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IMPACT OF COMMISSION CHARGES ON DOMINICAN PENSION FUNDS

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This article reflects the particular considerations of the author. In no sense is it a document that identifies the policy guidelines carried out by the Ministry of Finance
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PREAMBLE

The new Social Security Law creates entities with the aim of managing pension funds. The administrators (AFP), therefore, must guarantee two specific functions. On the one hand, registration and custody of the accounts per worker and, on the other, the efficient investment of resources. For this, the Law established separate accounting. One, for the accounts, funds and investments of the affiliates and another, for the assets and operations of the administrators. With this, control and supervision of the regulatory agent is sought. For their part, the AFPs, in order to fulfill their responsibilities, must generate resources. In this sense, the Law establishes four specific sources: 1) monthly commission for administration, 2) complementary annual commission, 3) charges for optional services and 4) interest for delays[1].

Of the four sources identified, commissions have a direct impact on pension funds. Notwithstanding this, is the commission level high, moderate or low? The answer is one of the most sensitive issues in a pension system. Ultimately, the policymaker must ensure the appropriate incentive that does not significantly reduce the future benefit of the affiliate. But that, at the same time, it is attractive to the pension service provider in the face of substitutive reforms between systems. In the country, since its launch, income from commissions is one of the most controversial elements. Clearly, there are two positions. The first that seeks a drastic reduction (or even its elimination). And the second, which maintains its validity as a way of guaranteeing the system's own credibility.

The truth is that the issue has ramifications in counter-reform processes in different pension systems throughout the region[2]. However, is this an efficient solution? Some argue that the elimination of commissions reduces intermediation costs. And others argue that absence encourages discretion and inappropriate use of resources to the detriment of workers. In addition to the considerations on both sides, an analysis of commissions must offer a starting point for an objective evaluation. In that sense, this article seeks to measure the impact of commissions on pension funds. The literature in this regard is diverse and addresses the problem from different angles. Indeed, this delivery is limited to the study of fee income and its effects on the funds. And it does not enter, therefore, in the evaluation of the economic-financial performance of the AFPs.

When moving from a pay-as-you-go system to individual capitalization, the costs associated with pension insurance are explicit. In the case of commissions, as indicated above, there is one for administration on a monthly basis that can reach up to a maximum of 0.5% of the monthly contribution salary. And another complementary one, which in principle, could reach up to 30% of the difference between the return of the fund and the interest rate of certificates of deposits in annual frequency[3]. From a general perspective, the former is a charge to the contribution stream and the latter a charge to the managed fund. The latter, however, is classified as commission applied to excess returns[4]. Of the two, the complementary one is dynamic because it adjusts for the macroeconomic situation.

1 See article 86, Law 87-01 that creates the Dominican Social Security System.

2 See Mesa-Lago (2014). Reversing pension privatization: The experience of Argentina, Bolivia, Chile and Hungary. Recovered from: http://www.social-protection.org/gimi/gess/RessourcePDF.action?ressource.ressourceId=43277

3 The maximum limit is 25% of the differential, see:http://www.sipen.gov.do/images/docs/estadistica_previsional/Estructura_de_Comisiones_AFP.PDF

4 See Gómez, D., Stewart, F. (2008) Comparison of costs + fees in countries with private defined contribution pension systems. International Organization of Pension Supervisors. Recovered fromhttp://www.iopsweb.org/Working%20Paper%206%20(Costs%20and%20fees)%20Formatted.pdf

Paradoxically, it is the most sensitive, but the least understood.

Finally, the article transcends the cyclical debate between profits of the AFPs and profits of the funds. A first formal approximation of the impact of commissions is proposed. This delivery, therefore, is divided into six parts. The first introduces The second reviews the literature. The third shows the evolution of the income of the AFPs. The fourth presents the model. The fifth the findings. And the sixth concludes.

BRIEF LITERATURE REVIEW

The charges applied to pension funds are subjects of strong debate. The literature, first, seeks an answer at the commission level through the type of administration, be it public or private. Mitchell (1996) indicates that the administration of these systems depends on their magnitude, since plans with a greater number of assets and a greater number of participants tend to be less expensive. In addition, he adds a comparison in terms of expenses between pension funds and mutual funds. This is so, as they are alternative pension saving mechanisms. However, he concludes that the charge would reduce if they are administered, under certain criteria, by public administration. However, Feldstein (2000) indicates that a private solution is more efficient because it would avoid excessive government control. He even indicates that the government's role as acquirer of private stocks and bonds puts it in an ambiguous situation in the face of potential bankruptcies, mergers and poor corporate performance.

The literature, then, seeks to understand factors that explain, in itself, the level of commissions. According to Tapia and Yermo (2008), the commission structure in pension systems is complex. Through the accounting commission ratio on managed assets of different countries, the authors conclude that

not only the size and maturity of the system have an impact; but also elements such as market structure, competition, investment strategies and regulations. Along the same lines, Gómez and Stewart (2008) evaluate the performance of commissions in different countries through the commission ratio (charge ratio). The findings are interesting. First, voluntary systems tend to be more expensive. Second, systems with few providers tend to be less expensive. Third, over time, the cost of commissions is reduced. And fourth, regulations on assets and minimum guarantees increase the cost.

In addition to the type of administration and influencing factors at the commission level, the literature reveals mechanisms for how to quantify impacts. In formal terms, Diamond (1999) introduces a model to determine the impact of the commissions of a worker who contributes throughout his working life (40 years). This model is perfected by contributions from Whitehouse (2000) and Devesa-Carpio et al. (2001). More recently, alternative models are used to evaluate policy changes. Such is the case of Castro (2005) who presents, for Chile, the quantification of the long-term effect of eliminating the fixed commission charged. For their part, Martínez and Murcia (2008) create, for Colombia, a model of commissions for returns that maximizes the profitability of pension funds.

COMMISSION STRUCTURE: RELEVANT ELEMENTS

The change from benefits to defined contributions presents challenges to pension fund managers. Faced with an uncertain replacement rate, the maximum level of benefit per affiliate is subject to two elements: 1) the profitability of the funds and 2) the commission charged. The first is an exogenous variable. Since although there are regulatory investment controls, it is no less true that

economic and political factors may affect the future performance of financial instruments. The second is a policy variable that can be modified. However, this presents important challenges, since it must be adjusted to the competition and investment strategies.

In short, the commission is the price for services provided by the AFPs. These can be applied to the flows, to the assets, to the returns or to the entries and exits of affiliates. In addition, they can be fixed or variable and applied in nominal or real terms. Combinations between modalities offer a diverse spectrum of alternatives. World Bank (2005) shows the range of commission policies that have been applied by different countries. These range from the most liberal to the most restrictive, going through cross-subsidies, limits on the commission structure, partial, variable and fixed ceilings and even competitive bids between single and multiple portfolios[5].

Therefore, it is necessary to make differences to evaluate different types of commission. For this, timing in your application is essential. For example, commissions for contributions are immediate and constant income with respect to those of assets or returns. Therefore, at an early stage, these automatic entries are preferable because they help defray start-up costs and stimulate competition from new providers. In the same way, core elements such as the incidence of the commission per worker or the administration of accounts of non-contributing affiliates, make the application of charges to the balance more attractive than to the flow. However, prices applied to the value of the fund tend to stimulate the maximization of assets and returns.

From the macroeconomic point of view, the savings accumulated through pension funds must be allocated in the best possible way. In this sense, the investment strategy, as indicated above, is another important element within the pension industry. The active or passive management of resources must meet short, medium and long term goals. However, this has its price. For this reason, the relevance of commissions. In short, the forms of commissions, the timing of application and the investment objectives must ensure an ideal mix that stimulates the maximum return.

DOMINICAN CASE

In a general sense, the structure of commissions is regulated by Law 87-01 to guarantee its due knowledge. The two commissions are identified as maximum applicable limits. The commission agreed upon by the administrator must be submitted and authorized by the Superintendency, SIPEN, for application purposes. With this, in addition, the regulator must regulate the registration and presentation of commissions in the financial statements. Likewise, it is indicated that the AFPs can grant incentives via reduction of commissions to their affiliates. For its part, the complementary commission would be calculated from the weighted average of the interest rate of the different certificates in the bank[6]. However, later resolutions make adjustments to the lower limit of the spread. First, the moving average of the last 12 months is indicated as valid, and then the average with respect to the previous month[7].

EVOLUTION OF INCOME OF PENSION FUND ADMINISTRATORS

The path of income, 2003-2015, shows a

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5 See Administrative charges –options and arguments for controlling fees for funded pensions. World Bank (2005). Recovered from:http://documents.worldbank.org/curated/en/800581468017062433/Administrative-charges-options-and-arguments-for-controlling-fees-for-funded-pensions

6 See pension regulation number:969-02

7 See the resolutions of the Superintendency of Pensions, number:210-04 y 232-05.

pattern similar to that of other pension systems in their initial stage. In fact, a gradual increase was applied to the effective contribution rate, according to the Law, as an adjustment mechanism. The period lasted 5 years. Graph 1 shows the progressive growth of income.

In the first stage, 2003-2008, the takeoff of income by a factor of nine is observed, explained by the adjustment according to the Law. In addition, the relevant weight of the administrative commission within the total income is evidenced. For that period it represented 60%. The second stage, 2009-2015, is one of consolidation, with growth in revenues by a factor of two. In this, the complementary commission gains relative weight and reaches 62%.

Although in nominal terms, income maintains its path, there is a drop in income as a percentage of the balance in the capitalization accounts. The pattern of decline is explained by the rapid growth of assets. The gap in percentage points falls by 4.48 between 2003 and 2008. Subsequently, two expansions are shown, 2008-2010 and 2011-2013, explained fundamentally by the performance of the complementary commission. In terms of GDP, revenues increase from 2003 to 2013, going from 0.03% to 0.30%. However, the remaining years in the series up to 2015 show a reversal from 2013 that drops revenue by 0.10 points.

In accumulated terms, only the commissions established by Law represent 93% of the total income. In Graph 2, they are separated to understand their behavior. As a percentage of the total in the CCIs, the fixed commission corresponded to 5% while the complementary one reached close to 1% in 2003. These levels are not trivial. On the fixed side, it is the automatic payment for the flow of contributions. While, on the complementary side, the low level was attributed to the process of adequacy of funds. This process included measures such as the placement of up to

100% of the resources in deposit instruments and financial certificates. The gap between commissions decreased and, in 2008, both had approximately the same participation. From now on, the complementary increases its proportion with fluctuations always above the fixed one. The latter falls gradually.

COMPLEMENTARY ANNUAL COMMISSION

One of the most relevant aspects is to understand the calculation dynamics of the complementary commission. In technical terms, the formula has three variables. The first is the commission percentage (c%). The second is the spread between the fund's return and the average return on certificates(R_t-CD). And the third, the value of the pension assets of the previous period (VFP_{t-1}). So, mathematically it is defined as:

$$CA_t = c\% * (R_t - CD) * VFP_{t-1} \qquad (1)$$

However, it is important to analyze the behavior of each variable in the formula. First, the commission percentage (c%) was set up to 30% of the spread. This was the case between 2003 and the third quarter of 2013. In the fourth quarter of that same year, it is reduced to be up to 25% of the excess over profitability. All AFPs except one apply the maximum commission limit.

The differential (R_t-CD), is the second component. As indicated, it has a lower limit and an upper limit. The lower limit is the average profitability of certificates in multiple banks. And the upper limit is the return of the fund. The differential, Graph 3, shows the effective evolution from 2003 to 2015. The performance as of 2008 is explained by the diversification in investments made by the AFPs before the authorization of new issuers. Such is the case of the Central Bank and, later, the Ministry of Finance. Finally, the value of the assets (VFP_{t-1}) corresponds to resources

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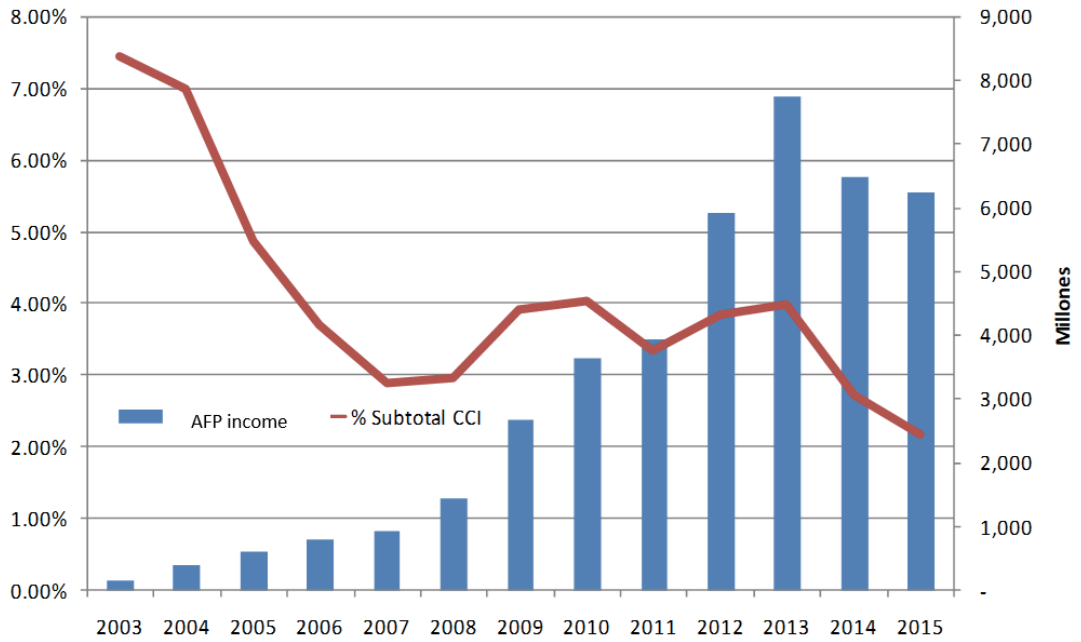
*CCI: Individual Capitalization Account

Graph 1. Evolution of total AFP income and as a % of the CCI Subtotal *, 2003-2015

Source: Built by the author from the SIPEN bulletins
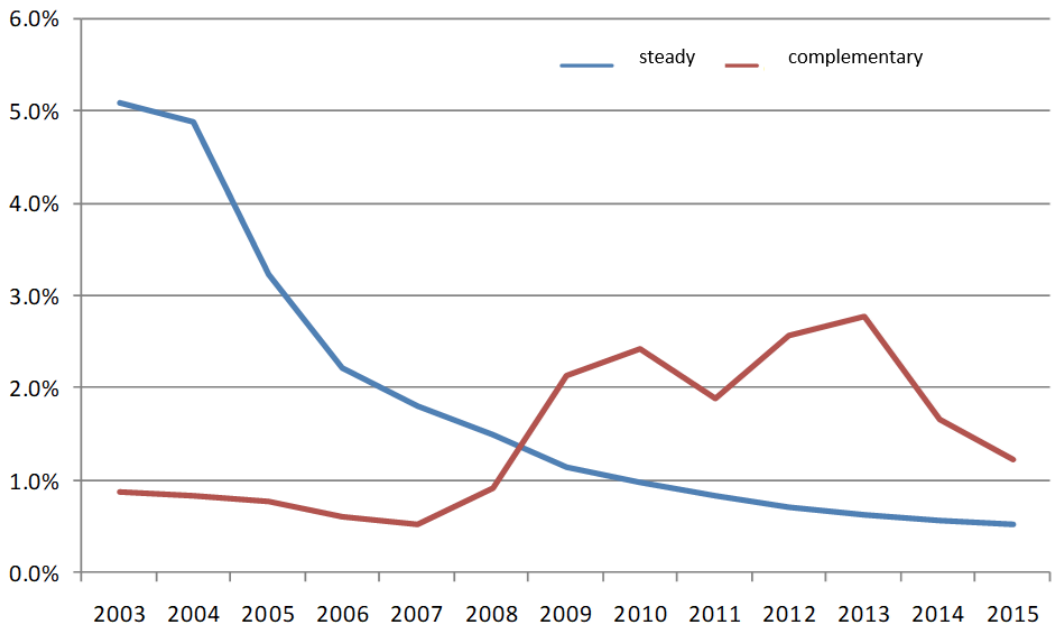
Graph 2. Commission trajectory as % of total in CCI, 2003-2015

Source: Built by the author from the SIPEN bulletins

accumulated in the previous period.

The growth path of the commission per AFP is shown below (Graph 4). The pattern is similar to the one described above, where a take-off stage and a consolidation stage are recorded.

MODEL

One of the first formal approaches to the commission structure and its impact on pension funds is made in the United States. Diamond (2000) creates the commission ratio (charge ratio) in order to quantify the level of commissions with respect to the accumulation account. The model, therefore, considers a worker who earns a wage w_t in each period t and who grows exponentially at a rate g. On this line of research, Whitehouse (2000) and Devesa-Carpio et al. (2001) add relevant elements to the model. In both cases, they inquire about contribution gaps, salary profiles and the effects of additional costs. However, Devesa-Carpio et al. (2001) incorporates the construction of the wage path, based on the Gaussian function and Carriere-Shand.

In this installment, Devesa-Carpio et al. (2001). The life of the member, meanwhile, begins with salary in period 0 and evolves: wt=$w_0 e^{gt}$, where g is the real cumulative growth rate of wages. Then the salary contribution to pensions is incorporated to determine the periodic charge (fixed commission, c_1). So, you have: $c(1-a_1)w_0 e^{gt}$. To determine the net amount accumulated at retirement age T, the formula is: $c(1-a_1)w_0 e^{gt}$ and$^{r(T-t)}$ where r is the expected real return of the fund. The complementary commission (a_2) is incorporated as part of the exponent and is subtracted from the actual return[8]. So, the formula is:

$$c(1-a_1)w_0 e^{gt} e^{(r-a_2)(T-t)}$$

(a.1)

To determine the total amount accumulated since the period: 0 to T is integrated: **a.1**:

$$\int_{t=0}^{T} c(1-a_1)\, w_0 e^{gt} e^{(r-a_2)(T-t)} dt$$

(a.2)

Which is expressed as:

$$\int_{t=0}^{T} c(1-a_1)w_0 e^{t(g-r+a_2)+\, T(r-a_2)}\, dt =$$

$$c(1-a_1)w_0 e^{T(r-a_2)} \int_{t=0}^{T} e^{t(g-r+a_2)} dt$$

(a.3)

And it is obtained:

$$\int_{t=0}^{T} e^{t(g-r+a_2)} dt = \frac{1}{g+a_2-r}\left[e^{t(g-r+a_2)}\right]_0^T =$$

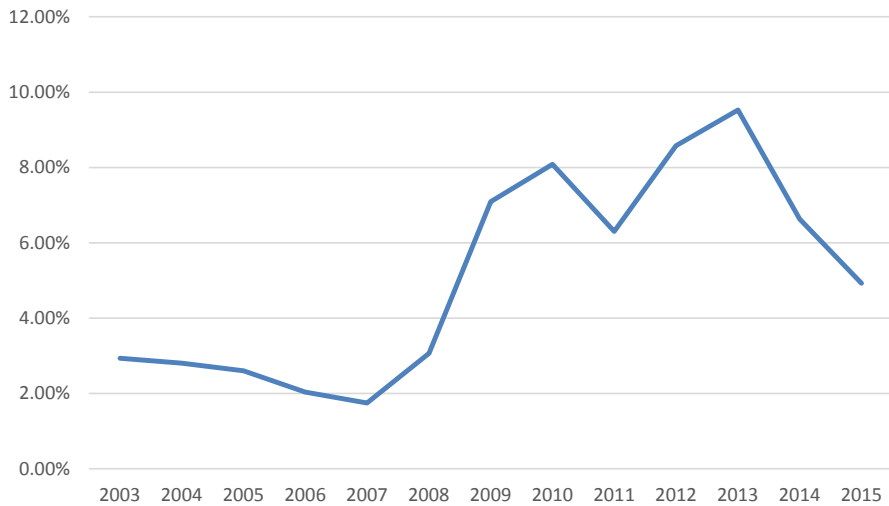$$\frac{1}{g+a_2-r}\left[e^{T(g-r+a_2)} - 1\right] = \frac{1-e^{-T(r-g-a_2}}{r-g-a_2}$$

(a.4)

To finally obtain the total amount accumulated at the end of the working life:

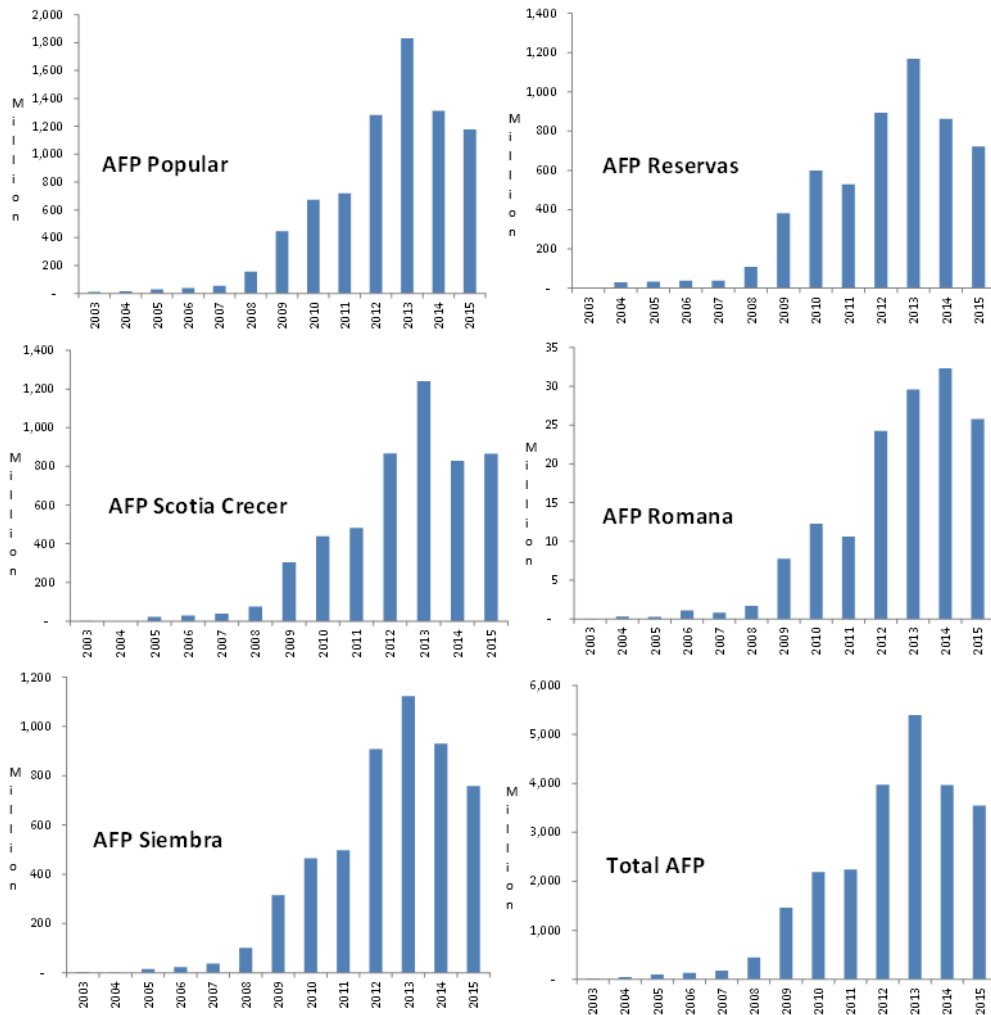$$c(1-a_1)w_0 \left(\frac{e^{(r-a_2)T} - e^{gT}}{r-g-a_2}\right)$$

(a.5)

With a.5 we have the net amount of the established commissions. For its part, the accumulated amount is computed in the absence of commissions, reducing: a_1 and a_2 to 0. Y is identified:

Graph 3. differential path, 2003-2015

Source: Built by the author from the SIPEN bulletins

Graph 4. Evolution of complementary commissions by AFP, 2003-2015. In millions of RD$

Source: Constructed from the financial statements of the AFPs published by the SIPEN

$$cw_0 \frac{e^{rT} - e^{gT}}{r - g}$$

<div align="center">(a.6)</div>

By determining the amounts accumulated with and without commissions, the impact can be measured. For this, the literature indicates several metrics. The most relevant are: 1) as a reduction in gross return, 2) as a reduction in contributions, and 3) as a reduction in the accumulated amount of the fund. In this installment attention is paid to the last two. In fact, by construction of the model they are equivalent. The commission ratio, RC, is obtained from:

$$1 - \frac{c(1 - a_1)w_0 \left(\frac{e^{(r - a_2)T} - e^{gT}}{r - g - a_2} \right)}{cw_0 \frac{e^{rT} - e^{gT}}{r - g}}$$

<div align="center">(a.7)</div>

Where RC takes values between 0 and 1. The extreme cases correspond to 0, without any charge and 1, total absorption by commissions. Once the model is built, it is calibrated with local data. In this sense, it is important to define the assumptions and parameters of the exercise. It is assumed that the worker contributes throughout his working life (40 years). This is so, to quantify the maximum loss due to exposure. In the future, the assumption to capture intermittent exits and entries of the affiliate in the system will be relaxed.

Meanwhile, it is assumed that the worker begins his working life at age 20 and retires at age 60 (whether male or female). In addition, he contributes 8% of his salary (mixed contributions) and only the additional 0.5% is included for fixed commission. Therefore, 1% of life insurance, 0.4% of the solidarity fund and 0.5% of the Superintendence of Pensions are excluded. It is assumed, for simplification, that the salary is a monetary unit ($1) and grows at a real annual rate of 1%. Likewise, the fund produces real returns of 5%. The complementary commission is computed as the product of the average proportion and the real difference between deposit certificates and the fund's return, which is 1.31%.

FINDINGS

Under equilibrium conditions, the charge ratio for the Dominican Republic is 27.72%. The natural question now is: how has he behaved? The answer is given by observing the performance of the indicator over time or comparing between countries (Whitehouse (2000); Devesa-Carpio et al. (2001); Gómez and Stewart (2008); Ionescu and Robles (2014)). For the country, several authors calculate the ratio in 2008 and 2013. This document offers the updated indicator for 2016. The calculations indicate that for 2008 it was 19.35% and for 2013 it reached 23.76%[9].

Is the charge ratio therefore high, moderate or low? The most recent update by country is 2013. In this sense, the comparison, strictly speaking, is invalidated. However, in order to understand the context, the position that the country had in 2013 with respect to the rest of the countries with similar pension schemes is analyzed. The sample above has 37 countries (Graph 5). The highest ratio in that year corresponded to Ghana (46.40%), followed by Panama (46.40%) and Albania (45.12%)[10]. For its part, the lowest ratios are those of Hungary (5.93%), India (6.35%) and Kenya (8.96%). The average ratio is 21.5%. The Dominican Republic was slightly above the average,

9 See Ionescu, L. and Robles, E. (2014). Update of IOPS work on fees and charges.IOPS Working Papers on Effective Pensions Supervision no. 20 and Gómez, D., Stewart, F. (2008) Comparison of costs and fees in countries with private defined contribution pension systems, working paper no. 6. Both from International Organization of Pension Supervisors.
10 In the original reference table, there are countries with more than one pension plan. For these countries, only the comparable plan with the Dominican Republic is included.
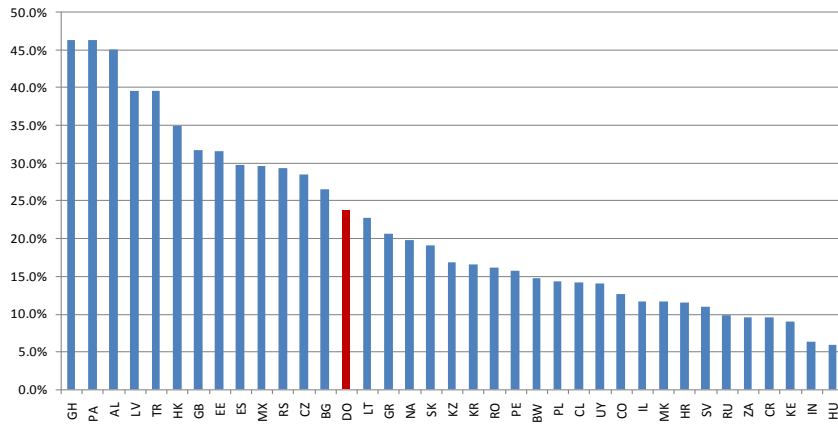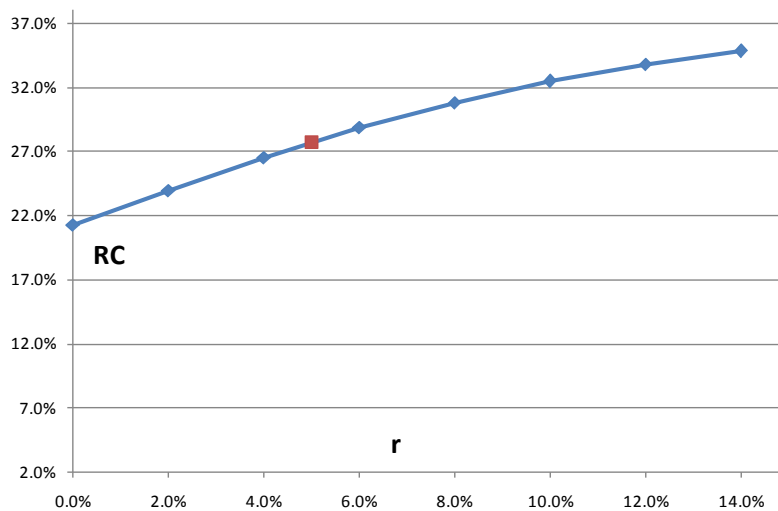
Graph 5. Commission ratio by country, 2013

Source: Constructed by the author from data provided by Ionescu and Robles (2014)
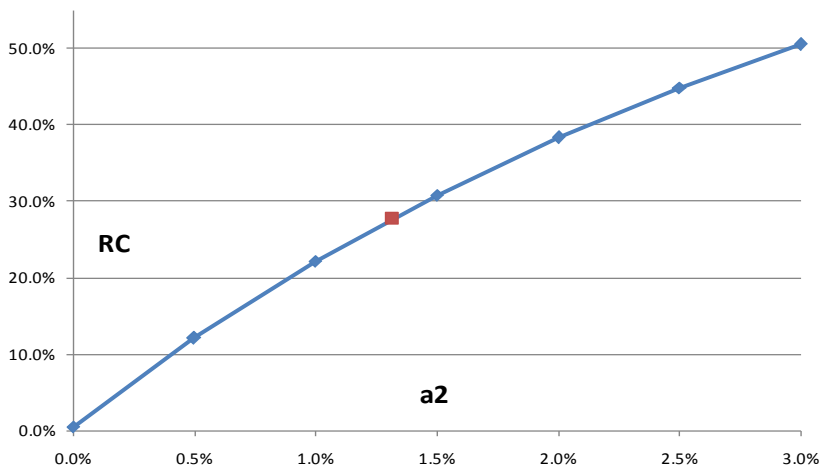
Graph 6. Relation between: a_2 and RC

Source: Built by the author from the developed model

Graph 7. Relation between: r and RC

Source: Built by the author from the developed model

standing at 23.76%, occupying position 14 in relation to the highest ratio. Of the Latin American countries, Panama (46.40%) is the largest and Costa Rica is the smallest (9.50%). The country ranks third, above Peru (15.80%), Chile (14.20%), Uruguay (14.10%), Colombia (12.70%) and El Salvador (11.00%).

Then, the commission ratio is studied through a sensitivity analysis and variations in the most relevant assumptions. Graph 6, for example, observes the impact on the pension ratio, RC, due to changes in the commission a_2 (horizontal axis from 0 to 3%), ceteris paribus. It is found that low a_2 have a significant impact on the final value of the pension of a worker who contributes 40 years in a row. A 1% commission reduces the value of the contribution by 20%, which is equivalent to a decrease in the pension by that same level. The red square is the level calculated for the Dominican Republic in 2016.

Graph 7, for its part, analyzes the commission ratio in the face of changes in real profitability. A 1% increase in return increases the ratio by approximately one percentage point. The latter is intuitive, since if the accumulated fund amount increases, the base for the application of the commission is greater. The red mark is the country level.

On the contrary, Graph 8 shows an inverse relationship between the commission ratio and the real increase in wages. Therefore, the increase of one percentage point in salary decreases the ratio by close to one percentage point. This is so, because said increase is applied to the flow and not to the balance. The red square corresponds to the country level.

Finally, Graph 9 shows the path of the ratio with and without commission charges at different return levels. It is evident that the higher the return, the gap widens. The blue line grows faster than the red line. In effect, the area between the lines is the commission charge expressed in monetary units.

CONCLUSION

This article is the starting point for an objective evaluation of the commissions charged by the AFPs to Dominican pension funds. Ha that is circumscribed. It is evident, at first phase, that it has an effect. Now, what does that effect represent? It is nothing more than the explicit cost of maintaining individual accounts and, also, the administration of resources to ensure the highest possible return. Is it, therefore, what it must be? The answer is the one that must be given based on the objective set by the policy makers. Although the objective in this case is invariable (maximum profitability), it is no less true that the context has changed. It is for this reason that it is necessary to review the most sensitive elements of the pension system.

So, does this mean that a reform is necessary? If it is. Why? The pension system must adjust to the reality of the Dominican labor market. As long as the Labor Code reform does not materialize, all efforts to reform social security will be inefficient. Since high evasion, high informality and low wages do not make a decent pension possible. Now, what is a decent pension? If measured from the replacement rate, must this be 60%, 70%, 80% or up to 100% of the worker's last salary? The country's closest point of comparison is its most prominent previous pension laws (Laws 379-81 and 1896-48). These explicitly indicate the replacement rate and the direct contributors to said funds. It is not fortuitous that the State appears as an employer, but also as a solidary agent in a private employer-employee relationship. What was implicitly assured was that the State would guarantee the replacement rate with general funds.

Currently, the current system has the State as an employer, in principle, transferring the replacement rate risk to the AFPs and, ultimately, to the worker. This ensures a significant reduction in future public spending
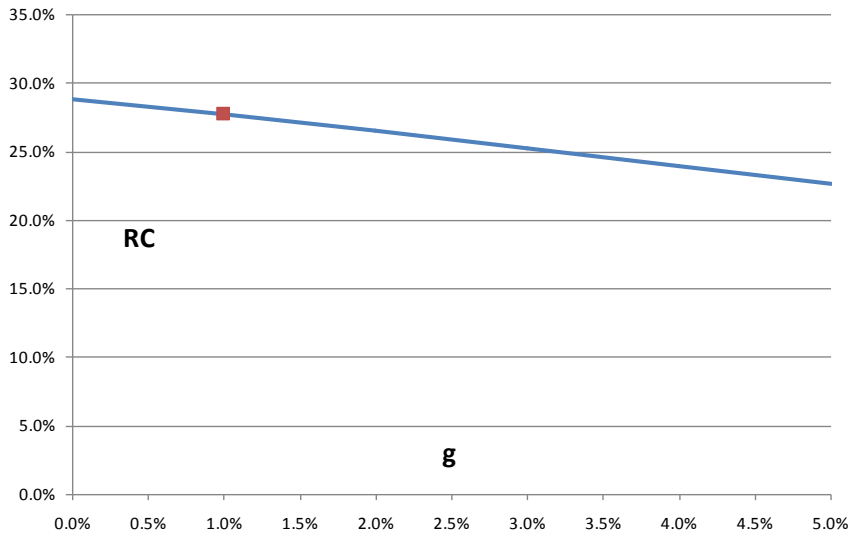
Graph 8. Relation between: g y RC

Source: Built by the author from the developed model
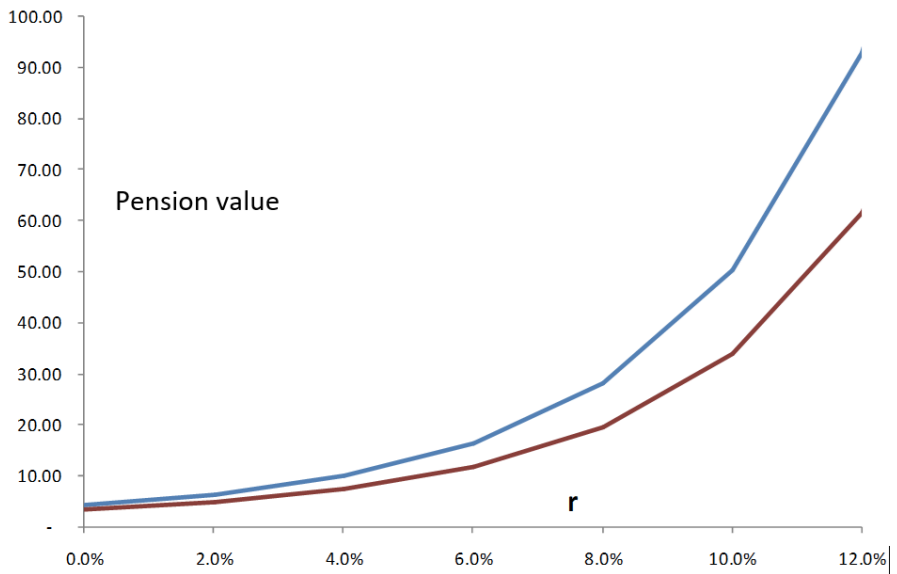
Graph 9. Relation: RC_{con} (red line) y RC_{sin} (blue line) y r

Source: Built by the author from the developed model

for this concept. However, the most recent estimates for the country show a replacement rate of 25% on the last salary. And if the 5% term cost of the AFPs is added to this, it would, of course, be a little more, approximately 30%. Is the latter politically desirable? No. Is it economically attainable? Yes. In the current state without reform to the Labor Code, we are in a dead end. And of course, in this scenario, the managed system is expensive.

As evidenced in the article, commissions as a percentage of managed funds fall progressively (Graph 1). However, when constructing the commission ratio and reviewing its evolution and then comparing it with other countries,

it is high (Graph 5). At first they would seem counterproductive results, but they are not. The first indicator is an accounting ratio that evolves from commissions charged on assets in custody. The second is prepared to determine the level of cost represented by commissions on the term value of a pension. Therefore, a comparison is made with respect to the counterfactual without commissions applied and, later, its impact is studied through sensitivity analysis. Indeed, the most sensitive variable is the complementary commission, which must be reviewed and will continue to be the scapegoat for a structural problem that concerns the labor market.

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