

The Political Economy of the Middle Class in the Dominican Republic

Individualization of Public Goods, Lack of Institutional
Trust and Weak Collective Action

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Abstract

This paper tries to uncover some of the hidden factors behind poor public service delivery in the Dominican Republic. By looking at three sector cases, education, health and electricity, it is possible to observe that in this setting of low quality of public services the “middle class” is opting out from the system and adopting private solutions to collective problems. The combination of this opting out behavior with low levels of institutional trust, especially among “middle class” members, fragmented interests and clientelism, among other factors, results in

weak collective action and lack of effective demand for improvements in service provision. Some of the tentative policy options to break this sub-optimal equilibrium are i) to build capacity in civil society organizations and help them forming a pro-reform coalition, ii) reduce the gap between the middle class and the poorer by trying to improve the provision of public goods and enlarging the welfare state, and (iii) increase transparency mechanisms and introduce e-government formulas in order to optimize the allocation of public resources.

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The Political Economy of the middle class in the Dominican Republic:

**Individualization of public goods, lack of institutional
trust and weak collective action.**

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I The Puzzle. Motivation

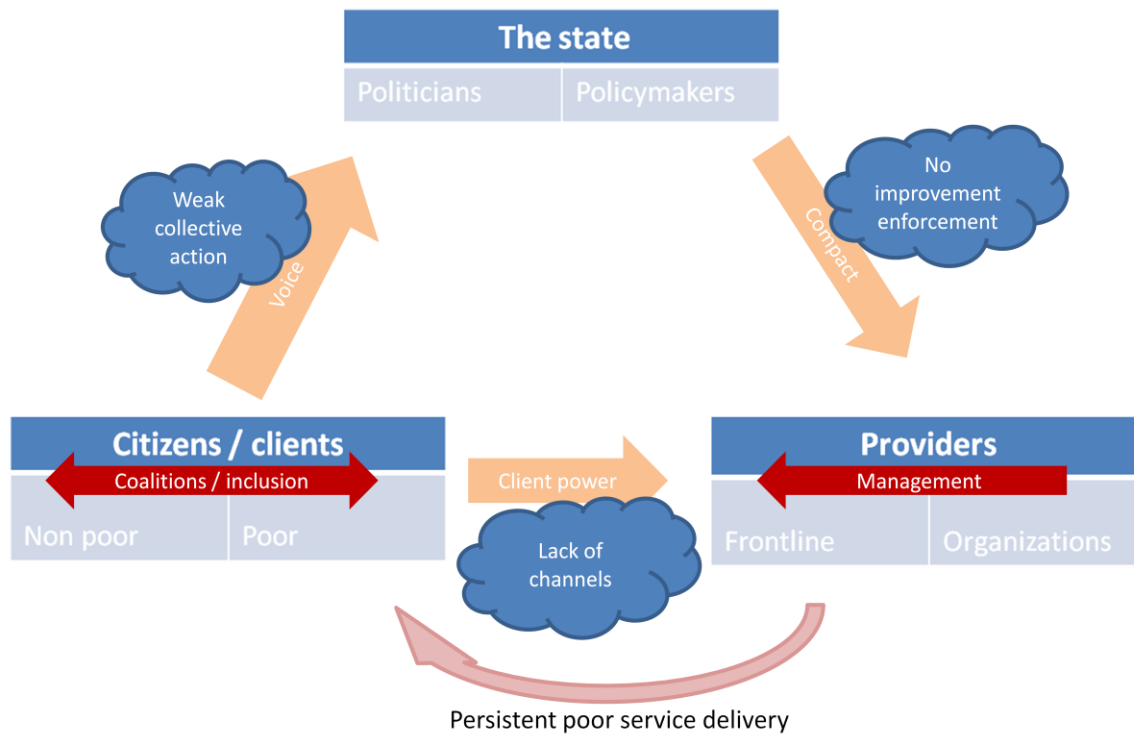
This paper presents an analysis of some of the root causes for persisting poor public service delivery in the Dominican Republic, by looking at the behavior of the middle class in the Dominican Republic, characterized by opting for private services and presenting low-intensity engagement in collective action demands. This background paper is a contribution to the LCR Flagship Report 2012: *Socio-Economic Mobility and the Rise of the Middle Class in Latin America and the Caribbean*.

The middle class is alleged to support economic development and good governance by organizing demand for public goods and government accountability, which could lead to an enhanced welfare state, and thus reduced inequality and poverty. In the Dominican Republic, however, the middle class has not frequently participated in collective actions and demands for public accountability, and the quality of public services remains poor.

The **aim** of this paper is to provide a plausible (but perhaps not definite) explanation for this puzzle, as well as to understand what interdependences within the Dominican middle class could motivate collective arrangements and citizen demand for public accountability. Departing from the theoretical framework for service delivery presented in the World Development Report (2004), we **focus** in analyzing the relation between the citizens and the state, and, concretely, in the behavior of the Dominican middle class regarding public goods, their institutional perception and their collective engagement.

We **find** that the Dominican middle class is different from that of developed nations, as it is more vulnerable to poverty and it has resorted to individualized solutions to substitute faulty public goods. Examples of this “adaptive behavior” include the heavy reliance on domestic generation of electricity, the digging of wells to get running water at home, the use of private companies to report car accidents (instead of doing it at the police station), and the use of private services for education and health – these last two also common in other countries of the region. Additionally, the middle class seems to be skeptical and presents low levels of trust in public institutions.

Figure 1: Theoretical Framework for Public Service Delivery



Source: adapted from World Bank (2004).

We will argue that low levels of institutional trust and the mentioned individualization of services can partly explain low collective action engagement in the DR, which results in weak accountability and persistent low-quality public goods. In a limited access order context, low levels of trust in public institutions combined with private solutions may undermine collective action engagement, as citizens feel that their efforts will yield little results and a poor response from decision makers and policy implementers.

Enhancing transparency and accountability in public sector service delivery, building capacity at the civil society and constructing bridges between the middle and high class and the poorer are some of the **policy actions** that should be prioritized to enhance the linkages between citizens and the state and, ultimately, to improve public goods.

The paper is divided as follows; section II presents three sector cases to analyze the response to deficient public goods in the different socioeconomic strata and, especially, within the middle class. Section III explains observed trends and behavior by introducing the paper's theoretical framework and drawing opinion surveys to describe social capital, civil society, institutional trust and collective action in the Dominican Republic. Section IV draws policy implications. Section V concludes.

II Lack of quality in public goods and individualized solutions to collective problems in the middle class

In this section we illustrate some of the behavioral patterns of the middle and upper classes in the Dominican Republic¹, such as an observed tendency to adopt individual solutions to solve collective problems. We draw from household surveys to illustrate the propensity of using private services (health, electricity, transportation) by citizens of different socioeconomic strata.

Besley and Coate (1991) argue that schemes for universal provision of public goods (education, health, etc.) can redistribute income from the rich to the poor. They develop a discrete choice model where some individuals can afford to consume a higher quality service in the private sector. Redistribution does occur, but in some cases it might involve a deadweight loss. Concretely, if the quality of the public good supplied is low, both low-income and high-income individuals may be worse off, as the poor effectively receive a public service, but they do not value it, whereas the rich pay taxes for nothing in return (as they use private solutions).

The Dominican Republic seems to have fallen in one of these inefficient equilibriums for political economy reasons: it is too costly to create both the political and the civil society coalitions that would lead to achieve greater government accountability and an improvement in public services. As we will see in the next section, citizens' trust in institutions is low and those who can afford it have already decided to respond individually to the problems. In this section we introduce some examples of sectors or activities in which the middle and high classes in the Dominican Republic have opted for private solutions to substitute or complement poor public service provision.

II.1 Electricity supply

The Electric sector in the Dominican Republic has been characterized by large energy losses caused by deficient infrastructures and maintenance, poorly targeted subsidies and widespread no-payment of bills. Reforms have proven to be slow and not always successful: for instance, the privatization process of the distribution companies had to be partially reversed, as mentioned inefficiencies resulted in persistent losses for private operators (see Reinstein and Cayo, 2010).

New investments in infrastructure at the beginning of the decade motivated an increase in effective generation capacity of 43% and helped to partly reduce blackouts and distribution

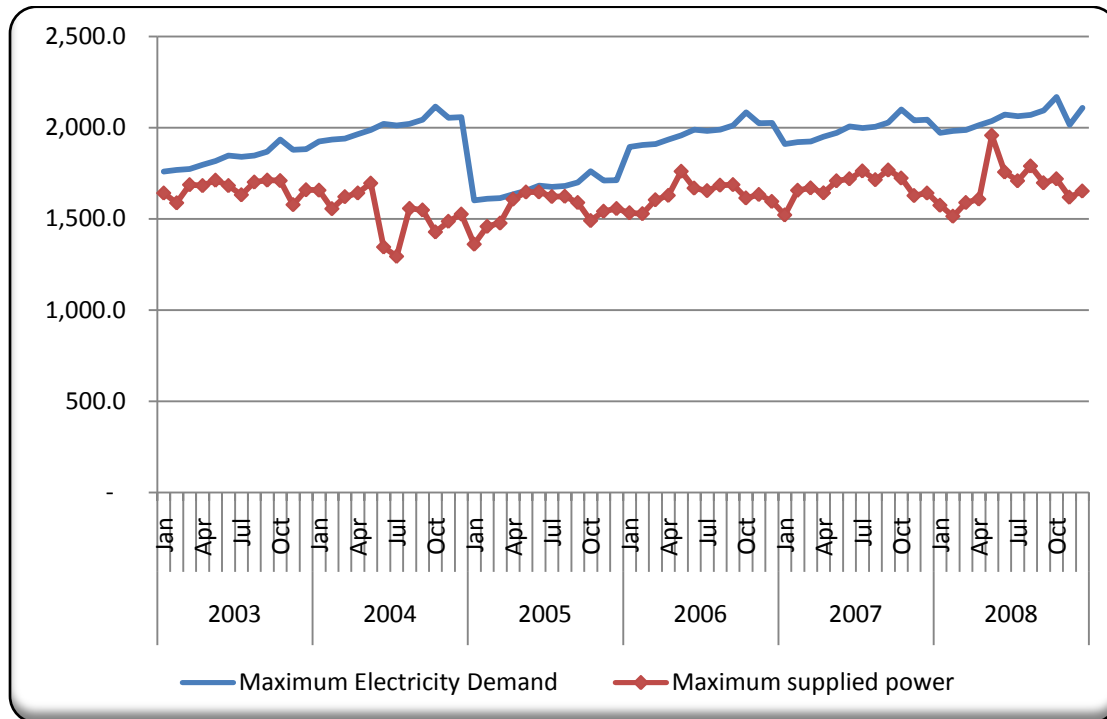
¹ See Annex II for a brief review of the different definitions of middle class and their use in the Dominican case.

losses. However, despite installed capacity nowadays (around 3,000 MW) widely exceeds demand, high generation costs and inefficiency results in “financial blackouts”, where the operators count with generation capacity but often face liquidity problems.

The quality of the service is poor, affected from technical and financial problems at the sector level. According to World Bank Enterprise Surveys (2010), surveyed companies suffer an average of 25.6 electrical outages a month (more than one blackout per working day), compared to just 3.9 percent on the average Latin American country. Moreover, 63% of the Dominican firms see electricity as a major constraint affecting daily operations (compared to 36.2% in Latin America). For this reason, some of the larger users (companies) have decided to leave the system and install their own generation equipment (10.9% compared to 4.2% in the region), resulting in a reduction in the number of customers and leading to a vicious cycle of worsening financial results at the distributor’s level.

This vicious cycle is affecting not only the final consumer (industries, citizens...), but also public finances and government’s ability to conduct a wide range of economic policies. The state is covering the gap between international oil price fluctuations and national oil price changes (artificially mitigated) and also losses in distribution and generation companies derived from several inefficiencies (technical losses, widespread invoice non-payment, etc.). International organizations are pushing to reduce subsidies and clear arrears to the private generators. However, reforms continue to advance slowly and subsidies accounted for approximately 1.2% of GDP in 2010, against an initial target of 0.8%.

Figure 2: Power supply gap in the Dominican Republic



Source: National Interconnected Electric System Coordinating Organism, published at the www.sie.gov.do

In the same way some factories have chosen to privately generate electricity in order to avoid sudden production stops, households cannot fully rely on this faulty system either. Since electricity blackouts are frequent in the Dominican Republic, buildings increasingly count with alternative electricity supply systems. The so-called “inversores” (electrical inverter) are used to supply energy stored in batteries (direct current) to alternating current. They are the cheapest and less sophisticated private solution to electricity shortfalls in the country. On the other hand, “generadores” (generators, normally using fuel-oil) are normally found in newer and more expensive blocks of flats and houses.

Given this context, it would be interesting to calculate auto generation capacity installed by private hands (both companies and families) and also expenditure on auto generation, which can illustrate the substitution of public goods.

In 2001, a survey conducted under the supervision of the National Commission for Energy concluded that auto generation capacity (2,715 MW at the time) was already similar to installed power in the national interconnected system (see BID, 2010). In order to update these figures, and given that electricity generators are not manufactured in the Dominican Republic, we have used customs statistics to estimate added imported capacity in the last decade. Private

auto generation capacity installed in 2009 (estimated in around 3,427 MW)² would already be above the capacity of the national grid (2,992 MW).

Where most of auto generation capacity is installed in industrial facilities and mines, private households are increasingly using electrical inverters and generators to respond to blackouts. Departing from 2001 data and supposing that imported electricity generation devices not exceeding 75 kVA are for household use, auto generation capacity at the household level would be of around 766 MW in 2009. A second alternative way to contrast electricity generation capacity privately installed for complementary use can be found by departing from ENHOGAR 2007. This survey asks whether the subject has an “inversor” or generator at home, and 18.1% of households in the Dominican Republic count with one. Supposing an average generation capacity of 1.5KW per household, total supplementary capacity installed for private household use in the Dominican Republic would be around 678 MW, well above the 53 MW estimated by the National Energy Commission in 2001. According to sector experts, the increase in private auto generation capacity may have been motivated by the impoverishment in the quality of energy supply following 2003 economic crisis.

Which is the cost of maintaining these auto generation devices? According to some estimates³, the charge needs of the inverter’s battery represent 63% of the average electricity consumption by a middle-income household (453 KWh a month). Considering 3 million households registered in the 2010 census and supposing that around 18-20% of the households count with an “inversor”, it results that approximately 154 GWh a month⁴ are consumed just to support individual private auto-generation capacity. This is a very significant cost of opportunity of inefficiency in the system, which burdens both the state and final consumers, who pay around 240 USD million of their annual electricity bill just to keep the inverter working. This approximation seems to be in line with previous estimations:

<<In 2005 – US\$400 million was spent to install and maintain self generation for the commercial and industrial sector, and at least another US\$150-200 million was spent on residential self-generation>>.

World Bank, 2009.

These figures highlight the existence of a large auto generation capacity, individually organized as a response to a malfunctioning public service. Large private investment here is likely to result inefficient, as alternative generation capacity is idle when the public grid is functioning. Private auto-generation capacity is believed to be at least equivalent to the

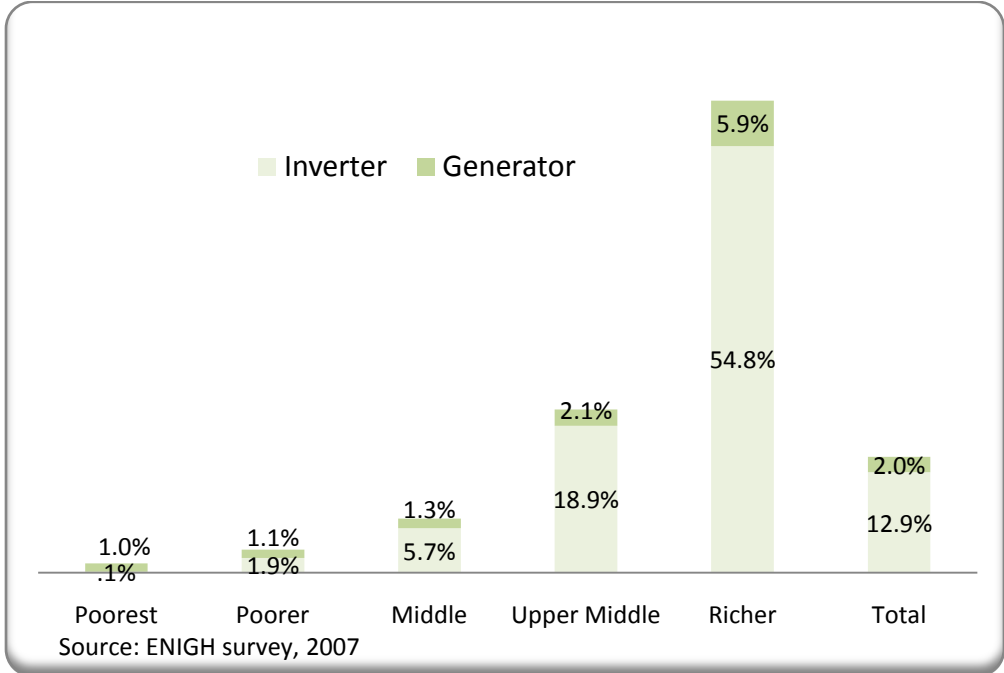
² Refer to Annex II for an explanation of the calculations

³ EDEESTE, “Guía para ahorrar energía”, 2011.

⁴ We are just considering here households with inverters. To this figure it would be necessary to add electricity consumption derived from the use of generators.

capacity of national (“Public”) generation and expenditures on maintenance (and energy consumption) of inverters and generators represent a large share of the income of an average household with these appliances.

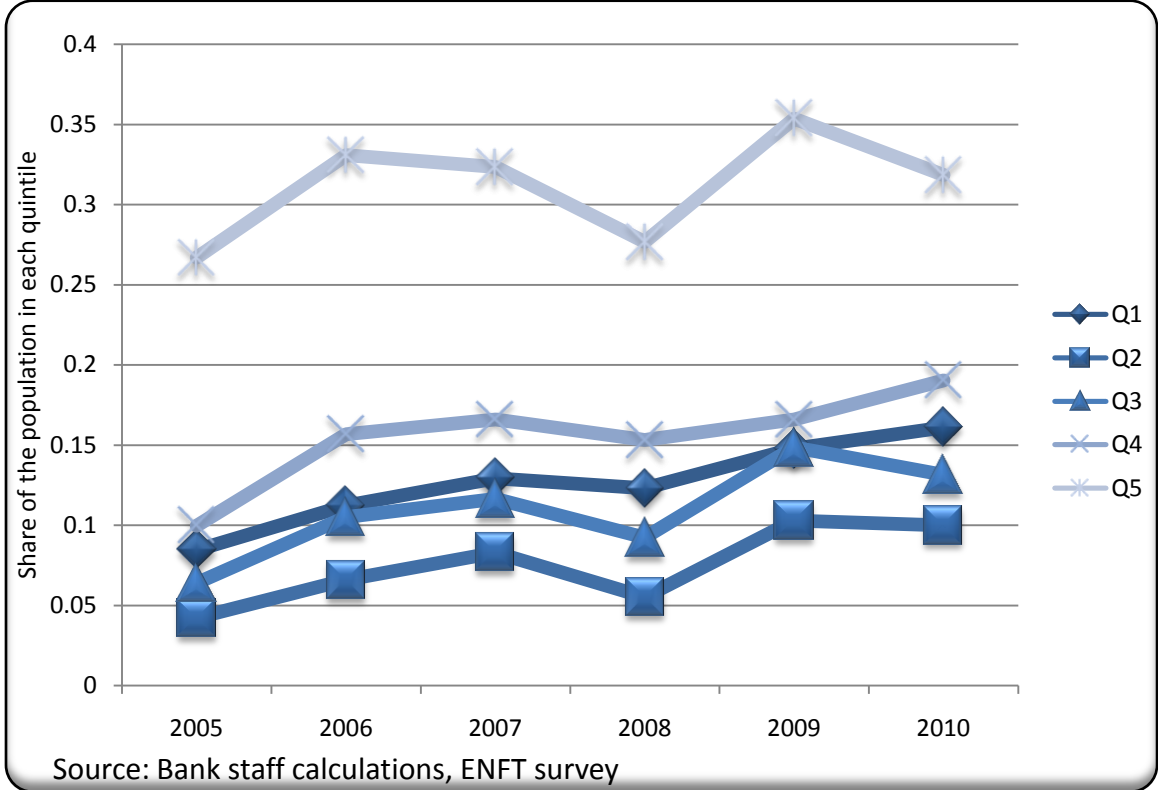
Figure 3: Percentage of households that have an electrical inverter or a generator at home, by socioeconomic class



Which strata of the population are opting for installing auto generation devices? Private solutions to counter inefficiencies in public service provision are not always cheap, and, as shown in the graph, there is a large gap in terms of percentage of people that counts with these devices in the lower classes⁵ (averaging less than 3% coverage) and those belonging to the upper middle (28.9%) and high (60.8%) classes.

⁵ “Lowest” and “low” groups according to the ONE “socioeconomic group” variable in ENIGH 2007.

Figure 4: Share of households with an inverter or generator, evolution over time



How has this trend evolved over time? In this case we draw from ENFT workforce survey which, contrary to the sole ENIGH 2007, presents 6 months frequency and has a revolving panel structure interviewing the same household for 5 consecutive quarters. As observed in the figure, a common trend shared by Dominican families is the tendency towards acquiring more electrical inverters over time. The upward evolution of the trends between 2005 and 2010 is quite similar across socioeconomic quintiles. Interestingly, the poorest households have more propensity to count with an electrical inverter than those in Q2 and Q3. A possible explanation is that the poorer households are located in neighborhoods that suffer blackouts more frequently, resulting in that they are more in need of having alternative generation sources.

It is worth noticing that, even when trends over time are similar, there is a large difference between the share of alternative electricity generation devices hold by the richest quintile respect to the rest of the population. Simple mean tests suggest that Q5 is the only quintile that presents a statistically significant difference in term of share of households that opts for having generators or inverters at home. A binary choice *logit* regression shows that, at the 0.05 percent level of significance, only belonging to Q4 and Q5 significantly influences the choice of opting for acquiring alternative electricity generation devices. This suggests that the

upper middle class⁶ is significantly more covered against public sector inefficiency in the field of power supply, which could theoretically hamper they demand for improvement in the sector.

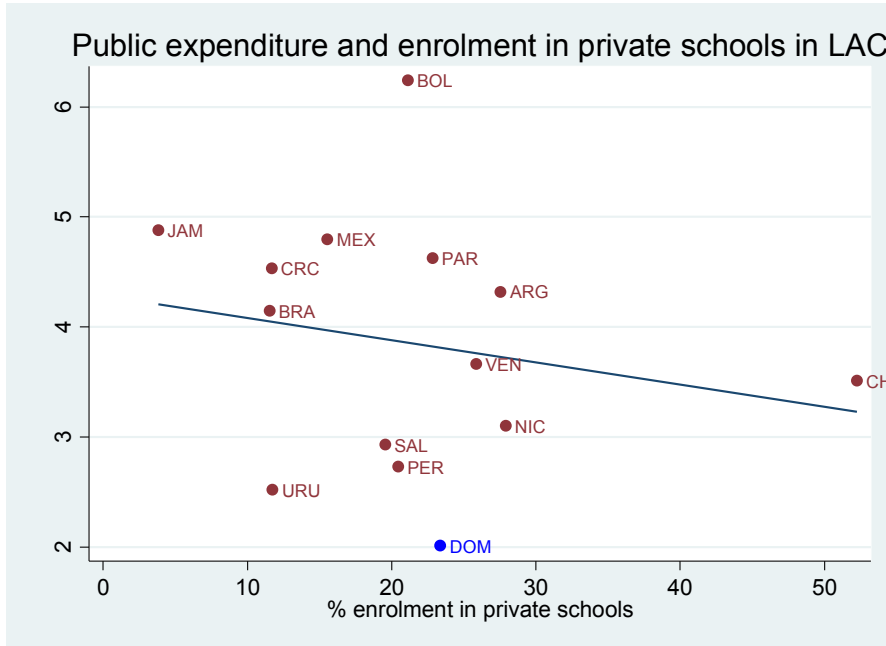
In sum, this example illustrates how the Dominican middle and high class has internalized the costs derived from both state and market failures in the provision of public goods. In this case, the existence of private auto generation capacity of electricity, together with widespread non-payment and fraud, results in persistent low quality of service. As we will argue in the next section, weak collective action and limited public accountability mechanisms are influenced by this poor service provision.

II.2 Education

The education system in the Dominican Republic is characterized by high repetition rates and low completion. According to ECLAC (2010), the late completion rate for children aged 9-11 years in the Dominican Republic is 20%, among the highest in the region, compared to 3% in Mexico or 10% in Brazil. On the quality side, the performance of students in primary education (3rd and 6th grade) on regional math and reading tests was very poor, a strong signal of remaining challenges in service delivery. According to UNDP (2010), impoverishment in the quality of public education together with the lack of sufficient classrooms motivates attendance to private schools. Similarly, countries with less degree of public expenditure in education are expected to present higher enrollment rates in private schools. As shown in the graph, the Dominican Republic has presented over the last decade the lowest level of public expenditure as a percentage of GDP in Latin America, and it is a country with a relatively high rate of enrollment in private secondary schools.

⁶ The average monthly income of individuals belonging to Q5 households is of just US\$350, it is likely that the survey is not capturing the real picture of Dominican elites.

Figure 5: Public expenditure on education and share of enrolment in private secondary schools

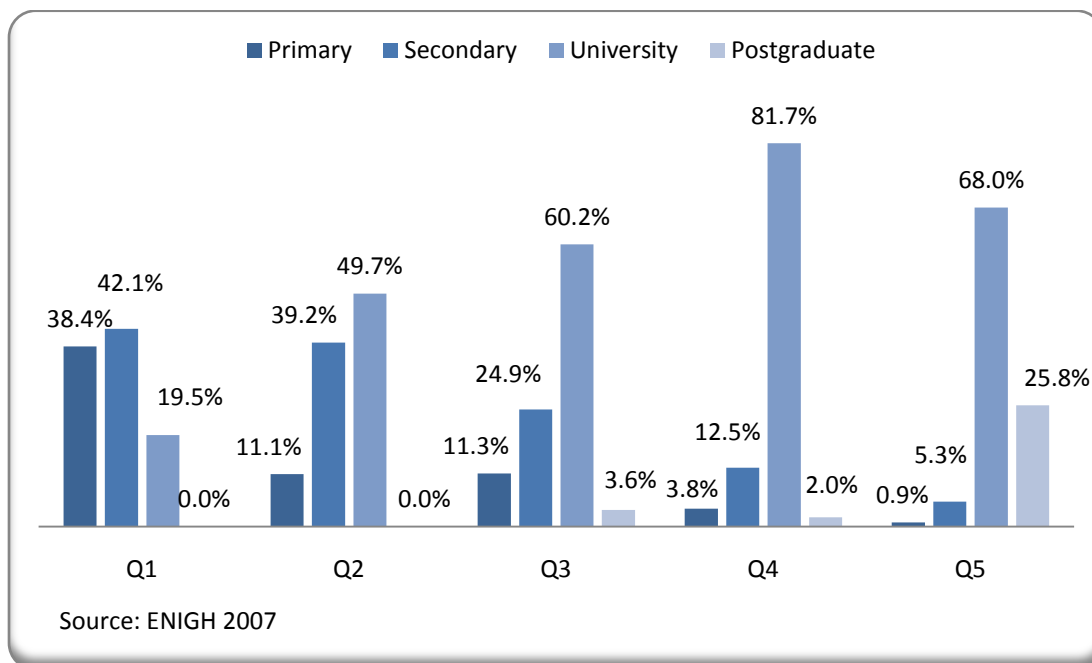


Source: Authors' calculations. Data from the Ministry of Economy Planning and Development, UNESCO

The DR is at the moment devoting just around 2.3% of its GDP (13.6% of public spending) to education. The economic and financial crisis of 2003 and the need to implement austerity measures resulted in lower public spending in education, both in terms of percentage of GDP and public budget. Public spending in education increased in 2009 and 2010 in relative terms, but it is still far below regional averages (4.7% of GDP and 15-16% of public budget). Some of the implications of the lack of resources are double shifting, high teacher/pupil ratios, teacher absenteeism, inadequate teacher supervision and training and the poor quality of infrastructures, furniture, etc.

Apart from budget/input indicators, the Dominican Republic seems to have fallen behind also when we look at other dimensions of the education system. Gross primary (104%) and secondary (75%) enrolment were below the regional averages (116% and 89% respectively) in 2008. Adopting a socioeconomic approach, the *middle* and *high classes* are characterized for enjoying higher formation than the lower strata; even if it would be necessary to control for specific factors, this observation probably highlights inequalities and barriers in the access and completion of secondary and superior education for those with limited resources.

Figure 6: Level of education attained by income quintile



In order to estimate private pocket contributions to education, we may recur to national account figures⁷, where final private consumption in education amounted 17,147 RD\$ million in 2005, which represented 1.37% of the GDP that year. As we argue, this may be a good proxy for private pocket expenditure in education (enrolment, fee for services, materials) as, by definition, it does not include capital formation (investment in infrastructures).

Overall, total private spending in education is believed to represent around 1.7% of GDP nowadays. In this mixed model (public and private centers), resources do not seem to be optimally allocated, as poor performance of Dominican children in tests demonstrates. Families have been contributing to the financing of education an average of 38% between 1995 and 2005, with enrolment in private schools amounting two thirds of expenditures in this field.

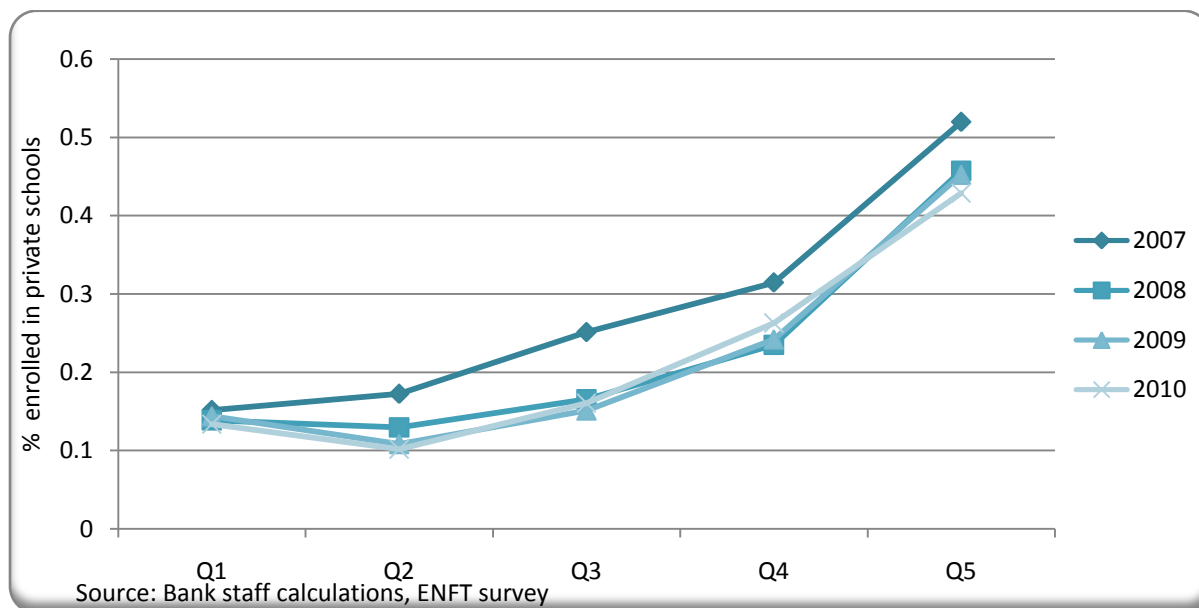
By looking at expenditure in education as a percentage of total family expenditure, it is possible to observe that households from different income levels allocate a similar share of their resources. For the poorer, meals and transportation represent most of their education-related expenditures, whereas the fourth and fifth quintiles are assigning proportionally more to enrolment fees and monthly payments⁸. This clearly confirms that the middle class and the richer are more willing and more able to pay for private education in order to obtain a perceived better quality of services. Still, in some cases, they just got better infrastructures

⁷ DR Central Bank. National Accounts 2005, “Supply-use matrix”. Thousands RD\$

⁸ Calculations based in ENCOVI survey, 2004.

(modern facilities and less crowded classrooms), but not better education, as teachers in the 75% of private centers do not attain the average standards in formation and professionalism (UNDP, 2010).

Figure 7: Children attending private schools, by quintile



Is the population opting out for private education services? It seems that with the economic slowdown in 2008-09 the share of the households sending their children to private schools noticeably declined respect to 2007 across income levels, except for quintile 1. Interestingly, nowadays the share of children in quintile 2 attending to private schools is lower than that of the lowest quintile. A possible explanation is that a portion of the poorest is settled in areas where public schools are overcrowded or access is limited. The proportion of children going to private centers in quintile 5 is significantly higher than among the rest of the population, suggesting the idea of education for elites that can afford it. However, differences in opting out behavior between quintiles 1 and 4 are not pronounced, and when conducting logit regression, contrary to the electricity case, all the quintile dummies are significant. As it will be discussed, this suggests a different pattern in opting out behavior in the case of education, where differences across socioeconomic classes are less pronounced (except for the richest), than in the cases of electricity or health services.

In sum, again, the education sector in the DR presents faulty public service delivery, which originates a private offer that is more of a reactive upshot to deficiencies in state education than a high quality alternative (at least not in every case). The result is an inefficient

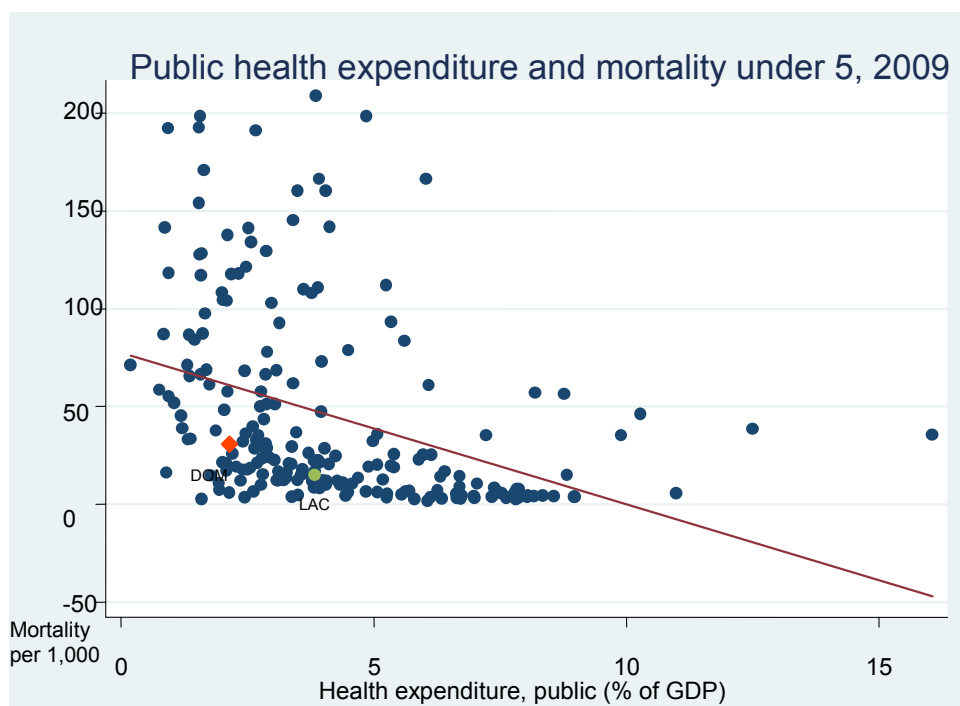
equilibrium were people is not satisfied with public education either when they use it and do not spend much on it (usually the poorer) or when they choose private schools but they are still paying for public education in the form of taxes (the middle and upper classes).

II.3 Health

In the health sector, an ambitious set of reforms started in 2001 with the approval of the General Health Law (42-01) and the Establishment of the Dominican Republic Social Insurance System (87-01). These reforms are aimed at achieving universal health insurance, reducing the vulnerability of the poorer to financial shocks caused by out-of-pocket health expenditures. In order to achieve universal coverage, the law foresees three different modalities of social insurance: a fully subsidized regime, targeted at around 3.4 million of the poorest⁹, a contributory employer-employee regime and a partially subsidized regime. The Secretary of State for Public Health and Social Assistance has established a series of arrangements with regional health care providers in order to count with a decentralized network. Financing, risk management, service acquisition and service provision functions have been separated in this redesigned system (Montenegro, 2010).

⁹ This group was identified using SIUBEN beneficiary database. SIUBEN's survey agreed with the World Bank (2006) poverty assessment in the size of the poorer (34% of the population by then). At the moment, it is estimated that the number of beneficiaries of the fully subsidized regime is just around 20% of the total population.

Figure 8: Regional comparison, public health expenditure and mortality under five



In the last decade there have been important improvements in access to the health system, but the quality of public services is still insufficient in some areas. For example, the maternal mortality rate has remained stuck at the 100/100,000 live births¹⁰ level since 2005. By looking at the graph, it can be observed that, even when the DR is not one of the underperformers above the regression line, infant mortality rates are still significantly high (32 per 1000) and above regional averages (22 per 1000).

The DR ranks at the bottom of LAC region in what regards public expenditure on health, averaging 1.40 percent of GDP in 2000-07. The result is that the state is just financing around 36% of total spending, whereas individual “out of pocket” expenditure amounts 56% and private insurances just cover 8%. “Out of pocket” expenditure is clearly regressive, as the poorer households have to devote a larger share of income in relative terms, thus posing an important challenge for development.

The middle and upper strata of the Dominican population, in terms of income, usually have access to the public health system through the contributory regime, when they are employed. However, given the high levels of informality of the Dominican economy, there is a large share of the working population that has either to opt for the partially subsidized regime, or to recur to private insurances. Moreover, imperfections in the public system, together with a lack of incentives to improve quality standards causes that some of the people in the lower strata prefer to get treatment in private hospitals.

¹⁰ WHO country health statistics, 2010

Figure 9: Health insurance (as beneficiary) by income quintile

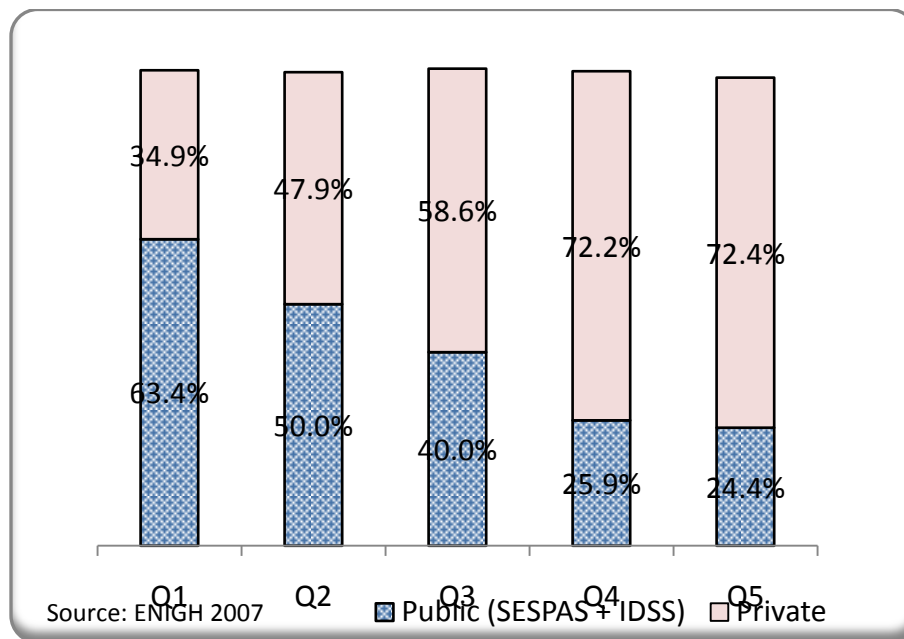
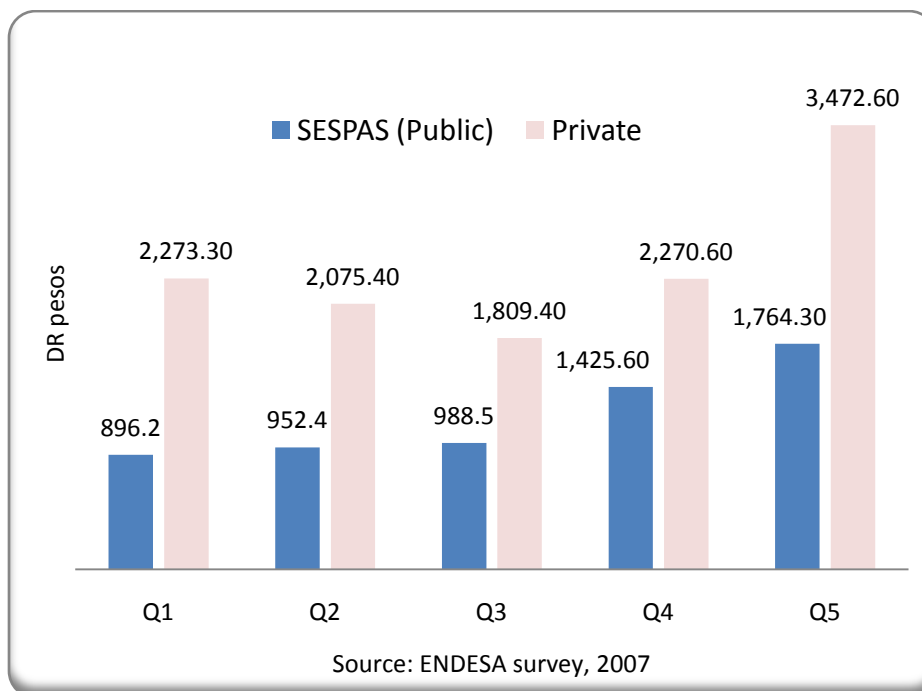


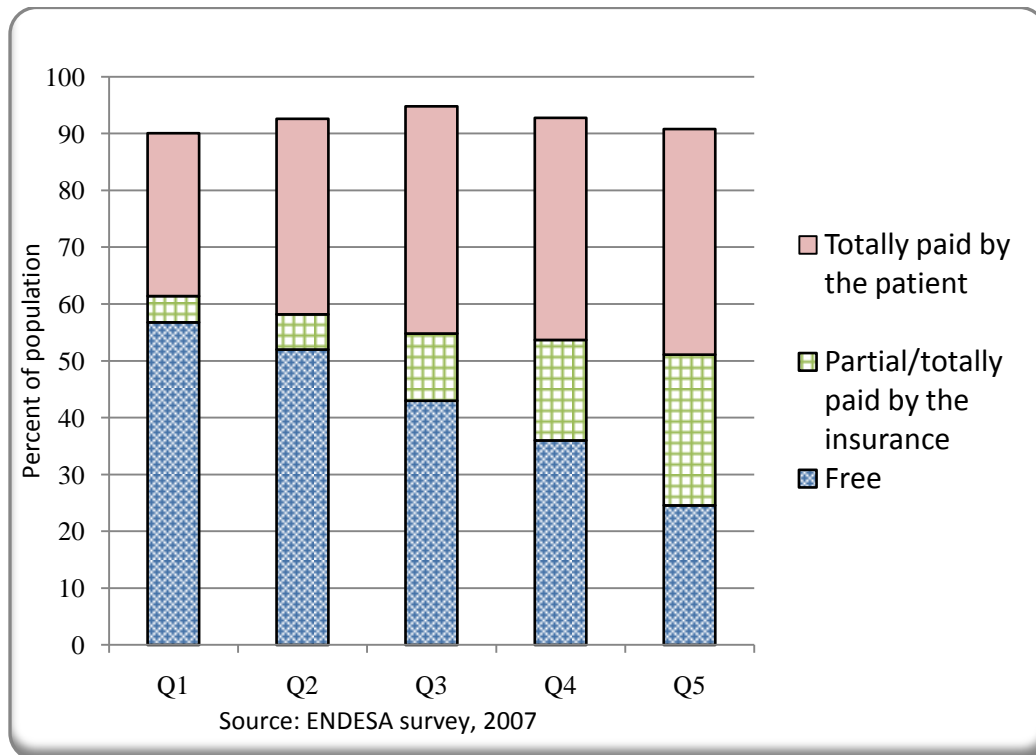
Figure 10: Average expenditure in medical consultation on the month before the survey, by type of centre



As expected, the strata of the population with a higher income are more inclined to attend to private hospitals and clinics when they feel the need. It is somehow surprising to see

that 12.8 % of the population of the poorest quintile declared to have gone to a private clinic or hospital when ENDESA survey was conducted (2007). This probably reflects that the fully subsidized national insurance regime still presents wide gaps in coverage that force the poorest to recur in some cases to private clinics and make burdensome disbursements to get treated.

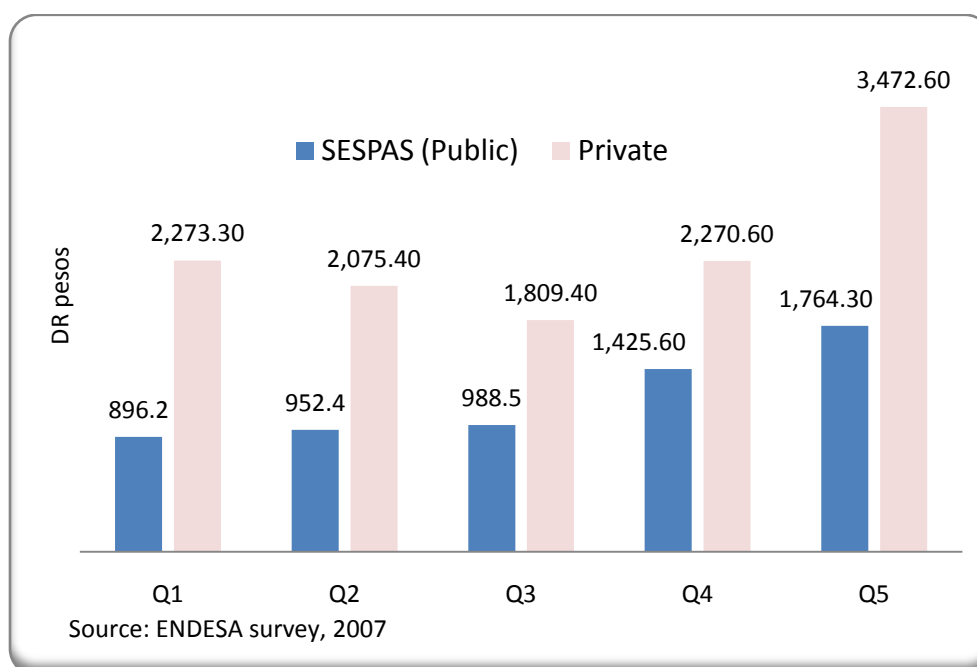
Figure 11: Form of payment of the medical check up



By looking at the form of payment of the medical check up, it is possible to observe that population in quintiles 3 and 4 (intermediate strata) are the most propense to totally assume health-care related expenditures, as often they are neither covered by the national insurance (if they work informally) nor enrolled in private insurances. Payments for medicines and for laboratory analysis are a burden for the Dominicans; 66% of the population interviewed in ENDESA was wholly affording their medication, with few variation across income quintiles. Again, this is a barrier in the health system with regressive implications.

ENDESA survey also offer estimations of average expenditure per capita in health check-ups during the month preceeding the survey. This may be a good estimate of “out of pocket” spending, since it covers money paid for doctor check up, medicines, and laboratory analysis and it does not consider expenditure related to prolonged/chronical diseases, surgery and prolonged treatment (“internamientos”).

Figure 12: Average expenditure in medical consultation on the month before the survey, by type of centre



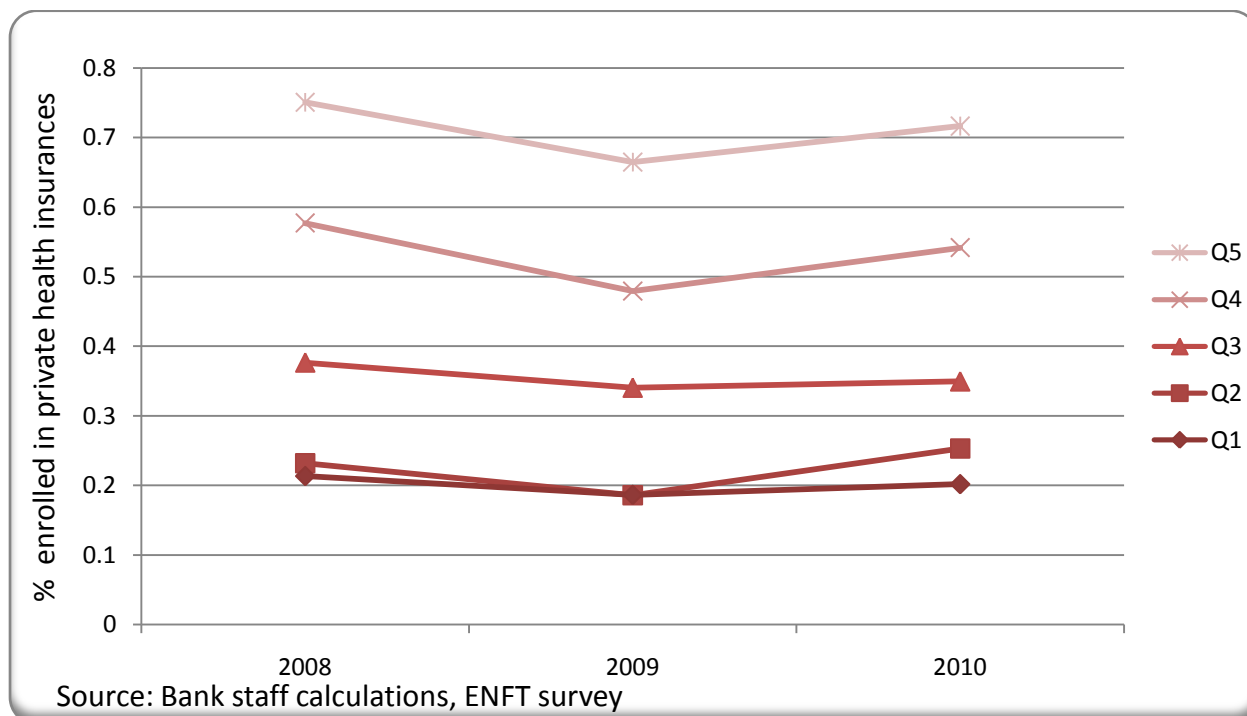
As it is shown in the graph, people from the first quintile¹¹ is spending an average of RD\$ 896 (US\$ 23) when they go to a SESPAS public center for examination. This confirms that there is a share of the poorest population that is not totally covered by the fully-subsidized regime. The main implication is that those that have to attend to the doctor may be spending most of its monthly income in health services, even when they use the public system (the upper income boundary for this quintile is RD\$ 1,904 a month).

People from the middle and higher strata (Q4 and Q5) are on average paying 68% more than people in the lower quintiles (Q1-3) when they opt for a public centre for a check up¹². One of the reasons for this divergence may be that the richer strata of the population are not subsidized, which affects averages, or that they “consume” more medicines and are more able and willing to pay for additional analysis and medical check-ups in order to obtain a better diagnosis. In any case, the narrower difference in cost the upper intermediate class (Q4) is facing when they are choosing between public or private health is likely to be one of the reasons why they are more propense to opt for private services, especially when some public centres often lack of good reputation.

¹¹ ENDESA income quintiles are defined as follows: Q1 includes individuals earning between 0 and RD\$ 1,904 per capita a month; Q2: RD\$ 1,904 to 3,138; Q3: RD\$ 3,138 to 4,866; Q4: RD\$ 4,866-8,323; Q5: 8,323 and above.

¹² Again, check up fees plus medicine and laboratory analysis expenditure.

Figure 13: Beneficiaries of private health insurances, by quintile



How has private health affiliation varied over the past three years? Much alike the case of private schools, enrolment in private insurances decreased in 2009, to quickly rise again in 2010, especially among the middle and high class. Quintile 4 and quintile 5 present also a higher level of affiliation to private health insurances, and they are the only significant quintile dummies when a logit regression is applied to test opting for private health insurances across quintiles. As can be seen in the graph, differences across quintiles in private health affiliation are much wider than in the case of private education.

We also include a dummy for informal workers; against the intuition, formal workers show more inclination to sign up in private health insurances than informal ones. It seems that informality levels are lower among middle and high class employees, groups that usually have the purchase power to acquire private insurances, and they prefer to do so, since public services have relatively low quality standards.

To sum up, the Dominican Republic Social Insurance System is still recent and the ambitious set of reforms aimed at expanding its coverage and improving its quality has not been fully implemented yet. Additionally, it can be argued that the system is “fragmented” between people in the contributory and subsidized regimes. These are some of the reasons why the upper intermediate strata of the Dominican population seems to be motivated to individualize and internalize the cost of health services by opting for private centres.

In conclusion, by studying public electricity supply, education and health in the Dominican Republic, it is possible to observe two common patterns: poor quality of service delivery and adoption of private alternatives by the middle and upper classes. Concretely, in the case of electricity supply and healthcare, quintiles 4 and 5 show statistically significantly more propensity to opt for private solutions than the rest of the population. In the case of education, there does not seem to be such dissimilar behavior across income quintiles, as there is still a relatively large share of the intermediate strata (Q3 and Q4) attending to public centres.

In the following section we argue that the observed individualization of solutions and the choice of private alternatives among the middle classes further weakens the incentives for collective action demanding greater state accountability. This is one of the reasons why improvements in public sector delivery are slowly implemented.

III Low institutional trust and weak collective action in the Dominican Republic

It is the purpose of this section to provide some explanations of the causes for the observed low quality of public goods in the Dominican Republic. We do it by looking at collective action, institutional trust and the abovementioned individualization of public goods in the Dominican Republic.

According to Gordon Marshall, collective action is the "action taken by a group (either directly or on its behalf through an organization) in pursuit of members' perceived shared interests." The logic behind collective action is that citizens can come together to demand and sustain reforms that produce a perceived greater good for society. However, some sectors of society are not always able or willing to actively participate in collective action. Olson (1965) argued that individuals pursue the interest of the group they belong to, and they tend to "free ride" when demanding collective goods (for the whole population).

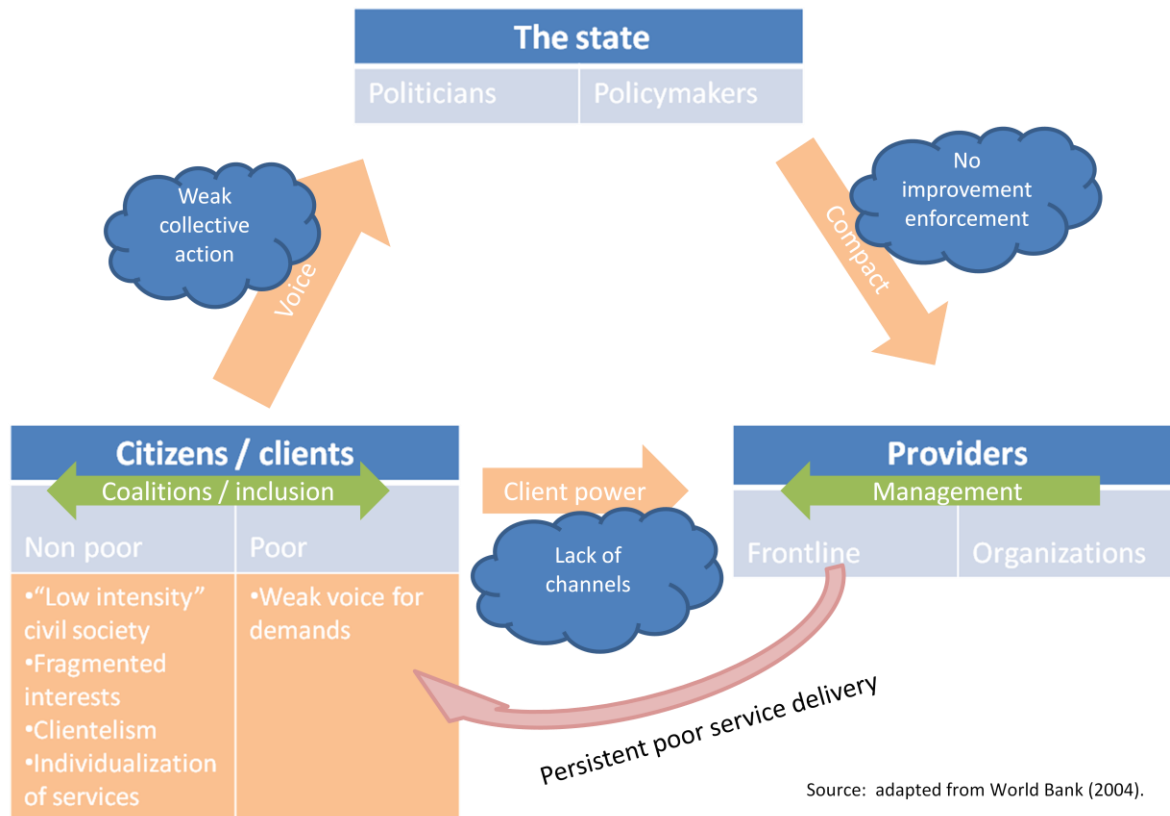
Additionally, in the developing world, the nature of collective action and participation in democracy may be further distorted by restrictions embedded in the political system. North (2007) presents a Limited Access Order (LAO) model of democracy that characterizes most poor and emerging economies, in which is common to have interest groups and political elites able to control economic rents even when they do not meet the demands of the citizens.

The World Development Report of 2004 (WDR 2004) tries to ask the question of what are the institutional conditions that facilitate the appearance of efficient frontline providers of public services. It is argued that successful services <<*emerge from institutional relationships in which the actors are accountable to each other*>>. They present an analytical framework where three sets of actors -citizens/clients, policy makers and organizational providers/ frontline professionals- are interlinked in relationships of power and accountability (ideal situation): citizens have *voice* to demand over politicians and *client power* to exercise over service providers; the state can respond by re-organizing departments, altering the budget or modifying the rules applied by service providers (*compact*); providers can also respond to client power by *managing* their frontlines. The consequence of having obstacles in any of these channels or in the capacity of the actors is often poor service delivery.

Applying the implications of the abovementioned Limited Access Order model to the public service delivery framework presented in WDR 2004, it is possible to understand some of the obstacles for state accountability and efficiency LAO (usually developing) countries present. First, in developing nations, the "short route" of accountability directly linking clients and providers is often missing, and the state is involved (filtering) communication between both

groups of actors. Secondly, some interest groups within the state may be resistant to enforce demanded reforms (from which they would be worse-off), thus debilitating the exercise of *compact* over providers. Thirdly, weak collective action may hamper citizen *voice* for improvement in the quality of public services.

Figure 14: Poor service delivery in the DR, explanatory factors



In this section we explain persistent low quality of public services in the Dominican Republic by focusing in the citizen voice and collective action dimension. To provide a quantitative assessment of collective action in the DR is not an easy task. There are not objective and broadly accepted measures of collective action, which is often considered part of the broader social cohesion or social capital concepts. Social cohesion is understood as <<the capacity of a society to ensure the welfare of all its members, minimizing disparities and avoiding polarization>> (Council of Europe in Ferroni et al., 2008). Similarly the concept of social capital is often understood as <<the positive contribution of trust and certain types of social engagement and cooperation to growth and well-being>> (Franke in Ferroni et al., 2008). As it can be observed, these definitions do not exactly correspond with the concept of collective action stated above, nor with our idea – for the purposes of this paper- of collective action as

“an organized demand for enhanced services and government accountability”.

At this point it is worth noting that, even if we present here different indicators of civic participation, mainly drawing from opinion surveys such as Americas Barometer and Latinobarómetro, it does not necessarily mean that these indicators are a good proxy for collective action: social capital and participation in associations does not necessarily mean effective production of demands directed to the government, rather they indicate strong interdependences within homogenous groups.

First, in what regards civic participation, the Dominicans rank fourth (out of 24) in Latin America in participation in religious groups (60.5%), sixth in attendance to parents association meetings (27.1%), first in involvement in community improvement groups (25.0%) and fourth in participation in women’s associations (13.3%). Thus, it may be argued that the Dominican Republic present a very high level of civic participation if we compare with the regional average.

Second, it seems quite difficult to portrait political participation at the different levels in the DR, since survey results are mixed. On the one hand, interest in politics is among the highest in Latin America (44.5% of respondents) and 19.9% of the population affirms to have done campaign work for candidates (the highest). However, this may not be a good proxy for social capital; conversely, it may rather reflect political clientelism. On the other hand, the average number of people that participates in protest is just of 5.4% (among the lowest) and the percentage of people that votes in the elections (76.1%) is just around the regional average.

Third, Dominican citizens seem to be very involved in local politics. The DR enjoys the highest level of participation in municipal meetings (27.3%) and also ranks high in number of formal demands presented to the municipal authorities. At the same time, however, Dominicans are among the most displeased with local government services¹³. This stark contrast between an active political and local participation and discontent with the quality of public services seems to confirm the view that the Dominican Republic operates under a limited access order model, as described by North (2007): demands by citizens are not often addressed by policies, and the existence of individualized private solutions within the middle class further reduce their collective incentive to engage the state.

¹³ Just 48.8% are satisfied.

Figure 15: Indicators related to social capital and collective action in the Dominican Republic

	Rank (out of 24)	DR (0-100 scale)	Regional Average
Interpersonal Trust	15	57.7	59.6
Civil participation			
Religious Groups	4	60.5	43.1
Parents' Associations	6	27.1	22
Committees for Community Improvement	1	25	14.1
Professional Associations	8	8.3	7.5
Women's Associations	4	13.3	8.7
Political activism			
Protest Participation	19	5.4	8.0
Electoral Participation	12	76.1	73.4
Interest in politics	5	44.5	37.8
Percentage Attempting to Persuade Others	10	33.5	31.5
Percentage Who Worked For Candidates	1	19.9	11
Local government			
Attended a Municipal Meeting	1	27.3	11.2
Demand-Making on Municipal Government	8	15.1	12
Satisfaction with Local Government Services	20	48.8	51.8

Source: Americas Barometer 2010, Seligson and Smith, 2010

Red: indicator for the DR below regional average; green, above regional average

As we have seen, the case of the Dominican Republic is paradoxical. On the one hand, Dominican population registers a relatively high level of associative participation and approval for democracy compared to other countries in Latin America and the Caribbean (Espinal and Morgan, 2008). On the other hand, however, just 15% of the Dominicans think that the government acts on behalf of the whole population and general welfare¹⁴, the lowest value in the region. Moreover, citizens have a high perception of corruption (see Seligson and Smith 2010:72) and they consider that the quality of public services is poor. Only 28% of the population believes that public policies improve living conditions. Confidence in different institutional bodies of the DR is, at best, intermediate if we compare to the regional average, with the army and the central government recording the lowest levels of trust. Therefore, it seems that civic engagement is not translated into effective coalition building for reforms and improvement in the DR welfare state, which in turn provokes low levels of institutional trust.

¹⁴ Latinobarómetro, 2010

Figure 16: Indicators of institutional trust in the Dominican Republic

	Rank (of 18)	DR (0-100 scale)	Regional Average
Is the government ruling on behalf of the whole population?	18	15	30
Public policies enhance living conditions	17	28	44
Progress made in fight against corruption	15	23	37
Level of confidence in the Congress	10	32	34
Level of confidence in the Political Parties	10	22	23
Level of confidence in Justice	10	28	32
Level of confidence in the Army	14	33	45
Level of confidence in the Government	14	34	45

Source: Latinobarómetro 2010

Red: indicator for the DR below regional average; green, above regional average

In this context, the Dominican middle class seems to be among the most skeptical societal group. Espinal et al. (2006), conducting analysis of institutional trust in the Dominican Republic, find some evidence pointing to <<a U-shaped relationship between socioeconomic status and institutional trust, with the poorest and wealthiest trusting government institutions more than middle-income sectors>>. This lack of confidence in the effectiveness of public sector bodies and institutions together with polarization and lack of consensus may be some of the reasons why the middle classes are less active in demanding an improvement in public services¹⁵. There is also evidence that those that enjoy a better economic situation are less likely to seek assistance from the local government. Instead, as illustrated in the previous section, they usually opt for individual solutions to complement insufficient infrastructures (in health, education, power supply...).

The perception of lack of citizen demands is well illustrated by the following newspaper joke, referring to recent citizen movements in Spain, and claiming that in the Dominican Republic there are not protesters:

¹⁵ In the literature there is not strong evidence of the expected positive relation between civic engagement (and collective action) and institutional trust (Espinal et al., 2006; Finkel et al., 2000). Conversely, here we will try to see if the low levels of institutional trust may burden collective action (see, for instance Levi and Stoker, 2000).

Figure 17



Source: Diario Hoy, June 28th 2011

Overall, it is possible to affirm that, even if the Dominican Republic presents high levels of civic engagement and participation, the intensity of its demands is weak. A plausible explanation for this puzzle (high participation – low intensity of demands/collective action) is that participation in different civil organizations (municipal, religious or other associations) has very diverse motivations, whereas collective and coordinated demand for state accountability is undermined by low trust in public institutions (and also in the effectiveness of collective demand) and by the fact that a large share of the middle class has already individually solved its problems (in what regards education, health or electricity, for instance).

Thus, it can be argued that the low levels of public expenditures allocated to health and education, frequent electrical blackouts, shortage of qualified human capital, high maternal mortality rate or low levels of accountability and transparency are the results of both state disengagement and the weak capacity and incentives for civil society to collectively demand. The middle and richer classes have reacted by internalizing the costs of state absenteeism, relying on private sector for basic services delivery, with an increase of vertical and horizontal inequalities to follow; on the other hand, the government has relied more on upward accountability systems and party politics than on building constituencies. In such a context, government incentives to pursue interactions with citizens do not currently exist, and citizens' incentives to engage with the government are undermined by low trust in government institutions and performance (Espinal and Morgan, 2008). This vicious cycle is reinforced since,

at the same time <<*weak spending institutions and low quality services [...] spawn dissatisfaction and may underpin[...] low level of trust in public institutions*>> (Ferroni et al, 2008).

An exception: Collective action in the 4% movement for education

Even when the Dominican civil society is characterized by low-intensity activity motivated by the fragmented or dissimilar interests among organizations and socioeconomic classes, a couple of exceptional examples of collective action from the past two years show that wide and coordinated demands for accountability do happen when there are aligned incentives across groups.

In 2009 there were organized protests against the settlement of a cement production plant in the proximity of the national park of “Los Haitises”. Collective action in this case helped to increase the political cost of going ahead with the construction of the facility, resulting in the government asking an independent UNDP team for assessment in the decision. Experts declared that the project could be damaging for the environment, so construction was finally stopped. In this case, the pressure exerted by the public opinion compelled the government to adopt an enhanced transparency mechanism, by looking for an independent actor to judge on the environmental impact of the project.

In December 2010, DR citizenry massively hit the streets in different parts of the country in order to demand the implementation of General Education Law (66-97), stating that public expenditure allocated to education has to be of 4% of GDP. These demonstrations is an exception to the low level of engagement in public protest that has been documented in the Dominican Republic, as well as to our contention that the upper-intermediate strata of the population are less active in demanding enhanced public accountability and the improvement of social services. This movement was originally built upon net social networks and the use of mobile phones, including middle class citizens actively involved in the protests to demand a public education of better quality, even when a share of their children are attending private schools. According to civil society specialists, one of the main features of the “4% movement” is its heterogeneous composition, as it is integrated by groups ranging from youth civic associations with no defined political sign (*Toy Jarto*) to religious movements (*Juan XXIII*). What are the reasons for such a wide set of communities engaging together in this occasion, when they do not usually joint efforts to pursue other demands? In this case, there is an obvious lack of quality of the public service, recognized at every level of society, in confluence with the existence of a law quantifying a “desired” level of input for a public service. Thus, both groups protesting to enhance the quality of education and groups in demand of compliance with the

law and enhancing transparency are aligned to demand the 4%. **It is also worth noting that, as it has been pointed out in the previous section, individualization behavior in education (opting for private schools) is less pronounced and shows less divergences between income quintiles 1 and 4 than in the case of electricity supply or health insurances. This may have been one of the reasons why there has been broad consensus in the Dominican society to collective demand for improvement in the field of education.**

What has been government's response to the "4% movement"? Initially reluctant, President Fernandez publicly discredited 4% demands and qualified existing law as unrealistic and unattainable in the medium term. Nevertheless, contrary to public speech defending education policies under the current administration, the President has finally replaced the minister of education, it has also committed not to reduce spending in education, health and social protection, despite public administration budget cuts of 12% in 2011, and has reflected in the law project of the new tax reform that approved measures are aimed at eventually attaining the 4% of GDP allocated to education. Thus, the government is showing increasing preoccupation and interest on this issue and has already started taking policy actions to meet public demands. Whether the concrete 4% demand is eventually met or not, this case shows that collective action in society is one of the channels to enhance public accountability, increase citizen ownership in politics and, ultimately, achieve improved public services provision in LAO developing countries.

IV Policy recommendations

How can the Dominican Republic enhance public accountability and improve the quality of services, in order to restore the broken link between the citizens and the state? Three main policy actions are drawn from analysis:

- Build capacity of civil society organizations, in order to transcend the mere citizen participation and enrollment and boost effective collective action with coordinated demands. A good example of successful collective action is the abovementioned movement demanding the allocation of 4% of GDP to education. In this field, international donors like the World Bank play an essential role to empower existing civil society organizations and associations. The Civil Society Observatory of the Participatory Anti-Corruption Initiative (IPAC)¹⁶, the Civil Society Observatory on Public Budget and the Social Audit Commissions for access to information are good examples of how these mechanisms can be used.
- Build bridges between the middle and richer classes and the poorer, in order to reduce behavioral and communicational gaps. This would require the alignment of interests of the different socioeconomic groups. A possible action would be enhancing tax collection mechanisms and allocating more resources to the provision of public goods to enlarge coverage and ensure quality.
- Increase transparency mechanisms, make sector information available to the public and construct result-based plans and indicators. *E-government* formulas (such as the recently launched Budget Transparency Web-Based Portal “Consulta Amigable” can help the government to address citizen demands, identify system inefficiencies and optimize the allocation of resources.

It is worth mentioning that, even if the scope of this paper is limited, discussed policy actions are likely to apply to most of the countries in Latin America and the Caribbean, since problems described in this analysis on the DR are similar to those highlighted by other regional studies. Both Ferroni et al (2008) and the OECD (2010) refer to the vicious cycle presented above, even when they focus more in dismal state revenues (lack of inputs for enhancing the quality of public services) than in individualization of public goods, lack of institutional trust and weak collective action as the main explanatory cause. Ferroni et al (2008) suggests the need to

¹⁶ IPAC is a coalition building initiative original from the Dominican Republic in which civil society organizations, different government bodies and up to twelve international donors (USAID, AECID, the World Bank, the European Union, etc.) exchange views and agree actions aimed at improving government accountability and transparency in a wide range of fields, from public contracts and acquisitions to financial management, health, education or energy. We refer to upcoming analytical work on the IPAC initiative for a deeper understanding of this public accountability mechanism.

invest in human capital and also to enhance tax collection mechanisms by increasing direct taxes if necessary and reassessing the redistributive effects of the system (government driven). OECD (2010) is more inclined towards improving tax administration, transparency and institutional image prior to addressing tax reforms (state driven). In this paper we have proposed a third way which encompasses enhancing communication and accountability mechanisms between the state and the citizenry (civil society or middle class driven).

V Conclusion

In conclusion, in the Dominican Republic, public sector services in the areas of electricity supply, education and health present deficiencies persisting over time. If the quality of education, health or public transportation is low, the middle class is likely to opt for private services. At the same time, it would prefer to contribute less to the financing of public expenditure.

<<[...] if education, health care and other public services lack quality, the medium class population will be more likely to consider themselves losers from a fiscal point of view, which will make them less inclined to finance the public sector>>.

OECD (2010)

The paper has described how the middle class in the Dominican Republic is adopting private solutions instead of using collective goods. This trend, combined with low levels of institutional trust, results in low engagement in collective action for demand, leading to malfunctioning accountability and enforcement mechanisms between service delivery suppliers and beneficiaries. The main outcome is a vicious circle where it is too costly to create both the political and the civil society coalitions that would lead to achieve greater government accountability and improvement in service provision.

At the same time, collective demands for the 4% of GDP in education show that this perverse dynamic can be changed in certain cases, as the citizenry can exert some pressure on the executive, thus enhancing public accountability and ultimately achieving better quality services. This has been possible in a context less differences in the levels of opting out for private schools between the poorer and the middle class, compared to the wider gaps observed in the adoption of private solutions in the electricity sector and the health sector.

One of the main caveats of this paper is that we have not been able to test whether there are differences in civil participation and political activism across socioeconomic classes or income quintiles, due to lack of reliable income variables in opinion surveys. Still, we believe that the discussion embedded in this country case may be an interesting starting point for a

deeper analysis on the individualization of public goods by the middle class in LAC. Most of the countries in Latin America and the Caribbean seem to present similar problems to those of the Dominican Republic in what regards lack of quality of public goods and privatization by the middle classes (see, for instance, Ferroni et al 2008 and OECD 2010).

We argue that enhancing transparency and accountability in public sector service delivery, building capacity at the civil society and aligning the interests of the poorer and middle classes are some of the ways that could help the DR and other countries in Latin America to get out of this sub-optimal equilibrium and provide citizens with efficient and improved public services.

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Annex I. The middle class in Latin America and the DR

In this section we briefly review some of the definitions of middle class given in the literature. While most of them are useful for establishing cross-country comparisons, the selection criterion of its boundaries is to some extent discretionary and, when applied to the DR, they do not often suit the middle class idea we have in mind. This is the reason why, for simplicity purposes, we adopt the socioeconomic classification included in ENIGH 2007 national household survey, elaborated by the National Office for Statistics of the Dominican Republic.

The studies on the middle class are motivated by the alleged benefits this group of population is supposed to bring to economic growth and the welfare state. To count with a strong middle class is believed to help a country to support economic development (see Easterly, 2001), as well as to indirectly contribute to build democracy and social policies aimed at achieving more inclusive growth through the formation of optimal alliances supporting an enhanced redistribution of income and/or enhanced institutions.

But how is the middle class defined¹⁷? Do these theoretical considerations¹⁷ apply for Latin American countries and, more concretely, to the Dominican Republic? In this section we do not pretend to take part in the middle class debate, but just to select a few definitions and see how they fit in the case of the Dominican Republic.

Within income-based measures, a first approach uses absolute thresholds. Martin Ravallion (2009) defines the “developing world middle class” as constituted by those who earn between US\$ 2 (absolute poverty line) and US\$ 13 (US standards poverty line) a day in Purchasing Power Parity. Following this definition, in Latin America, 2005, 17.1% of the population was poor and 65.8% constituted the “developing world’s middle class”. For the same year, in the Dominican Republic 15.08% of the population laid below the 2USD a day poverty line and 70.73%¹⁸ would belong to the intermediate strata. One problem is that Ravallion’s definition is considering middle class a large proportion of the total population (26.4%) that is poor according to DR standards.

In an alternative fashion, Ferroni et al. (2008) define a “Size of the middle class” measure that results from adding income per capita earned in deciles 3, 4, 5, 6, and 7, and dividing it by total income perceived by the population. According to this index, the DR ranked 8

¹⁷ The concept of “Middle Class” has been subject of debate for decades. There are two main strands of literature: on the one hand, a *sociological* perspective that originally draws from the views of Marx (property of the means of production) and Weber (common identity, status and way of life), departing from a complex set of common features to identify a class; on the other hand, an *economic* perspective, which mainly uses income as the tool to stratify population, this way facilitating the study of other socioeconomic characteristics.

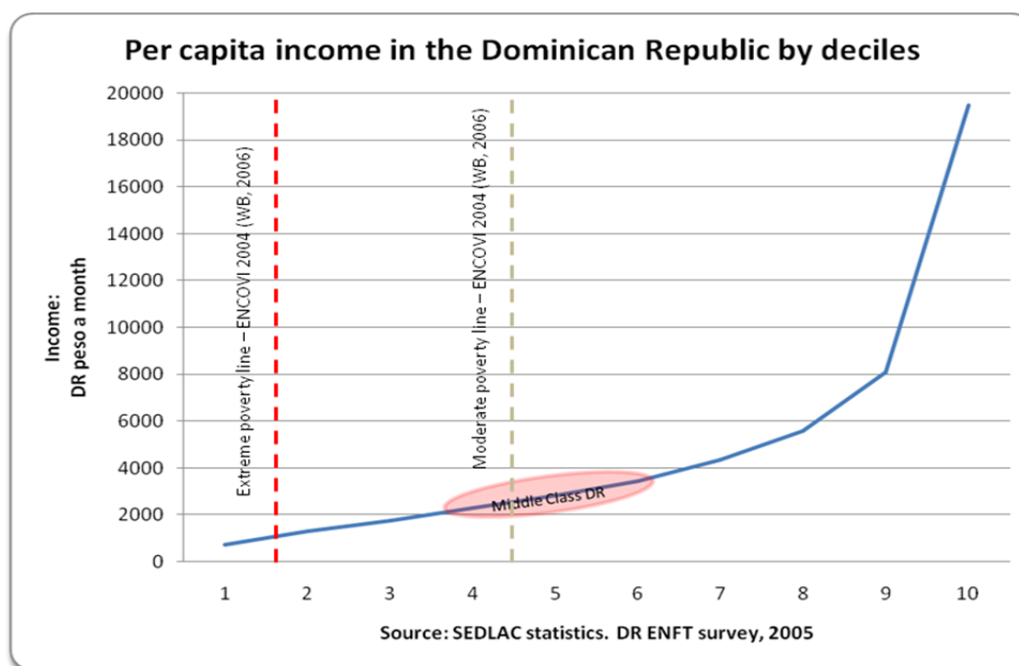
¹⁸ Data retrieved using [PovcalNet](#).

out of 18 countries in Latin America in 2004 in regards to the weight of the middle class over total income. A major limitation of this approach is that, by definition, the size of the middle class in term of percentage of population is given (5 deciles, 50% of the population), and it is just possible to observe changes in their share of income.

A third group of measures defines an interval around the median of the income distribution. For OECD (2010), the “Middle Strata” are constituted by those that earn between 50% and 150% of the median income. According to this definition, 42% of the Latin Americans belonged to the middle classes in 2005, whereas in the Dominican Republic these strata represented around 46.67% of the total population¹⁹. In this view, the lower income limit for the middle class in the Dominican Republic coincides with the extreme poverty line (OECD, 2010:80), and it is below the national poverty line.

Similarly, Birdsall et al. (2000) define the middle class as those with an income between 75% and 125% of the median. According to this approach, the middle class in the DR in 2005 represented 34.08% of the population, earning between 2,114 and 3,523 RD\$ per month²⁰.

Figure 18: Defining the “middle class” in the Dominican Republic



These measures based in relative thresholds around a central tendency mark allow us to compare both the income share and the size of the “middle class” over time and across societies. However, the choice of the lower and upper threshold is still arbitrary, and it may not

¹⁹ Data from the DR National Labour Force survey (ENFT3), in <http://sedlac.econo.unlp.edu.ar/eng/statistics.php>

²⁰ These thresholds calculated from ENFT survey are income per capita figures.

be necessarily consistent with the reality of each country. **In the case of the Dominican Republic, the lower boundary of the *middle class*, as defined above, would be below the national moderate poverty line**, approximately 2,483 RD\$ a month in 2004 (World Bank, 2006).

In order to adapt the “middle class” definition criterion to the Dominican Republic, Guzman (2011), departing from OECD (2010), argues that using 50% and 150% of the median as the boundaries to define the “intermediate strata” would mean to set up a lower limit that is below the poverty line and to set up an upper limit that do not reach country average income. He chooses the US\$ 60 a month poverty line (around 2,222 RD\$ a month in 2006) and two times the median of the income distribution (LP/2 criterion). Using this approach, a household with a per capita income of US\$100 a month would belong to the intermediate strata of the population²¹, whereas a household earning US\$250 per capita a month would be considered of higher class. As the author acknowledges, in the Dominican Republic the “intermediate strata” of the distribution do not correspond to the idea of the developed world “middle class” we often have in mind.

Drawing from recent household surveys and using LP/2 criterion, Guzman finds that in 2010 around 30% of the families did not own a house and 20% of them did not have access to the national water network. Where most of the households belonging to the intermediate strata count with a television, a radio, a fridge and a washing machine, less than 20% of them own a car or a computer.

What has been the evolution of these intermediate strata in the Dominican Republic over the last decade? According to Guzman (2011), whereas in 2000 the “intermediate strata” represented 50% of the population, in 2004, following economic crisis, this percentage was reduced to just 35%, as the poverty levels jumped from 27% to 43%. The impact of the crisis shows the mentioned vulnerability of the middle class in the DR (against that of the richer strata, which did not show any variation). According to this criterion, the “intermediate strata” has enlarged again to represent nowadays 44% of the population

Finally, we refer to the National Office for Statistics of the DR (ONE), who constructed a “Socio Economic Group” variable in its ENIGH 2007 survey that considers not only the income dimension but also possession of certain goods, the education level or the ownership of a

²¹ US\$100 a month is below the minimum salary officially established in the DR. At this point, it is worth noting that these are per capita income figures that result from dividing income between total members. Thus, a household head may be the only person employed in the family, gaining 20,000 DR pesos a month (around US\$ 540), which divided into the spouse and two children results in just 5,000 pesos per capita; however, the different family members are not expected to consume in the same proportion. Moreover the analysis of distribution derived from the DR National Labour Force survey only considers income from the main activity, and not total household income (as it excludes income from a second occupation, national transfers, remittances and other rents from financial and non financial assets).

house.

Population is classified according to five socio economic group categories: the *poor*, around 10% of the population below the extreme poverty level; the lower class represents around 47% of the population, lives at subsistence level and consumes mostly basic foods, earning an average of RD\$4,891 in terms of primary occupation income²²; around 20% of the population belongs to the middle class, characterized for affording imported food products and earning an average of RD\$6,214 a month; the upper middle class is about 17% of the population and has an income level that makes expenditures on food products a relatively less significant portion of their overall income (average labor income per capita of RD\$ 8,906); finally, the upper class is composed by conspicuous consumers for which almost any product or service is accessible (average labor income per capita of RD\$18,545). It is worth noting that, according to the ENFT survey, the median income from the primary activity is similar to that of ENIGH (around RD\$6600).

In sum, as we argue, there is no consensus definition, and the wide variety of income-based measures, when applied to the DR, result in very uneven estimations of the “intermediate strata”. Still, one of the main outcomes common to these measurements is that the focus in the “intermediate strata” defined according to the income standards in the Dominican Republic (and in Latin America) implies to consider groups of population that are economically vulnerable.

In this paper we do not intend to offer a new criterion to try to determine the size of the middle class in the DR, but rather just to illustrate some of its behavioral patterns, such as an observed tendency to adopt individual solutions to solve collective problems.

²² Where most of the studies mentioned in this section draw from household income per capita figures, here we depart from income data declared by the head of household. This choice obviously has some limitations: for the same income level, larger families will have more expenses, which results in that an individual included in Q3 can be relatively poorer than one in Q2 without dependents. On the other hand, using individual income data it is possible to obtain a more accurate picture of the salary dimension and its relation with, for instance, minimum salary in the country or the level of education.

Annex II. Calculation of auto generation capacity figures

Figure 19: Electricity auto generation in 2001, DR

Sector	Generation (MW)
Urban residential	50
Rural residential	3
Hotels	129
Restaurants	41
Industrial Facilities	1,575
Refineries	21
Falconbridge mining	896
Total	2,715

Source: CNE, IDEE/FB *Informe sobre balances*. In BID, 2010.

In 2001, a survey conducted under the supervision of the National Commission for Energy concluded that auto generation capacity (2,715 MW at the time) was already similar to installed power in the national interconnected system (see BID, 2010). In order to update these figures, and given that electricity generators are not manufactured in the Dominican Republic, we have used customs statistics to estimate added imported capacity in the last decade.

First, departing from de-aggregated imports data, we calculate average value per unit by year for the following tariff groups:

85 01 Electric motors and generators (excluding generating sets)

85 01 61 AC generators (alternators): power not exceeding 75kVA

85 01 62 AC generators (alternators): between 75kVA and 375kVA

85 01 63 AC generators (alternators): between 375kVA and 750kVA

85 01 64 AC generators (alternators): exceeding 750 kVA

85 02 Electric generating sets and rotary converters

85 02 11 Generating sets with compression-ignition internal combustion piston engines (diesel or semi-diesel engines): less than 75 kVA

85 02 12 Generating sets with compression-ignition internal combustion piston engines (diesel

or semi-diesel engines): between 75kVA and 375kVA

85 02 13 Generating sets with compression-ignition internal combustion piston engines (diesel or semi-diesel engines): exceeding 375 kVA

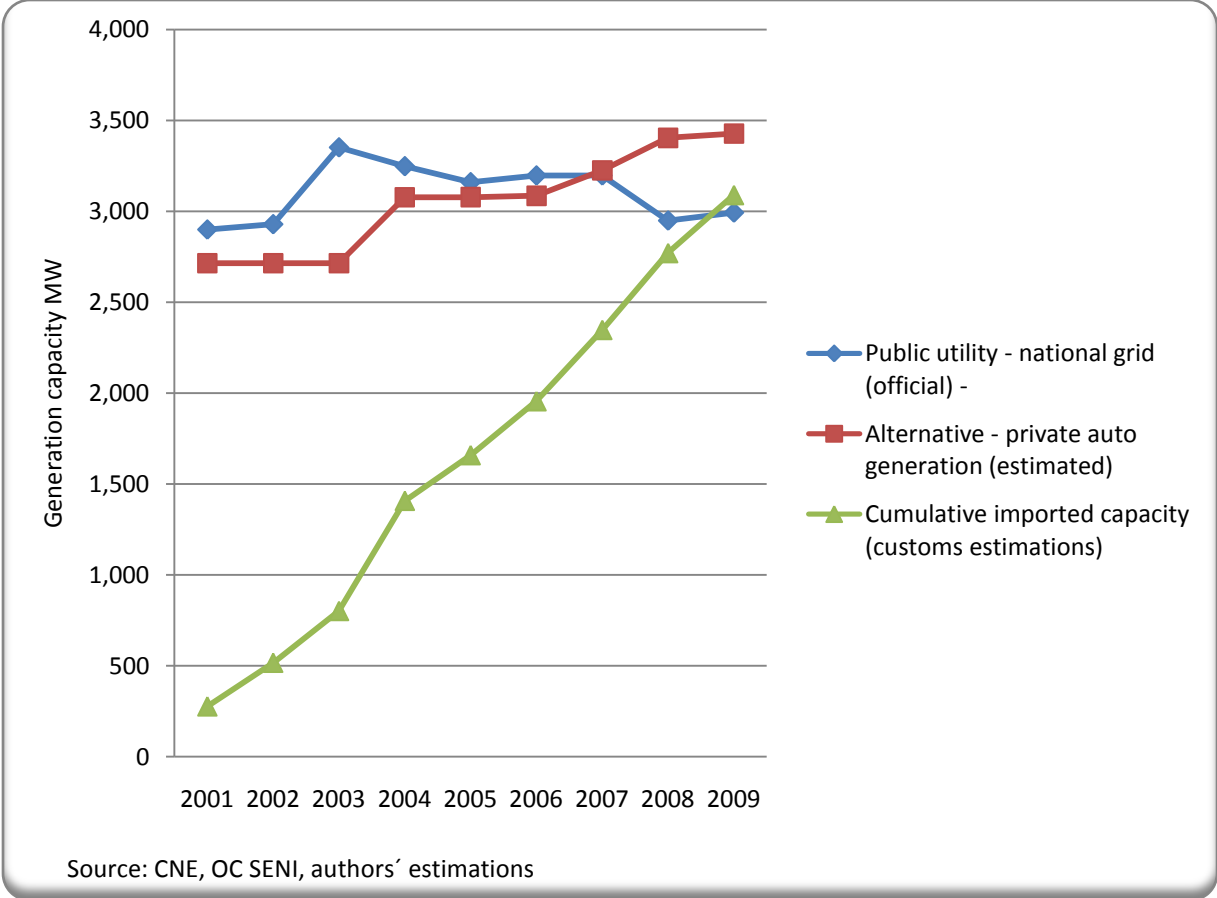
85 02 20 Generating sets with spark-ignition internal combustion piston engines

Second, we assign a “standard” power generation capacity value for each of the product groups, always considering given range (e.g. 75 kVA – 375 kVA). Then, we calculate total “imported” generation capacity by multiplying the number of generators (customs data) by the “standard” generation capacity for each model. Customs data on imports do not allow us to distinguish between generators that will be integrated into the national grid (“public”²³), and those that will constitute complementary generation capacity that will be privately used (both by households and industries) to respond to blackouts in the national system. Therefore, it is necessary to subtract the increase in installed capacity on the national grid from yearly generators imports, in order to approximately infer private power generation capacity building. **The result of this rough estimation is that, from 2001 onwards, approximately 688 MW have been privately installed to complement the national grid when a blackout occurs.** This means that alternative auto generation capacity installed by private actors may be already superior that generation capacity at the national network.

As it can be observed in the following graph, deterioration in the public utility service in 2003 and 2004 (following economic crisis) caused an upsurge in imports of for private auto generation, a trend that seems to be confirmed by sector experts.

²³ Here “public” refers to electricity generation power for public use (to feed the national electricity grid), even if it has been generated by private or semi-private companies.

Figure 20: Evolution of installed electric generation capacity in the Dominican Republic



At this point, it is worth noticing that we are aware of the limitations posed by inferring these private capacity and consumption figures departing from customs data and household surveys, since the series of assumptions needed to provide an estimation (even when it is very rough) enlarge the margin of error. Regardless of whether estimations are more or less accurate, it is our aim to at least highlight the investment effort that private households and companies are undertaking to offset failures in the provision of a utility such as electricity supply, since it has led to the creation of an “auxiliary” or alternative system to the national grid, which is likely to be economically inefficient.