically enrolled in a given savings plan (the default option is

"save"). In this latter automatic enrollment scenario, if the worker chooses to do nothing, given that the default option is to "save," the end result is that he begins to generate wealth for retirement. Clearly, the first scenario contains a major deficiency, since, if the individual does not make a decision, he never begins to allocate resources to his pension savings account.

Graph 9



Source: Brigitte Madrian.

The results of automatic enrollment are extremely robust. As can be seen in Graph 9, the use of this type of structure correlates with an increase of between 28% and 33% in the participation rate in any given savings plan. Some of the reasons that explain the effectiveness of automatic enrollment are that, on the one hand, it simplifies the behavior (in a default scenario, it does not require people to act so that the result is "save"), and on the other, it simultaneously addresses a number of behavioral biases (such as bias towards the present⁴, rationality and limited attention).

⁴ Bias towards the present (tendency towards procrastination): automatic enrollment helps reduce this bias, i.e., the human tendency to postpone savings decisions. Forcing participants to leave the pension plan is the best way to combat the human tendency to postpone savings decisions, because it assures us that, if we are not able to make a decision, pension savings begin to accumulate on their own.

2. The structure of the options

In terms of savings, one of the crucial decisions is to choose a specific type of asset allocation.

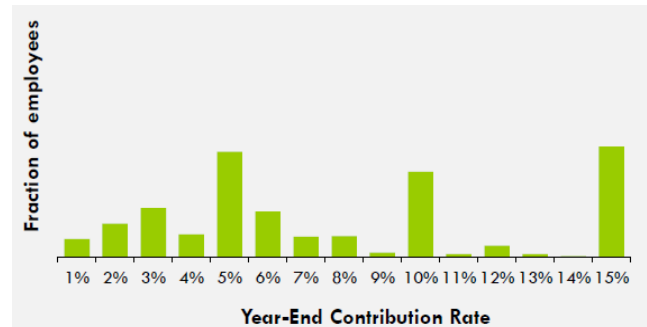
What is known about the way in which the structure of investment options influences the results?

1. When individuals have a large number of investment options, they tend to focus more on those that are easier to assess, i.e., on more familiar alternatives, such as domestic corporate shares (local bias). This results in a tendency to invest less in international corporate shares.
2. Human beings also assign greater weight to the default investment option, so that, if a decision is not made, large amounts end up in the

default alternative provided by the financial services provider.

3. People always pay more attention to the investment alternatives that appear at the beginning or end of a given list.
4. The number of options included in a given decision scenario is crucial. A study conducted a few years ago examined the relationship between the number of people who chose to enroll in a savings plan and the number of options available in terms of asset allocation. The researchers found that for every 10 additional funds added to the options menu there was a 2-percentage point reduction in the propensity to participate in the pension plan. This is explained because an increase in the number of options available has a direct correlation with an increase in the complexity of the decision-making process.
5. There is no normal orderly distribution when assessing the levels of savings rates of individuals. On the contrary, it ends up in distribution, as can be seen in Graph 10. The pattern of behavior we observe is that people usually choose multiples of five; for example, they prefer to save 5%, 10%, or 15% of their salary. This behavior is to be expected, because these figures are clearly easier to manage.
6. The strategy we use to present relevant data to workers is very important. In a study conducted by the World Bank in Mexico and Peru, researchers offered four savings products, presenting participants with the amounts involved in terms of percentages, as well as in pesos. The researchers found that individuals were much more likely to choose the savings product with better returns if commissions were expressed in pesos.

Graph 10



Source: Brigitte Madrian.

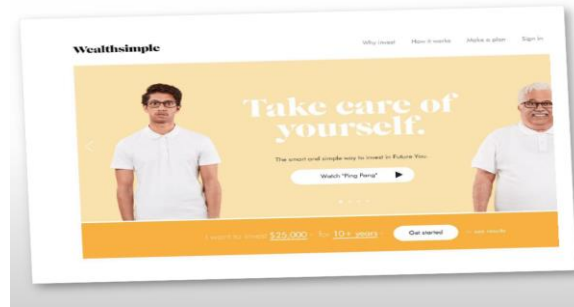
Savings planning guideline

An effective and low-cost tool for companies seeking to improve their workers' savings results, consists in a guideline regarding the steps necessary to start assigning a proportion of the salary to a pension savings account. These guidelines indicate how much time each step requires, and advice is given on how to make better decisions. Guidelines of this type (maximum one page), increase the probability of employees choosing to enroll in a savings plan by 20%.

Seeing one's own physical image in the future

One point that researchers have begun to evaluate is the following question: what motivates individuals to save for retirement? Much of the evidence indicates that individuals respond more eloquently to the needs of their "future self," when they have the opportunity to see a physical image of themselves in the future.

The following image was part of a general advertising campaign of a financial services company. The company took an individual in his 30s and then generated his portrait in the future (in about 40 years' time). The logic behind the campaign was that if people can come face to face with their future selves, they choose to save more in the present. The experiments carried out support the use of this type of strategy, since the vast majority of people choose to increase their savings rate when they come face-to-face with their future selves.



How available options are described

Another aspect of the architecture of choice is the way in which the options are presented to the people making the decisions. An interesting study attempted to assess the ability of individuals to measure their life expectancy in the future, an important factor in making retirement decisions. In the study, subjects were presented with two versions of the same question. The first version asked "What are the chances of you **living** until" X "age"? The second version posed the same question, as follows: "What are the chances of you **dying** at" X "age"?

The researchers found that if individuals are asked about the probability of living up to a certain age, they tend to assume a much more optimistic stance in terms of their projected life expectancy, compared to their stance when asked when they expect to die. The logic behind this difference is that the way we present the question influences the mental processes used by individuals to assess how to respond. For example, when individuals are asked if they expect to reach 95 years of age, they start thinking about all the things they could be doing to contribute to such a positive result, for example, eating organic vegetables or exercising. However, when asked about the likelihood of an individual dying at a certain age, we are causing them to think about a set of more negative factors (for example, individuals who have died in accidents, or of cancer, and the vices that lead to an early death). Thus, an adjustment in the way the question is posed has an immediate impact on the perception of individuals in terms of their life expectancy.

How does one translate the above concepts into a productive architecture of choice? For example, research has shown that if one can manage to provoke people to think about the reasons why they should postpone retirement, individuals tend to retire at an older age.

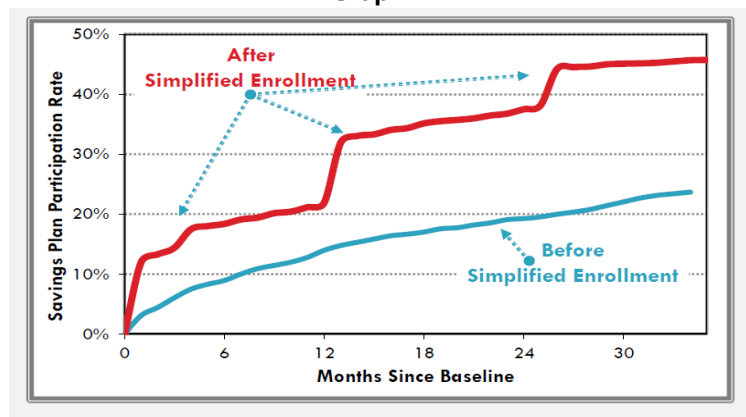
3. The timing of the choice

The last element of the architecture of choice is the moment in which one chooses. An initial study looked at ways in which it might be possible to motivate individuals to enroll in an employer-sponsored savings plan. In this instance, an automatic enrollment mechanism was not used, but rather a letter with a simplified membership form, in order to facilitate the process through which workers enroll in the plan. Thus, workers can enroll in the plan by marking an X on the form. By returning the letter with the completed form, workers are enrolled in a pension plan that invests in a diversified fund with a target date (TDF) and at a contribution rate of 5% of salary. Graph 11 shows the impact that the mechanism had on a fixed reference population. The red line shows the evolution in the participation rate when three letters were sent with the simplified enrollment message (one in month zero, one in month 12, and the other one in month 24). The light blue line shows the evolution in the participation rate when there was no intervention by means of letters with a simplified message. During the first year, the participation rate initially increased by 12 percentage points (between month 0 and 1) for workers who received the letter with the simplified message. Between month 12 and 13 the participation rate for this group increased

by 10 percentage points (which coincided with the sending of the second letter), and then increased by 5 percentage points between months 25 and 26 (which coincided with the sending of the third letter). The cumulative impact of the three letters sent was high: at 26 months, there was a 41% participation rate,

which more than doubles the 20% participation rate of workers who did not receive the letter with the simplified message. I.e., after three years, the letters with a simplified message doubled the percentage of workers who chose to enroll in the plan.

Graph 11



Source: Brigitte Madrian.

This study provides two important lessons. First, a strategy that simplifies the scenario can generate very significant dividends. Second, the study demonstrates the critical importance of reviewing the issue with the individuals involved. For example, one could try to classify the initial increase of 12 percentage points in the participation rate as almost negligible. However, as can be seen from the graph, the aggregate impact over time is enormous. This growth apparently provides more evidence that, while human beings usually have an innate desire to save, they fail to act and start saving. It is therefore extremely important to grant a second and even a third opportunity to decide on your own future old-age.

Key moments of the monthly spending cycle

Another strategy that can be effective in terms of improving savings results is to contact contributors at a key moment in their monthly spending cycle. Households that receive a monthly check tend to operate in a monthly financial cycle. At the beginning of the month, just after they have been paid, people have a lot of money available and there is a tendency to spend more. At the end of the month, they usually have less money and are less likely to spend. Which of these two moments would be more conducive to asking the contributor to assess the adequacy of their pensions? Logically, it would be best to broach the subject with individuals at the beginning of the monthly financial cycle. Initial evidence from experiments indicates that this factor is very important when designing strategies for contacting contributors.

Bibliographical references

Videos of the speeches at the Fourth National Convention of AFORES, available on YouTube:

Mariano Bosch: <https://www.youtube.com/watch?v=9bkl4RfmdRE>

Robert Merton: <https://www.youtube.com/watch?v=9bkl4RfmdRE>

Brigitte Madrian: https://www.youtube.com/watch?v=mPXn_Yolw70