MACROECONOMIC IMPACT OF THE 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 reform of the Dominican pension system evidences a structural change by moving from a pay-as-you-go system to one of individual capitalization. This consolidates three key elements. The first unifies all workers in a single system. The second standardizes contribution rates and the third individualizes pension funds. At the same time, said reform sought a transition guaranteed by the State with important fiscal implications. In this context, the new rules of the system induce changes in the behavior of the various agents in society. From an economic perspective, the pension system reform has direct effects on the economy. According to the literature, the transmission of effects is carried out through four basic channels: 1) savings and domestic investment, 2) employment, 3) capital markets and 4) factor productivity. The macroeconomic evaluation, therefore, is a transversal task whose ultimate goal is to determine the impact of the pension funds on the level and growth of the Gross Domestic Product (GDP).

At first phase, the identified channels address various aspects of the reform. The first, for example, quantifies the effects of the government and workers in the face of changes in patterns of income, consumption and savings. The second, for its part, analyzes the evolution of employment and its intrasectoral dynamics (formal-informal). The third reviews the progress in the stock market and the fourth, finally, studies the efficiency in the allocation of resources in the economy. This route, designed by Corbo and Schmidt-Hebbel (2003), was carried out for an in-depth evaluation of the Chilean pension system. From then on, this strategy has been applied in various countries in order to quantify the impact on the economy of reforms to pension systems[1]. For the Dominican case, it is the first time that an attempt has been made to evaluate the pension reform based on Corbo and Schmidt-Hebbel (2003). It is clarified from the outset that only three of the four components described are covered: 1) savings and investment, 2) employment and 3) capital markets. Furthermore, this article is limited to the impact on GDP growth. The purpose of the delivery is to serve as a platform for further studies. Only 13 years after the implementation of the new system, the macroeconomic results are precarious in terms of the impact on the economy. Added to this is the scant local literature that shows the significant lag in the country in terms of pension research.

During the study period, isolating the pension effect on the economy is a daunting task. Although the reform was approved in 2001, it was not until 2003 that the pension subsystem began. Added to this delay is the effect of the 2002-2003 banking crisis, which contracted growth, sent prices soaring and raised levels of uncertainty. This crisis created sequels in the labor market that still affect the performance of pension funds today. The latter, together with the precarious progress of the labor reform, yields findings contrary to the fundamental objective of the reform. Without a timely review that reduces non-wage costs, post-reform formal employment levels will continue to be below pre-reform levels, exacerbating labor informality and pressure on intra-system resource flows. Likewise, the shallow capital market limited the speed of investment diversification and objective profitability. Although the funds were not exposed to the 2008-2009 international financial crisis, it is no less true that the high concentration of investments in domestic public debt poses a risk. Since on the one hand, the pension funds receive attractive

1 Read about SURA Asset Management (2013) Retrieved from: https://www.proteccion.com/wps/wcm/connect/proteccion/b5e748d8-0ef0-45e5-977e-ee94a0c39dcc/Libro-completo_web.pdf?MOD=AJPERES&id=1386174215687

returns for public debt instruments, while on the other, the state burden for interest payments is increasing.

Given the exposed scenario, the repercussions of a macroeconomic nature are reviewed as far as possible. This issue culminates the production of twelve research articles on the Dominican Social Security System with an emphasis on pensions. The primary objective has been to contribute to the understanding of little-known topics. The significance of these articles is raised by the current historical context of a virtual reform of the Social Security Law. It is hoped that they have served at least to edify the target audience. As far as this installment is concerned, it is divided into five parts. The first introduces, the second reviews background and performance of the system. The third quantifies the macroeconomic effects. The fourth estimates the effects on the growth of the economy and the fifth concludes.

BACKGROUND

Prior to the 2001 reform, the country did not have a comprehensive pension strategy to protect workers in the passive stage. Although the payment of pensions is recorded from the beginning of republican life, these were granted for particular situations and not for pre-established contributions. In the private sphere, an attempt to universalize pension insurance was introduced through the Dominican Social Security Institute (IDSS) in 1948. Through this social protection network, pension coverage was included under the pay-as-you-go and defined-benefit modality. The pension contribution rate was not explicit and the contribution was allocated to the common payment fund for various benefits. However, the insurance was only mandatory for low-income workers up to a threshold defined by law. The rest of the workers above said threshold were excluded. This affected the

principles of universality and solidarity of the system.

On the public side, pensions went through several stages. A first, where the State granted benefits to military mainly (1844-1900). A second, which recognized the right to a public service pension and social support for people with limited resources (1901-1919). A third stage that regulated civil and military pensions under the first North American intervention (1920-1929). A fourth that conferred additional powers to Congress and the Presidency of the Republic granting pensions through special laws. The executive branch, during this stage, laid the foundations for the future pension system for public workers (1930-1980). The fifth stage establishes the pay-as-you-go pension system for the public sector, establishing contribution rates, a minimum pension guarantee and the creation of autonomous pension plans at other levels of government (1981-2001).

The comprehensive reform of the social protection scheme was carried out in 2001. This included the pension component. On the pension front, the cohesion of a comprehensive public policy that united the public and private systems was achieved. For this, the pension insurance was redesigned with contributions and benefits by type of scheme. In the same way, the insurance administration roles were readjusted and a gradual transition from the previous systems to the new one was consolidated. With regard to the design of the insurance, the financing mechanism was transformed, going from pay-as-you-go to individual capitalization. Likewise, a more direct relationship between contributions and benefits was guaranteed. The new scheme even transfers the risk of benefits from the State to future beneficiaries and other private entities such as insurance companies.

With regard to new administrative roles, the reform closes the entry of new workers

to pay-as-you-go systems. Existing plans could transition as long as they fit the new conditions. The State also transferred the administration of pension funds to private institutions (pension fund administrators) and regulation fell to two new institutions: the National Social Security Council (CNSS) and the Superintendence of Pensions (SIPEN). Finally, what is related to the transition between systems reached a moderate speed, keeping taxpayers of the old system over 45 years old at the time of the reform. In that same order, the reform recognized the acquired rights of workers contributing to the IDSS and the State. But above all, the state's commitment to financing the transitional deficit was guaranteed.

PERFORMANCE

In macroeconomic terms, the start of the new pension system coincided with the 2002-2003 banking crisis. The growth of the economy fell by 1.3%, explained by a sharp drop in domestic demand. A total real investment fell by 15.3%, while total real consumption fell by 3.3%. For its part, the labor market was also affected. The employment rate in the same year contracted by 0.8 percentage points. The unemployed open unemployed stood at 181,306 with an increase of 9.4%. The population receiving income, meanwhile, slowed down slightly by 0.41%. By occupational group, the most affected were office employees with a drop of 14.2%, qualified farmers and ranchers with 12.7% and service workers with 3.8%. In sectoral terms, the significant decrease was reflected in the informal sector with a reduction of 2.8%.

On the pension system side, affiliates and contributors in 2003 represented 31.8% and 18.6% of those employed in the economy, respectively. Likewise, the contributors with

respect to the population receiving income was 19% and in relation to the formal population it reached 40.6%. From now on, the main indicators of the system are shown in Table 1. Only 13 years after its launch, specific elements stand out. With respect to the Economically Active Population (EAP), affiliates more than doubled during 2003 and 2015, going from 26.4% to 65.2%. The affiliates with the most weight are those corresponding to the individual capitalization scheme in a 9 to 1 ratio. The latter is to be expected due to the closure to new affiliates of the systems prior to the reform. Similarly, the contributors with respect to the PEA doubled but at lower levels from 15.5% to 32.3% during the same period. In that same order, the contributors with respect to the population receiving income only reaches 38%. This poses an important challenge due to the low level. That is, for every 100 workers in the economy, only 38 contribute to the pension system.

Under the new system, disability and survival pensions are computed, for the most part. As of 2015, the total number of pensioners reached 10,443 or 0.2% of the EAP. Pensioners by the pay-as-you-go system stand at 103,198 or 2.1% of the PEA[2]. In another order, pension assets in individual accounts go from 0.2% of GDP in 2003 to 9.4% of GDP in 2015. By including funds in individual distribution, assets reach 12% of GDP in 2015. An approximation to the flow of average pension savings during the 13 years is placed at 0.5% of GDP. As for the real profitability of the funds, the annual historical average stood at 4.5%. While the real salary verifies a fragile average growth of 0.5%.

MACROECONOMIC EFFECTS
NATIONAL SAVINGS AND DOMESTIC INVESTMENT

To determine whether the pension

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2 Only includes pensioners in charge of the Ministry of Finance.

system reform increased the country's savings rate during the period, Corbo and Schmidt-Hebbel (2003) identify four main channels. These are: 1) change in government savings, 2) mandatory household savings (AFP), 3) response of private savings to the change in government savings, and 4) response of voluntary savings to mandatory household savings. According to the authors, government savings must be studied based on the operational deficit of the pay-as-you-go system charged to the State as a result of the reform. In addition to the deficit, recognition bonuses must be granted to workers with acquired rights. Both are transitory until the extinction of all the beneficiaries. The average operating deficit reached 0.5% between 2003-2015, registering a significant increase with respect to the average pre-reform deficit (1991-2002). In 2009, it recorded the highest level deficit with 0.7% of GDP. It is worth noting that thirteen years after the reform, recognition bonds are still a pending task.

On the side of how the government has financed the post-reform fiscal deficit, linking specific sources is somewhat difficult due to its fungibility. Therefore, it is appealed to identify three fiscal adjustment scenarios. The first with a total adjustment of 100%, an intermediate one of 62.5% and a minimum of 25%. The first ensures a readjustment of public spending to meet the new pension obligations. The last two, on the other hand, consider an uncovered proportion that is financed with debt. The effects of the reform under these assumptions produce a change in government savings of between 0% and -0.23% of GDP. In a scenario of intermediate fiscal contraction, government savings are -0.11% of GDP.

With this fall in public savings, there must be some response from private savings. The country does not have studies that calculate the compensation coefficients between savings. However, the literature indicates that this depends on two factors: 1) relationship between the pension deficit and debt amortization and 2) the planning horizon of consumers. If the Ricardian equivalence holds, the private sector must adjust its savings by the same magnitude but opposite to the savings of the public sector. In empirical terms, if the coefficients calculated by Bennett et al. (2001) for Chile, the coefficients are in a range between -0.36 and -0.57 with a midpoint of -0.47. Therefore, the impact on voluntary savings, calculated as the product of the response coefficient and the public deficit, is between 0% and 0.13% of GDP for the Dominican Republic.

For its part, the mandatory savings generated as a result of the 2001 reform through individual accounts must be obtained from a statement of sources and uses of pension funds. Unfortunately, the country does not have an official report of this type and its construction from public information is impossible. Without this, the approximation to compulsory saving is assumed on an ad hoc basis at 0.5% of GDP between 2003 and 2015. With this level of compulsory saving, some reaction of voluntary saving must be observed. Theoretically, forced saving must be offset by lower voluntary saving. However, in practice, households do not save and it is exacerbated in countries like the Dominican Republic where real wages are well below average labor productivity. Bennett et al. (2001) with coefficients between 0 and -0.5. For the country, the result is between 0 and -0.25% of GDP.

The sum of the four effects described is shown in the first part of Table 2 below. During the 2003-2015 period, the effects on national savings range from 0.15% of GDP to 0.50% of GDP. On the side of the impact of said savings on domestic investment, this will be subject to the degree of integration with international markets. In the case of the
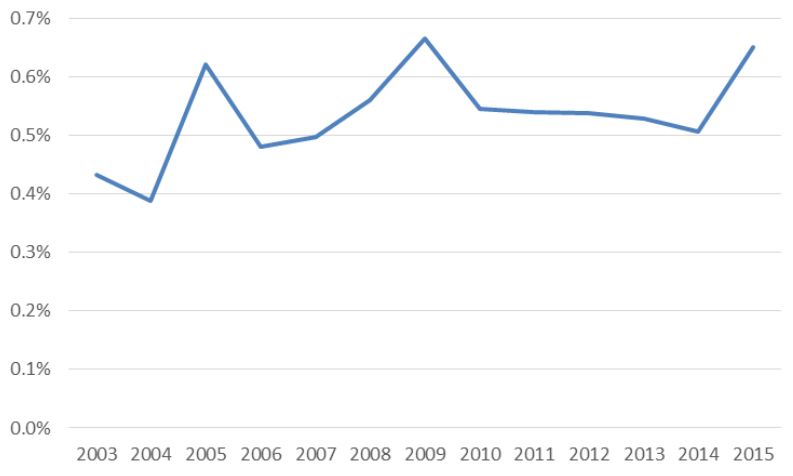
Graph 1. Evolution of the operational deficit in charge of the State, 2003-2015

Source: Prepared by the author based on data from DIGEPRES and DGJP

	affiliates			contributors			AFP pensioners			Pensioners Cast	operational deficit	Flow of pension savings	Pension fund assets	Assets individual accounts	Real funds rate of return	Real wage rate	GDP growth rate
Year	AFP % PEA	Distribution % PEA	Total	AFP % PEA	Distribution % PEA	Total	Disability % PEA	Survival % PEA	Total	Total	% GDP	% GDP	% GDP	% GDP			
2003	22.3%	4.2% 4.0%	26.4%	14.6%	0.9% 1.0%	15.5%	0.0%	0.0%	0.0%	1.9%	0.4%	0.2%	1.1%	0.2%	-9.9%	-2.3%	-1.3%
2004	26.3%	3.9% 3.7%	30.3%	14.0%	0.6% 1.3%	15.1%	0.0%	0.0%	0.0%	2.1%	0.4%	0.5%	1.6%	0.6%	-18.1%	-0.4%	2.6%
2005	31.9%	3.5% 3.4%	35.8%	15.1%	1.4% 1.1%	15.7%	0.0%	0.0%	0.0%	2.1%	0.6%	0.6%	2.1%	1.2%	15.9%	1.1%	9.4%
2006	35.0%	4.1% 4.1%	38.7%	18.4%	2.9% 2.8%	19.7%	0.0%	0.0%	0.0%	2.1%	0.5%	0.7%	2.7%	1.7%	5.5%	0.3%	9.2%
2007	39.2%	4.0% 4.0%	42.8%	20.3%	2.6% 2.6%	21.7%	0.0%	0.0%	0.0%	2.0%	0.5%	0.7%	3.4%	2.3%	3.1%	-0.3%	7.4%
2008	43.2%	4.1% 4.2%	46.6%	20.8%	2.6% 2.7%	21.8%	0.0%	0.0%	0.0%	2.0%	0.6%	0.8%	4.1%	2.9%	-1.1%	0.5%	3.2%
2009	47.8%	4.2%	52.0%	23.6%	2.8%	26.5%	0.0%	0.0%	0.1%	2.1%	0.7%	0.8%	5.4%	3.9%	12.8%	-0.4%	0.9%
2010	50.1%		54.2%	24.4%		27.2%	0.0%	0.0%	0.1%	2.0%	0.5%	0.9%	6.1%	4.5%	4.9%	1.3%	8.3%
2011	51.7%		55.7%	24.5%		27.1%	0.0%	0.1%	0.1%	2.0%	0.5%	0.9%	7.0%	5.3%	2.8%	-0.1%	3.1%
2012	54.0%		58.0%	25.0%		27.6%	0.0%	0.1%	0.1%	2.0%	0.5%	0.9%	8.3%	6.4%	9.3%	-0.1%	2.8%
2013	56.9%		60.9%	26.5%		29.1%	0.1%	0.1%	0.2%	2.1%	0.5%	0.9%	9.6%	7.5%	9.2%	0.3%	4.7%
2014	58.3%		62.5%	27.9%		30.7%	0.1%	0.1%	0.2%	2.1%	0.5%	0.9%	10.7%	8.4%	8.8%	0.2%	7.6%
2015	61.0%		65.2%	29.5%		32.3%	0.1%	0.1%	0.2%	2.1%	0.6%	1.0%	12.0%	9.4%	10.8%	0.4%	7.0%

Table 1. Key Indicators Dominican Pension System

Source: Prepared by the author based on data from the BCRD, SIPEN and DGJP

		Tax Adjustment		
		100%	62.5%	25%
Increase in national saving for pension reform	Maximum	0.50	0.43	0.35
	Intermediate	0.32	0.26	0.20
	Minimum	0.25	0.20	0.15
Increase in investment due to increase in national savings for pension reform	Maximum	0.30	0.26	0.21
	Intermediate	0.16	0.13	0.10
	Minimum	0.11	0.08	0.06

Table 2. Effects of the pension reform on national savings, % of GDP

Source: Author's calculations

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Dominican Republic, savings and investment have an intermediate solution rather than a corner solution.

Therefore, an increase in national saving must partially reduce the interest rate and stimulate investment. In short, they are correlated variables. In simple terms, the investment is estimated from:

$$\frac{Investment}{GDP} = \alpha_0 + \alpha_1 \frac{Saving}{GDP} \quad (1)$$

The equation above was estimated for the period 2003-2015 correcting for endogeneity. The point estimate of the coefficient, , is 0.56. If adjusted for standard deviation, the extreme estimators are 0.42 and 0.6. Therefore, the increase in the investment rate as a result of the increase in the pension savings rate, appears in a range between 0.06% of GDP (minimum) and 0.30% of GDP (maximum). With these results, the levels of effective savings and investment during the period are reviewed. In this sense, when comparing the levels of national savings as a percentage of GDP before and after the reform, a slight increase of 0.51% is observed. Of this, the contribution for pension savings is between 0.15% and 0.50%. While the domestic investment rate increased by 1.67%. The contribution recorded between 2003-2015 ranges from 0.06% to 0.30% of the pension reform, with an intermediate value of 0.13% of GDP (see Table 2). In conclusion, this first approximation of the contribution of the pension reform to the level of national savings and investment turns out to be relevant.

WORKING MARKET

From a theoretical point of view, a reform of the pension system has two potential effects. One on employment and another on its composition. Corbo and Schmidt-Hebbel (2003) suggest that the effect on employment depends on the link between the worker's contributions and the expected value of future pension benefits. Similarly, the effect on the composition of employment depends on whether the reform alters the incentives to retire. The ultimate goal is to determine the impact on the promotion of formal employment. However, the Dominican case must be reviewed based on different criteria. In addition to the strong limitation of data and studies on the domestic labor market, the effect of the Chilean reform cut the effective contribution rates and stimulated to a great extent the formalization of employment.

For the country, the pre-reform context was dominated by the pay-as-you-go system on both the public and private sides. The two most prominent were that of the IDSS for the private part and that of public workers. In the case of the former, the established contribution rate not only covered pensions for old age, disability or survival, but also sickness and maternity risks. The overall rate just before the reform reached 12%[3]. Therefore, an effective contribution rate for pension cannot be associated. For the second, the Law establishes a social security contribution rate of 2% or 4% based on a salary threshold[4]. In this context, the reform of the social security system in 2001 specified the rates of effective contributions to pensions, health, life insurance and labor risks. For pensions, the net contribution rate is 8%, excluding administration expenses and life insurance[5]. Therefore, there is evidence of an effective increase in the premium.

Dicha prima se financia empleado-empleador. Para el país, la premisa de aumento de la formalización no aplica. Ya que hubo un aumento en la tasa de contribución que, a su vez, incrementó el impuesto puro al trabajo

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3 The contribution rate was distributed: 2.5% worker, 7% employer and 2.5% state (from Law 318-85)

4 Previously, the Law applied a 4% contribution to civil servants and employees with salaries of more than RD$400 and 2% for salaries less than that amount.

5 Including life insurance 1%, social solidarity fund 0.4%, AFP commission 0.5% and superintendence 0.07%.
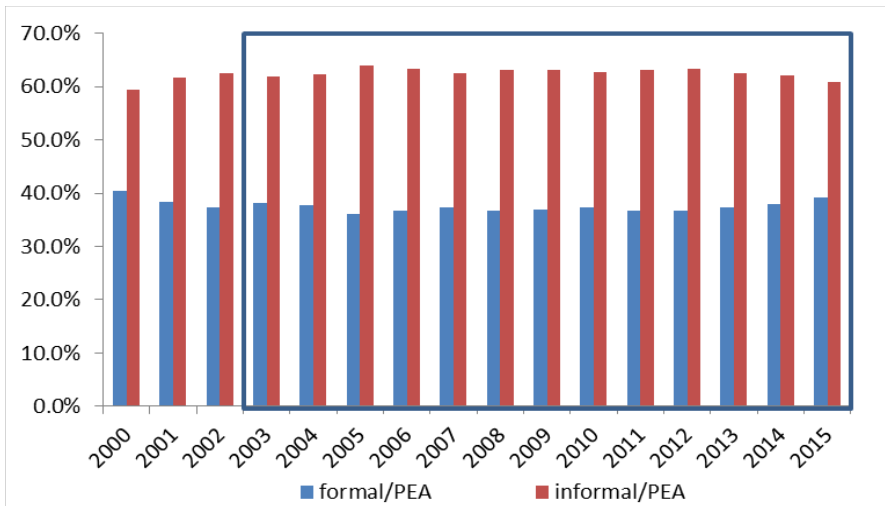
Graph 2. Evolution of workers in the economy by formal-informal sector, % EAP, 2000-2015

Source: Prepared by the author based on figures from the BCRD
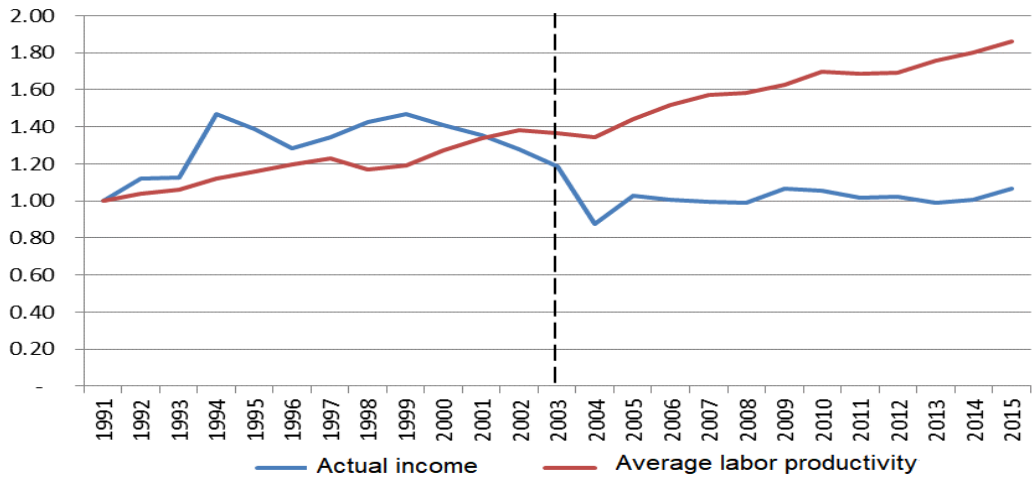
Graph 3. Real Income Index and Average Labor Productivity 1991=100

Source: Prepared by the author based on data from the BCRD

y que, además, sumó a la carga de costos no salariales[6]. From the outset, the reform verifies an increase in gross wages, a decrease in liquid wages and a greater incentive to shift to the informal sector. In empirical terms, formal workers as a proportion of the pre-reform EAP stood at 38.8%, while the same post-reform indicator verifies a decrease to 37.3% for a drop of 1.5 percentage points (Graph 2). In other words, the reform has discouraged the formalization process of workers in the economy. Of course, this consequence must not be evaluated in isolation, since the result of the indicator has implications that concern the labor market in a broad sense.

The delay in readjusting the labor legislation keeps real income at practically the same levels since 2005. Furthermore, it remains at the real income level of 1991. The factors that have influenced this dismal performance are diverse. However, the main one concerns non-wage costs associated with labor. Similarly, if the real income path is compared with average labor productivity, the situation is even worse. The gap has been increasing since 2002. That is, the salary is not adjusted for inflation or productivity. Graph 3 shows the trajectory of both real income and average productivity. To all this, it is highlighted that the start of the pension system coincided with the banking crisis of 2003 that caused an important structural change.

In terms of the 1991-2015 time series shown in the Graph above, two key effects can be seen. The first is the one concerning the variation of the average real income 1991-2002, which was placed at 0.03%, while for the period 2003-2015 it decreased by 1.63%. This undoubtedly has adverse repercussions with respect to pension contributions. The second effect, on the other hand, is relative to the average productivity, which averaged 3.48% in the period 1991-2002; to then increase slightly by 0.18 percentage points and stand at 3.66% during 2003-2015. In conclusion, the reform of the pension system on the labor market side was neutral in terms of promoting formal employment and increasing real income. However, regulatory advances are verified by specifying contribution rates and unifying systems.

CAPITAL MARKET

Corbo and Schmidt-Hebbel (2003) approach this component from two dimensions. One qualitative and the other quantitative. For the Dominican case, the qualitative is followed and the quantitative is verified as far as possible. In qualitative terms, the pension system reform has contributed to the deepening of the domestic capital market. Although the stock market reform was carried out a year prior to the pension system reform, it laid the foundations for a regulatory framework, which at that time met the minimum requirements. When the pension reform is approved, new institutional investors called pension fund administrators (AFP) are created. Its main objective is to guarantee an efficient administration of pension savings in custody in order to ensure a minimum return from regulated risk in accordance with investment limits. These savings are also expected to be channeled into economic activities that stimulate job creation and national production.

Regarding the investment of pension funds, the Risk Classification and Investment Limit Commission (CCRLI) is the entity in charge of determining the level of risk, the diversification strategy and the maximum investment limits followed by the AFPs. The latter stimulates transparency and quality of information in the capital market. Even elements exogenous to the system between 2002 and 2015 have strengthened said market

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6 According to the Regional Center for Sustainable Economic Strategies (CREES), non-salary costs reach 57.68% of the annual salary. see: http://www.crees.org.do/es/art%C3%ADculo/%C2%BFaltos-costos-laborales-en-la-rep%C3%BAblica-dominicana

through: 1) new financial instruments, 2) new institutional issuers and 3) clearer and more precise rules of the game. The most prominent advances were evidenced with the encouragement of the creation of investment vehicles such as trusts (Law 189-11), the reform of the Public Treasury[7] (Law 494-06) and the transformation of the monetary and financial sector (Law 183-02).

In addition to new regulation regarding pension savings, significant progress has been made in terms of governance in the AFPs. In this sense, it is prohibited to invest more than 5% in companies owned by the owners and executives of the administrators. Similarly, the AFPs cannot invest in securities guaranteed on pension assets, nor can the funds be invested in shares of binding agents such as the AFPs themselves, insurance companies and risk rating agencies. In addition, the AFPs cannot sell fund securities at prices that affect their profitability. One aspect to highlight is related to transparency, since a flow of information is routinely maintained between the regulatory entity (SIPEN) and the AFPs, which mitigates risks.

For its part, the volume of pension assets has stimulated a certain specialization of the public and private sectors in the management, control and communication by the AFPs in relation to the different interested agents. In parallel, there are advances exogenous to the pension system, such as the creation of the Centralized Securities Depository (CEVALDOM) and the dematerialization of securities issued by issuers such as the Central Bank, reducing transaction costs. On the financial instruments side, diversification is evident. If said diversification is taken into account from the authorized instruments, these reach 13 in 14 years (Graphs 4 and 5). If, in addition, the evolution of investment portfolios is analyzed, a progressive diversification is observed in terms of new

financial instruments. Since during the period 2003-2007 the placement of 100% of the funds in certificates of deposit of regulated institutions is allowed. Subsequently, it begins with a moderate diversification that seeks to achieve the established profitability and risk objectives.

However, as of 2015 there is a high concentration of investments in public debt (70%), mainly explained by the attractive rates of sovereign issuers. The fact that the increase in the demand for financial products by the AFPs has affected the size of the capital market is unquestionable. However, its effect arises more from the side of the increase in the supply of long-term funds and to a much lesser extent in the reduction of capital costs of companies. From the first effect, it is verified how the pension funds become one of the main creditors of the State through the Central Bank and the Ministry of Finance (Graph 6). Of the second, there is a null or low presence of issuing companies belonging to the primary and tertiary sector of the economy.

Regarding the quantitative dimension, the impact of pension assets on the financial depth of the economy has not yet been explored. However, the literature reveals a number of key variables. Therefore, the strategy of Corbo and Schmidt-Hebbel (2003) is followed as a first approximation through the estimation of a cointegration vector. The monetary aggregate M2 is taken as a depth proxy and the long-term relationship between pension savings, deposits in the economy and securities in circulation is verified at first. The response coefficient of pension savings is significant and robust across different specifications.

The point value is 0.82, which multiplied by the average pension saving flow (0.5% of GDP) yields an impact of 0.41 percentage points of increase in financial depth. In turn, to determine the effect on the growth of total factor productivity, the elasticities
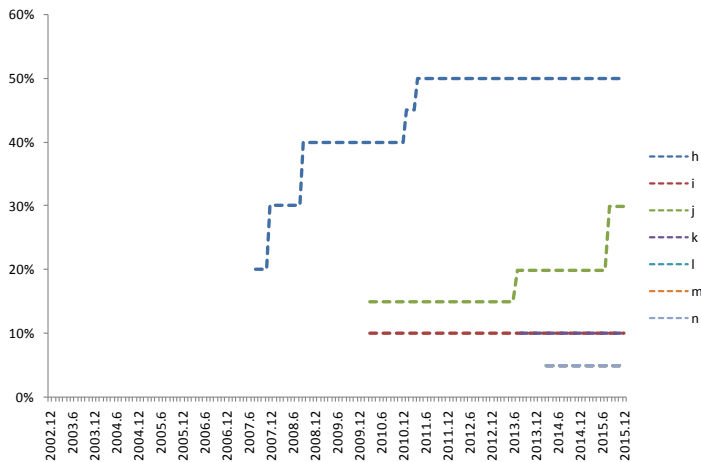
7 Read about Public Finance Reform (2007) http://www.hacienda.gob.do/dependencias/Reforma%20HaciendaRD.pdf
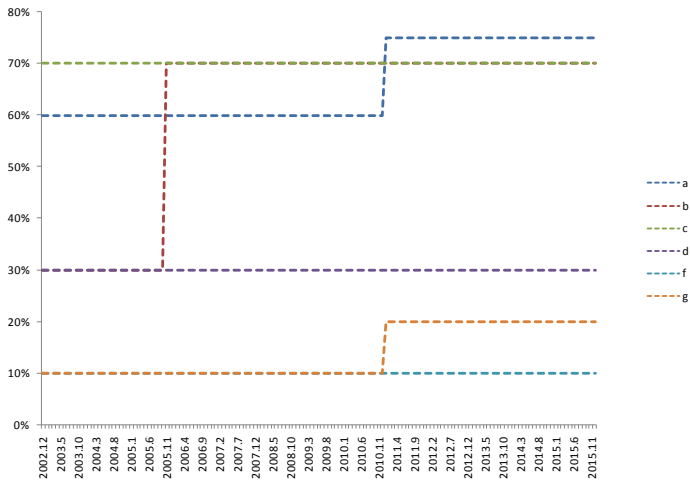
Graph 4. Investment Limits per Instrument, 2002-2015
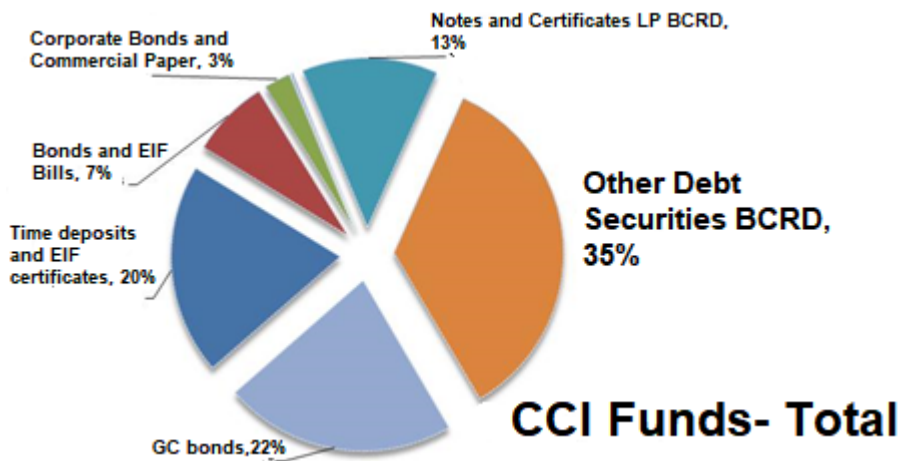
Source: Built by the author from SIPEN

Legend: a/ Time deposits, b/ Mortgage notes, c/ Company titles, d/ Public offering shares, f/ BNV titles, g) Housing sector funds

Graph 5. Investment Limits per Instrument, 2002-2015

Source: Built by the author from SIPEN

Legend: h/ BCRD Bonds, i/ Multilateral Organization Bonds, j/ Bonds guaranteed by the State, k/ Infrastructure Instruments, l/ Closed and Open Fund Quotas, m/ Trust Securities and n/ Securitized Securities

Graph 6. Composition of Funds Portfolio CCI-Total, as of December 2015

Source: Built by the author from SIPEN
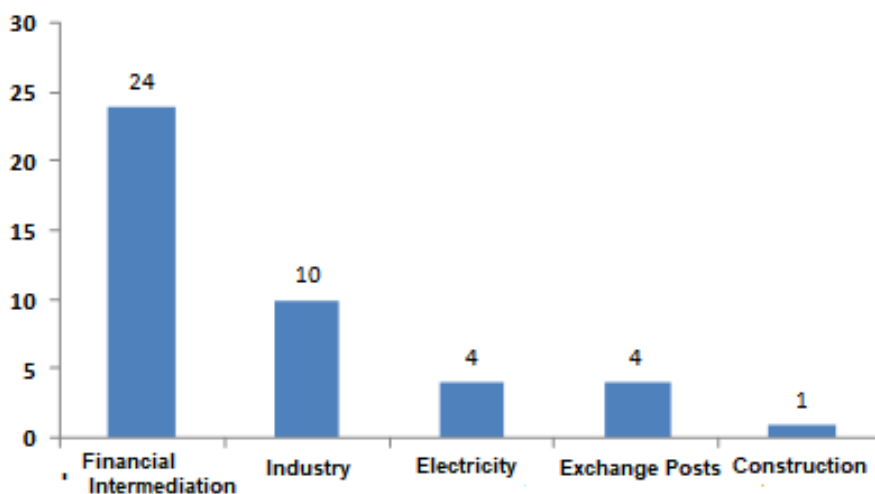
Graph 7. CCRLI-approved emissions by sector, 2002-2015

Source: Constructed by the author from resolutions of the CCRLI

	Case 1	Case 2	Case 3
Average real GDP growth 2001-2015	**5.28**	**5.28**	**5.28**
Effects of the reform on GDP growth			
Savings-Investment	0.04	0.08	0.19
Labor Market	0.00	0.00	0.00
Capital Market	0.05	0.08	0.10
Total Effect	**0.09**	**0.16**	**0.32**

Tabla 3. Estimación de los efectos de la reforma de pensiones sobre el crecimiento del GDP (%)

Source: Author's calculations

constructed by Levine et al. (2000) and Rioja et al. (2003) pointing to the fact that for every percent of financial depth, GDP increases by 0.12 and 0.25 percentage points, respectively. From these, the intermediate coefficient of 0.19 percentage points is derived. Therefore, the effect on factor productivity growth is between 0.05 and 0.10 percentage points with a mean estimate of 0.08.

IMPACT ON ECONOMIC GROWTH

To assess the aggregate impact of the pension reform on growth during 2001-2015, the effects must be broken down through the channels described. That is, savings and investment, the labor market and the capital market. For this, a growth accounting exercise is performed. The analysis starts with the decomposition estimates of a Cobb-Douglas function. For the Dominican case, the share of capital in income is 2/3 and labor 1/3. This is so, following the standard and the research elaborated by Lizardo and Guzmán (2003). So the production function is:

$$Y_t = PTF_t * K_t^{\frac{2}{3}} * L_t^{\frac{1}{3}} \quad (2)$$

where Y_t is the production level, PTF_t is the level of total factor productivity, K_t is the level of capital and L_t is the level of employment. By passing the variables in the equation at variation rates, expression (3) is used to compute the GDP growth rate:

$$\frac{\Delta Y}{Y} = \frac{\Delta PTF}{PTF} + \frac{2}{3}\frac{\Delta K}{K} + \frac{1}{3}\frac{\Delta L}{L} \quad (3)$$

Therefore, the channels described above have an impact on each of the elements of the production function. On the savings and investment side, the effects of the reform on the rate of investment in the economy are brought up (Table 2). In this, a positive effect is observed in the increase in investment due to the increase in pension savings. In turn, the effect of the reform on capital accumulation is achieved through:

$$\frac{\Delta K}{K} = i\frac{Y}{K} - \vartheta \quad (4)$$

where i is the investment rate, Y/K is GDP/capital stock, and ∂ is the depreciation rate. For the study, the i corresponds to the coefficients calculated for the fiscal adjustment scenario of 62.5%. Y/K is constructed as the average of the GDP/stock ratio between 2003-2015 and the depreciation rate is 1%. Based on these data, (4) is obtained to apply in (3). The GDP growth rate between 2003-2015 stands at 5.28%. Therefore, the effect of the pension reform on GDP growth through savings and investment is between 0.26 and 0.05 percentage points, with an average estimate of 0.11 (Table 3).

On the labor market side, the pension reform implied an increase in effective contribution rates that added to non-wage costs. The post-reform performance of the main labor indicators suggests a neutral effect on the side of the generation of formal employment, real income and the effect of average labor productivity. The latter needs to be explored further.

Regarding the capital market, the literature suggests a positive impact of the pension reform on the development of the financial system. From the standpoint of growth accounting, this impacts total factor productivity (TFP). According to the previous section, the impact on the increase in TFP is between 0.05 and 0.10 percentage points, with an average estimate of 0.08 percentage points.

By quantifying the independent effects, the aggregate effect on GDP growth is now estimated. The g_RP^i rate is the average growth rate attributed to the pension reform by combining the three effects. Mathematically

it is written as follows:

$$g_{RP}^i = (1 + g_{RP}^{PTF})(1 + g_{RP}^K)(1 + g_{RP}^L) - 1$$

The results are shown in Table 3. The effects from the proposed scenario indicate that the pension system reform contributed between 0.09 and 0.32 percentage points of average GDP growth between 2003 and 2015. The average value is placed at 0.16 percentage points.

CONCLUSION

This last article summarizes the most important challenges facing the Dominican pension system. It is evident that we are in a state of better condition with respect to the context prior to 2001. However, the present challenges merit an objective reflection of the current system. This evaluation, rather than throwing approximate effects on the impact on GDP growth, offers the most likely causes that affect the Dominican pension model. The macroeconomic transmission channels help to consolidate a critical view of the most sensitive elements.

On the side of the savings-investment ratio, this will be subject to the increase in the pension deficit as a result of the sovereign guarantee. In addition, the compulsory saving of households poses a readjustment in terms of income and consumption mainly. Both variables are key to review the behavior of national savings. Said saving, under traditional assumptions, has an impact on domestic investment and, in turn, on GDP growth. Several of these relationships must be explored in their proper measure as long as the information to measure and evaluate is provided. However, for a first approximation, the findings of this article are a point of reference. The incidence levels must increase to the extent that more workers are formalized and must make pension savings. If this level increases, the availability of resources for investment will be noticeable and beneficial in two ways. Both by way of the physical heritage and by higher benefit rates.

On the labor market side, the greatest challenge is registered. Since although the contribution rates for pensions are made explicit and if they have a more direct relationship between contributions and benefits, the challenge for a reform of the labor code is no less certain. The situation is exacerbated by interest groups around discussions of possible changes. With certainty, none of the groups in the tripartite negotiation quantifies the costs to the economy of a day of delay in terms of the reform. If this does not occur, the flows of resources for pension, health and labor risks will be compromised. Therefore, there is an appeal for a frank discussion that promotes a readjustment of the market, stimulating the formalization of employment and the increase in productivity and income.

For its part, the capital market has achieved progressive development with a higher level of diversification in terms of issuers and financial instruments. Therefore, the impact of pension savings on financial depth is unquestionable. However, the objectives of a teacher replacement rate is the main challenge for fund managers and competent authorities. A quick look at the pioneering country in this type of reform must draw attention to latent risks surrounding pension funds, since projections point to low levels of benefits. Without an effective public policy that guarantees public-private monitoring, we will witness unpleasant episodes on the part of workers in the economy.

Finally, with a virtual reform to the Social Security Law, it is a propitious moment to review the aspects that are obstacles and block the faithful fulfillment of it. Coverage, investment and benefits are key elements in the review process of the pension component. Without these, neither universality nor

financial balance is guaranteed, but neither is well-being. It is therefore necessary to ensure an objective review that puts the national interest above all else. This contributes to higher levels of efficiency and equity in the Dominican economy.

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