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EMERGING MIDDLE CLASS IN LATIN AMERICA USING
COMMITMENT TO EQUITY

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The CEQ logo is a stylized graphical representation of a Lorenz curve for a fairly unequal distribution of income (the bottom part of the C, below the diagonal) and a concentration curve for a very progressive transfer (the top part of the C).



ON THE MIDDLE 70%. THE IMPACT OF FISCAL POLICY ON THE EMERGING MIDDLE CLASS IN LATIN AMERICA USING COMMITMENT TO EQUITY¹

*Christian Daude, Nora Lustig, Angel Melguizo, Jose Ramon Perea*²

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ABSTRACT

This paper analyzes the effects of indirect and direct taxes, as well as monetary and in-kind transfers on the income distribution in nine Latin American countries applying the CEQ methodology and using household and expenditure microdata around 2010. In particular, we focus on the effect of fiscal policies on two groups of the *emerging middle class*: the vulnerable and the middle class. We find that while the vulnerable tend to be net receivers in fiscal terms, especially when including in-kind transfers, the middle class seems to be mainly a net payer. This might be aggravated by the perception of a relatively low quality of in-kind transfers, notably in education and health-care services. We provide some evidence based on subjective surveys pointing in this direction.

JEL classification: D31, H22, H50, I30

Keywords: middle class, tax-benefit analysis, fiscal incidence, fiscal mobility

¹ Launched in 2008, the CEQ project is an initiative of the Center for Inter-American Policy and Research (CIPR) and the department of Economics, Tulane University, the Center for Global Development and the Inter-American Dialogue. The CEQ project is housed in the Commitment to Equity Institute at Tulane. For more details visit www.commitmenttoequity.org.

² Christian Daude works at the Development Bank of Latin America - CAF, Nora Lustig is as professor at Tulane University, Angel Melguizo is Head of the Latin American unit at the OECD Development Centre and Jose Ramon Perea is part of the World Bank. The authors would like to thank Adriana Caicedo and Rene Orozco, from the OECD Development Centre, for their excellent assistant with the data. The paper also benefited from comments from participants at the Annual LACEA Meeting 2016 held in Medellin, and from numerous interactions (on data sources, poverty measurement, analysis and policies) with Roberto Angulo (Inclusión consulting). The country data was produced by a team coordinated by N. Lustig along with the following country working groups: Bolivia – V. Paz Arauco, G. Gray-Molina, W. Jiménez and E. Yáñez; Brazil – S. Higgins and C. Pereira; Colombia – N.Lustig and M. Meléndez; Costa Rica – P. Sauma and J.D. Trejos; El Salvador - M. Beneke and J. A. Oliva; Guatemala – M. Cabrera, N. Lustig and H. E. Moran; Mexico – J. Scott; Peru – M. Jaramillo; Uruguay – M. Bucheli, N. Lustig, M. Rossi and F. Amabile. The paper should not be reported as representing the official views of the OECD, CAF, World Bank or of its member countries. The opinions expressed and arguments employed are those of the authors. Corresponding author: Angel Melguizo (angel.melguizo@oecd.org).

Adiós to poverty, hola to consumption

A new middle class is emerging almost overnight across Brazil and much of Latin America

The Economist, summer 2007

Stop corruption! We want security, health care and education

Brazilian protester, Maracanã stadium, summer 2013

Hay que romper la fracasomanía

Manejar expectativas (de clase media) es uno de los grandes retos de las democracias mediatizadas del siglo XXI.

Alejandro Gaviria, summer 2017

1. Motivation

One of the most important results of the economic expansion during the 2000s in Latin America was the substantial reduction in poverty rates and the surge of an *emerging middle class*. According to World Bank estimates, in 2015 the Latin American population with a daily income of between 4 and 50 dollars a day (in purchasing power parity) represented 74% in the region, compared to 24% who still are poor based

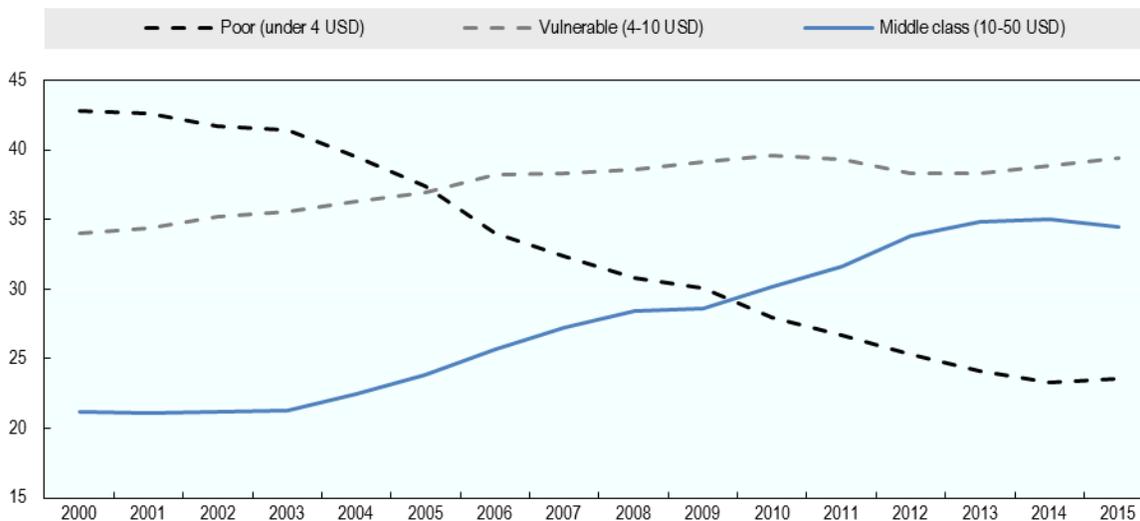
on Ferreira et al (2013) definitions (see also Tornarolli, 2014 and Bussolo, Maliszewska and Murard, 2014; Dayton-Johnson, 2015 for a panoramic analysis, from measurement and subjective perceptions to implications on labour markets and politics; and Kharas, 2017 for a world).

However, this progress does not mean that the situation of these emerging middle classes - the 'middle 70%' - in Latin America is not fragile. Although they are currently not in a situation of poverty and they represent a growing source of aggregate consumption demand, they are not satisfied nor have access to much in the way of public services, and they remain vulnerable to loss of employment, health problems, or to income falls after retirement (Bosch, Melguizo and Pagés, 2017, Daude, De Laiglesia, and Melguizo; 2015; Melguizo, 2015; Bussolo, Maliszewska and Murard, 2014; OECD, 2010; and Angulo, Gaviria and Morales, 2014 for Colombia). Besides, this vulnerability is being transmitted across generations, with the youth from lower socio-economic backgrounds being more prone to informality or inactivity (OECD/CAF/ECLAC, 2016).

Indeed, measurements of multidimensional poverty would classify a significant part of this emerging middle class among the deprived, due to lack of education and formal jobs (e.g. Alkire et al, 2015 and Adler and Fleurbaey, 2016). In this line, these emerging middle classes are composed of 35% belonging to a relatively consolidated *middle class* (with per capita income between 10 and 50 dollars), and 39% to a *vulnerable* population, which has between 4 and 10 dollars a day (Figure 1).³ In fact, the economic slowdown in Latin America already meant that the poverty headcount increased by around 7 million people in Latin Americans only in 2015; and other estimates point out that 25-30 million vulnerable Latin Americans might fall back into poverty (UNDP, 2016).

³ We follow the definition of middle class and other socioeconomic groups proposed by Ferreira et al (2013). These authors define the middle class as those households that earn income per capita between 10 and 50 USD per day (in PPP terms). The poor are defined by those earn less than 4 USD per capita per day. The vulnerable earn between 4-10 USD per capita per day, while an affluent household is defined as a household that earns more than 50 USD per day per capita.

Figure 1. **Population by income groups in Latin America** (%)



Notes: Latin America covers Argentina (urban), Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Rep., Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru and Uruguay (urban). Data provided by the World Bank no longer identifies ‘affluent’ due to lack of representativeness

Source: World Bank LAC Equity Lab

Also, often the socio-political debate in Latin America and elsewhere refers to the ‘middle class’ (loosely defined), as the ‘loser’ in the social contract. This stems from the belief that the middle class is the main net payer in fiscal terms, as its members are too affluent to benefit from policies targeting at the poor and often opt out from public services they consider of low-quality (i.e. paying for private health care services, schooling or security), and not affluent enough to have tax lawyers and benefit fully from tax incentives or loopholes (Daude and Melguizo, 2012; 2014; more global Birdsall, 2017). And also, these new middle classes emerge as ‘guardians of good governance’ (Birdsall, 2016), supporters of sounder fiscal policy (Daude, Gutierrez, and Melguizo, 2015) and social spending on poverty (Desai and Kharas, 2017), and even of institutional reform (Loayza, Rigolini and Llorente, 2012) due to higher aspirations

and more exigent demands for better policies (see Lopez Calva, Rigolini and Torche, 2011 for a more skeptical view).

This paper aims to shed some light on these topics by providing detailed estimates on whether the Latin American emerging middle classes (the *vulnerable* and the *middle class*) are net payers or receivers in fiscal terms, disaggregating between different taxes, monetary transfers and public services, in Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Mexico, Peru, El Salvador and Uruguay around 2010. Martinez-Aguilar et al (2017) complements our paper, using a similar analysis (albeit more focused on the impact on poverty) for Chile.

The paper is structured as follows. Section II describes the data, concepts and methodology, Section III presents an aggregate analysis on the net fiscal position of these middle sectors in the aforementioned nine Latin American countries-. This section identifies zoom winners and losers in each country. A related discussion on labor informality is also included. Section IV explores further the effects of taxes and transfers for socio-economic groups (poor, vulnerable, middle class and affluent), and highlights the role of in-kind transfers: health and education. Section V adds a qualitative view, presenting some subjective data on perceptions about the quality of public policies among socio-economic groups in Latin America. The main conclusions and references close the paper.

II. Data, definitions and methodology

Our analysis relies on the data compiled by the Commitment to Equity (CEQ) project, an initiative analysing tax and transfer systems in several Latin American and other emerging countries

(www.commitmentoequity.org). Specifically, using mainly the official national household surveys, plus expenditure surveys for 2010, we compile data on taxes, transfers and contributions to pension schemes for the following nine countries in Latin America: Bolivia, Brazil (2009), Colombia (2009), Costa Rica, Guatemala, Mexico, Peru, El Salvador and Uruguay (2009).

We use this dataset to provide a fiscal incidence analysis for the nine countries following the conceptual framework detailed in Lustig, Pessino and Scott (2014) and Lustig and Higgins (2012 and 2013). This methodology includes an examination of the incidence of taxes (income tax, personal contributions to social security, indirect taxes, co-payments, user fees) and transfers (direct transfers, indirect subsidies, in-kind transfers) throughout various income classifications (market income, net market income, disposable income, post-fiscal income, final income).

The various income categories are defined as shown in Table 1. Market Income includes wages and salaries, income from capital, private transfers; before government taxes, social security contributions and transfers; Net Market Income is Market Income minus personal income taxes and employee contributions to social security (only contributions that are not directed to pensions, in the benchmark case). Disposable Income is Net Market Income plus direct transfers. Post-Fiscal Income is Disposable Income minus indirect taxes plus indirect subsidies. Final Income is Post-Fiscal Income plus in-kind transfers minus co-payments and user fees.

Table 1. Definition of income categories

Market income (wages, salaries, capital income, private transfers)

- PIT - SSC

Net market income

+ Direct transfers

Disposable income

- Indirect taxes

Post-fiscal income

+ In-kind transfers - co-payments & fees

Final income

In this context, and in light of the lack of consensus regarding the treatment of pay-as-you-go contributory pensions, the study includes both a benchmark and a sensitivity analysis. The first treats pension income as part of market income, while the latter classifies it as a government transfer.

Through this breakdown, we illustrate the fiscal mobility – i.e. the directional movement between the before and after taxes and transfers -- experienced by different socioeconomic groups. Given our focus on the Latin American middle classes, we define socioeconomic groups using the classification by Ferreira et al. (2013) as a basis, but we disaggregate further the lower end of the income distribution. This leaves us with an absolute, income-based definition that distinguishes the following groups: ultra-poor (<1.25 \$ a day), extremely poor (\$1.25-\$2.50), moderately poor (\$2.50-\$4), vulnerable (\$4-\$10), middle class (\$10-\$50) and the affluent (>\$50). In short, the commonly (and loosely) referred to “emerging

middle class” (the ‘middle 70%’) is composed of two groups, a “vulnerable” one given by the \$4-\$10 group and an “established” middle class as the group from \$10 to \$50.⁴

Defining the middle class based on absolute income levels is justified on several grounds. Unlike measures based on relative income or sociological characteristics, it allows for a direct comparison across countries. Moreover, relative definitions are not unable to identify directional income movements across classes, a key component of our study. Given our objective of illustrating the income mobility of socioeconomic groups across several Latin American countries justifies the use of an absolute definition.

With these definitions of socioeconomic groups and income, we undertake a fiscal incidence analysis that covers a comprehensive array of taxes and transfers. On the tax side, we include direct and indirect taxes, personal contributions to social security (to health and pensions), co-payments and user-fees. Transfers include direct transfers, indirect subsidies and in-kind transfers. This provides an assessment of the overall impact of the tax-benefit system over the income of the middle class.

Another important concept that we inherit from the existing CEQ work is that of *fiscal mobility*. As Lustig and Higgins (2012) state, fiscal mobility is defined as “the directional movement between the before and after net taxes situations among k pre-defined income categories”. The instrument to illustrate this movement is a ‘fiscal mobility matrix’, which registers the share of individuals that transit between different income groups as a result of the taxes and transfers. This matrix is essential to capture the notion of fiscal mobility between groups, insofar the standard distributional proxies, whether addressing poverty, inequality, progressivity or fiscal incidence, often fail to unveil the winners and losers from taxes

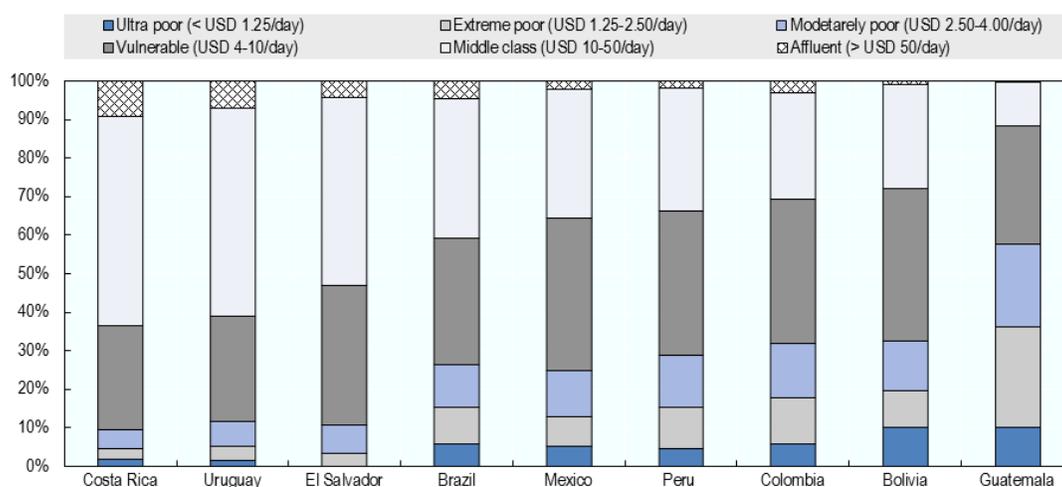
⁴ Note that the World Bank definition hinges on the fact that the middle class is not vulnerable to fall into poverty, so the “vulnerable” represent a significantly different group. Other approaches (not exhaustive) in the literature include Kharas (2010) who uses 10\$ to 100\$, Easterly (2001) who middle class as the middle three quintiles of the income distribution, or Birdsall (2010) households with incomes between 75% and 125% of the country’s median income.

and transfers. For instance, an unchanged Gini coefficient could be due to the fact that every individual in society experiences no changes on its relative income share; alternatively, it could also be due to movements within the population that cancel each other out. In all, these two different scenarios would define very different political economy implications.

III. The emerging middle class in Latin America: size and fiscal position

Beyond averages, there is a significant degree of heterogeneity across Latin American countries in terms of socio-economic composition of their population, with Bolivia and Guatemala showing a very small middle class (Figure 2). For example, the combined presence of the poor and the vulnerable reaches almost 90% of the population in Guatemala. In contrast, Uruguay, Costa Rica and El Salvador show a much larger presence of the middle class, at times accompanied by also a relative large presence of the affluent group (in particular, in Costa Rica).

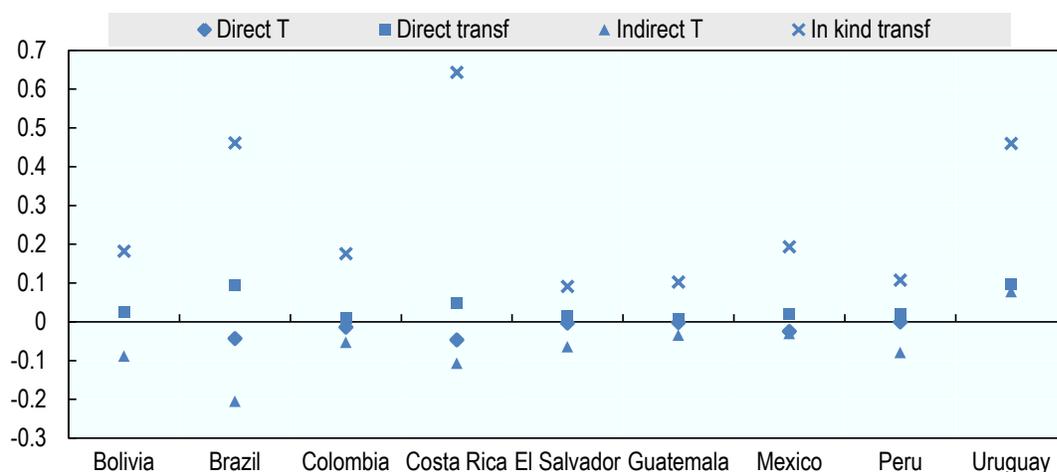
Figure 2. Population by income groups in selected Latin Americas countries (%)



Source: Own elaboration

There are also marked differences when analyzing how different types of taxes and transfers affect the income of both, the vulnerable and the middle class. Regarding the vulnerable (Figure 3), direct taxes draw only a marginal share of market income in general, with the exception of Brazil and Costa Rica, which show relatively significant levies (4.3% and 4.6% of their market income, respectively). The analysis confirms that the low-middle income sectors in Latin America do not pay personal income taxes, in contrast to most OECD countries (the personal income tax as an ‘empty shell’, according to Corbacho, Fretes and Lora, 2013; see also Lora, 2006). Brazil and Costa Rica, followed by Bolivia and Peru, also exert the most intense fiscal pressure on the vulnerable through indirect taxes. In Costa Rica, indirect taxes reach 11% of market income, while in Brazil add up to 20%. Direct transfers to the vulnerable exert a relatively marginal impact on in income for this group, with most countries presenting changes smaller than 5% of market income. There are two exceptions: Brazil and Uruguay, where direct transfers amount to around 10% of market income. In contrast, in-kind transfers tend to represent a more significant share of income for the vulnerable across most countries. This is especially the case of Costa Rica, Brazil, and Uruguay, where in-kind transfers to the vulnerable add up to 72%, 46% and 32% of their market income, respectively. Figure 3.

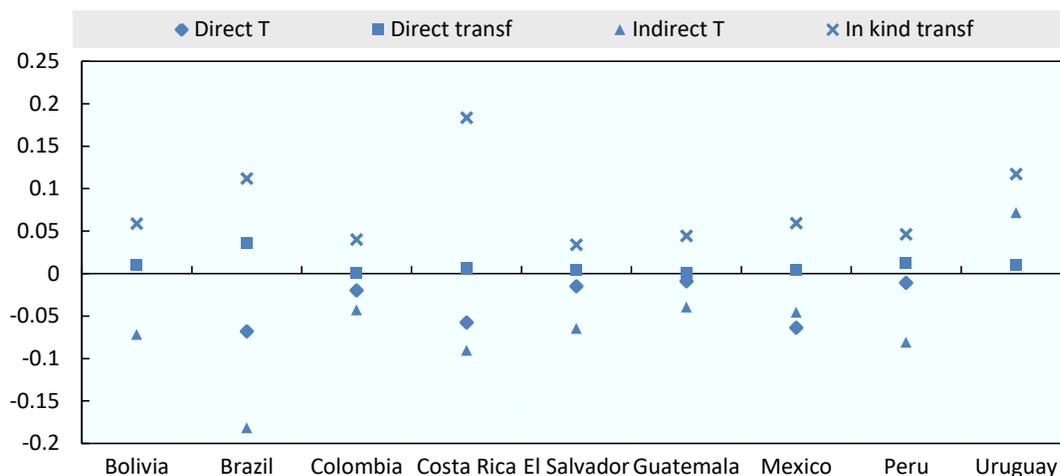
Figure 3. **Ratio of taxes and transfers to market income for the *vulnerable* by country in Latin America**



Source: Own elaboration

Concerning the middle class, the results offer some interesting comparisons across countries and with respect to the vulnerable (Figure 4). First, direct taxes –due to social security contributions and also to the personal income tax collect a significantly larger fraction of market income in most countries compared to the vulnerable. This is an intuitive result, given the higher formality rates among the middle class (see Box 1) and the progressivity of the personal income tax. The highest shares are found in Brazil, Mexico and Costa Rica (7%, 6% and 6%, respectively). In the case of indirect taxes, the countries with the largest shares are Brazil (18%), Costa Rica (9%) and Mexico (5%). Just as in the case of the vulnerable, indirect taxes extract a higher proportion of market income than direct taxes, a pattern that seems derived from the overall tax structures in the region, which rely heavily on indirect taxes given the apparent inability of fiscal systems to collect personal income taxes (Lora, 2006). Thus, we find that indirect taxes are generally a less important tax for the middle class in terms of their income compared to the vulnerable, in line with the relatively regressive character of these taxes (in absence of exemptions and reduced rates).

Figure 4. **Ratio of taxes and transfers to market income for the *middle class* by country in Latin America**

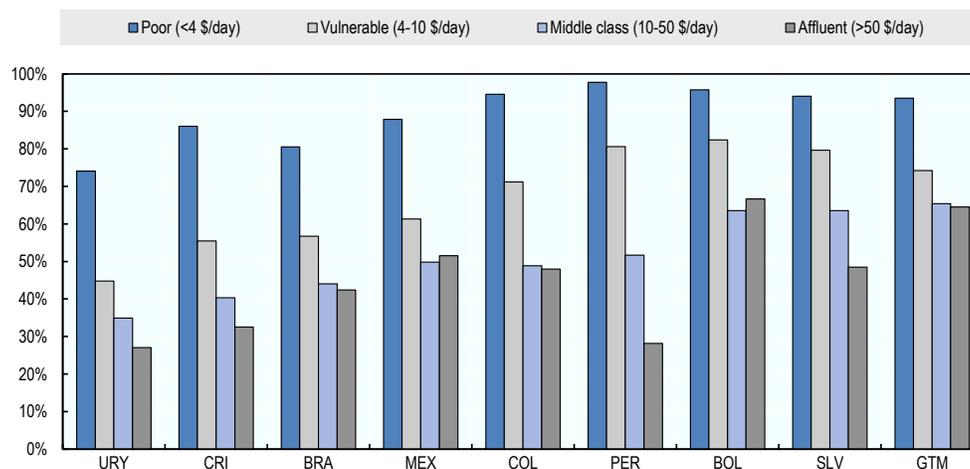


Source: Own elaboration

Box 1. (In)formality among Latin American middle classes

One of the most notable vulnerabilities of this emerging middle class in Latin America is its high labor informality, which is directly linked to their tax/transfer position and access to public services. Far from being a problem only for low-income workers, informality impacts the emerging middle classes. This fact distances them from the definition of a stable middle class with formal employment (Banerjee and Duflo, 2008). Up to now, there are limited technical comparisons among socio-economic groups and informality has been limited to studies focusing on multidimensional poverty (e.g. Angulo, Gaviria and Morales, 2014 for Colombia). Therefore, as a complementary line of research we use our absolute definition of socio-economic groups to analyze this issue.

Figure 5. **Labour informality in Latin America** (% of households with no contributor to social insurance, circa 2010)



Source: Own elaboration

The results indicate the existence of three groups of countries according to level of informality for our sample of countries (Figure 5). The highest levels of informality are observed in Bolivia, El Salvador and Guatemala, where more than 80% of households respectively do not have any member contributing to social security schemes.⁵ A second group, with a level of informality between 60% and 70%, includes Peru, Colombia and Mexico (73%, 68% and 62%, respectively). Lastly, Uruguay, Costa Rica and Brazil, present the lowest rates of informality, with between around 40% and 50% of households not contributing (39%, 47% and 55%, respectively). More importantly, the

⁵ Depending on the availability of data in the survey of households in each country, a household is defined as informal when none of its members contribute to the pension system in the case of Bolivia, Brazil, Colombia, Costa Rica and Uruguay, to the health system in El Salvador and Mexico, and the pension and health systems in Peru. In the case of Guatemala, a household is formal when it counts an affiliate to the pension system.

degree of informality is one of the most striking differences between the vulnerable population and the middle class. The previous classification of countries remains the same when analyzing only middle class households, but the most interesting result is the noticeable difference in the degree of formality between households classified as middle class compared to the vulnerable population. The rate of average informality among the vulnerable class is 70% (with a range between 45% in Uruguay and 82% in Bolivia), much higher than middle class households at 47% (with a range between 35% in Uruguay and 65% in Guatemala). On the other hand, except in El Salvador and Peru, the degree of informality is similar among middle class and relatively affluent households (whose informality reaches 48% of households).

The extent of informality, irrespectively of the causes – from (even good-intentioned) policies (Levy, 2008), low financial knowledge and myopia, low enforcement and/or as an ‘opt-out strategy’ from the vulnerable middle class (e.g. Maloney, 2004) -, will have a direct impact on the tax-benefit position of different socio-economic groups across countries.

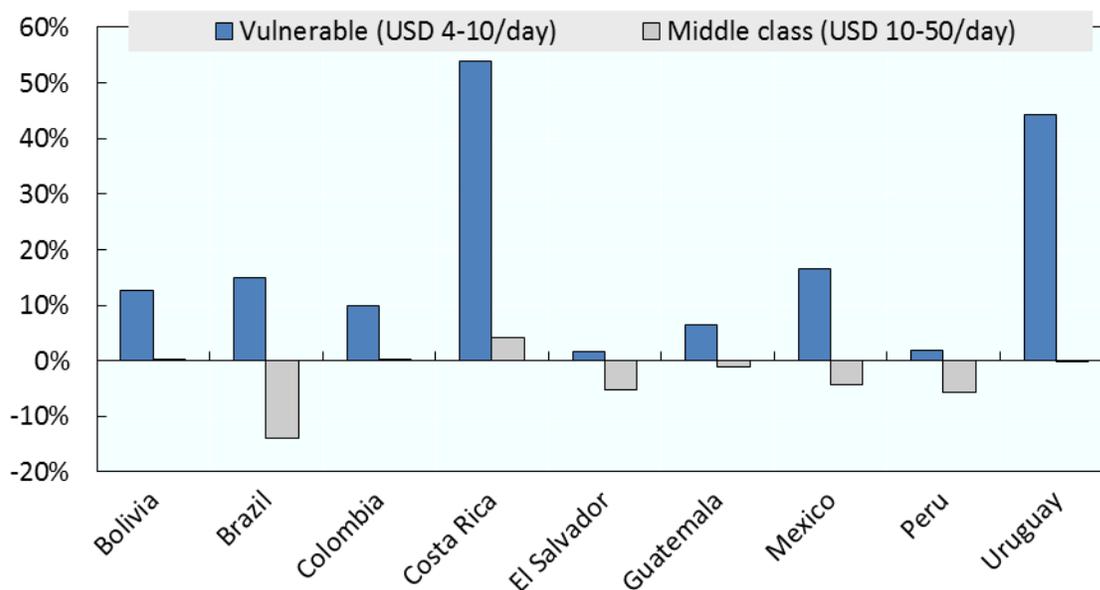
Two issues stand out with regards to transfers concerning the emerging middle class. First, direct transfers to the middle class represent an even smaller share of market income than for the vulnerable. Second, and just as in the case of the vulnerable group, in-kind transfers (e.g. education and health) represent a much larger share of market income than direct transfers. Uruguay appears at the top, with in-kind transfers reaching 48% of market income for the middle class. Costa Rica and Bolivia are next, with 20% and 18%, respectively.

The effect of taxes and transfers on income determine wide differences between market and final income, which are summarized in Figure 6. In all countries, income for the vulnerable increases (i.e., final income is higher than market income). The largest increases take place in Costa Rica and Uruguay, with final income increasing by more than half in the case of Costa Rica. In contrast, the redistributive effect of the tax-benefit system for the vulnerable in El Salvador and Peru is almost negligible, albeit positive. Overall, changes for the middle class, when positive, are modest. Final income is slightly lower than market income, such that the middle class in several cases tends to be a net payer. The largest decrease

from market to final occurs in Brazil, a country that stands out for having the largest impact of indirect taxes on this income group. In contrast, Costa Rica is the only case where the middle class experiences an improvement of its income standing due to taxes and transfers, with an increase in final income of 5%.

The analysis so far shows that the middle classes in Latin America tend to benefit little in net terms from the tax and transfer system. Furthermore, if in-kind services provided by the public sector, such as health and education were of low quality, it seems possible that members of the middle class actually value them less than what is assumed in this exercise or might simply opt-out and contract these services with the private sector. This would lead to less support for progressive reforms to raise tax revenue to finance an expansion in coverage and/or quality of these services provided by the state. Section V will address this issue.

Figure 6. **Change in final income with respect to market income for the *vulnerable* and the *middle class* in Latin America**

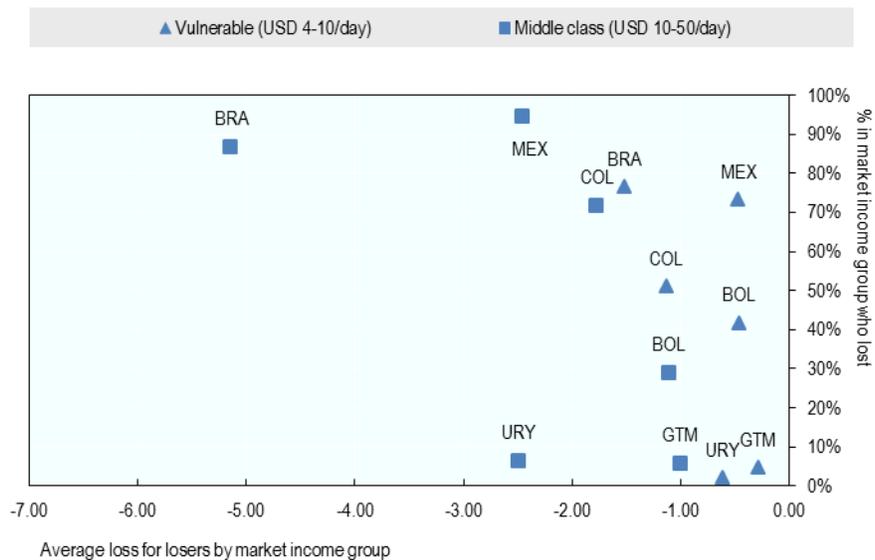


Source: Own elaboration

Fiscal net beneficiaries and net payers among the emerging middle class

Next, we evaluate the “gains” (net benefit) and “losses” (net payment) experienced by the socio-economic groups in the transition from market to post-fiscal income (i.e. excluding in-kind transfers, as well as co-payments and fees). The *Fiscal mobility* and *income change matrixes* give valuable information on the extent to which a segment of a particular income group wins or loses as a result of taxes and transfers. Figure 7 summarizes the information for the individuals that lose, with the horizontal axis showing the average loss in daily USD PPP, and the vertical axis the percentage of individuals within a given income group facing a loss.

Figure 7. **The vulnerable and the middle class in Latin America: Losers and average loss**



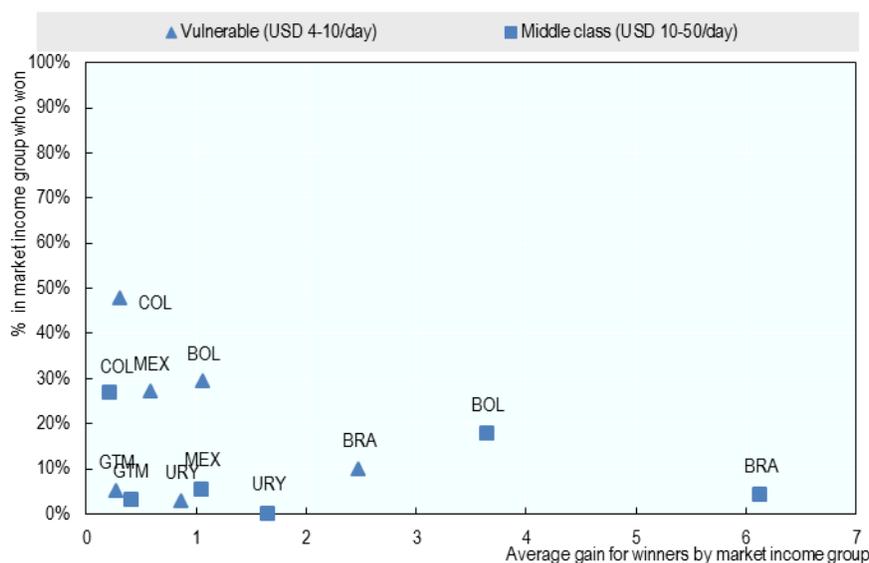
Note: Vulnerable are represented by 4-10 USD/day, and the middle-class 10-50 USD/day.

Source: Own elaboration

Brazil is the country where the middle class faces the most severe penalization from taxes and transfers, followed by Uruguay and Mexico. Around 87% of Brazilian middle class faces a loss, which on average adds up to over 5 daily USD. Also, 76% of the Brazilian vulnerable also loses with the fiscal system. The losses for the middle class in other countries are significantly more moderate in absolute terms, particularly in the cases of Guatemala and Uruguay.

When replicating the previous comparison for those whose position is improved as they move from market to post-fiscal income, Colombia appears as the country with the largest percentage of “winners” from the fiscal system for these emerging middle classes, followed by Bolivia and Brazil (Figure 8). Specifically, 47% of the Colombian vulnerable and 27% of the Colombian middle class improve their final income after tax and transfers.

Figure 8. **The vulnerable and the middle class in Latin America: Winners and average win**



Note: Vulnerable are represented by 4-10 USD/day, and the middle-class 10-50 USD/day.

Source: Own elaboration

IV. The effects of taxes and transfers by socio-economic groups in detail

In this section, we explore further the distributional consequences of taxes and transfers by focusing on concentration curves and concentration shares. We use concentration curves to determine the extent to which a tax or a transfer is progressive. These curves are created following Lorenz curves, i.e., the income inequality image representation that plots the cumulative percentage of total national income against the cumulative percentage of the population. The distance between the Lorenz curve and the 45-degree line indicates the extent of inequality of distribution. Thus, the difference between concentration and Lorenz curves is that the former shows in the vertical axis the proportion of the tax or transfer affecting each income group. In this way, and unlike standard Lorenz curves, concentration curves can be above the 45 degree line (Lustig, Pessino and Scott, 2014).

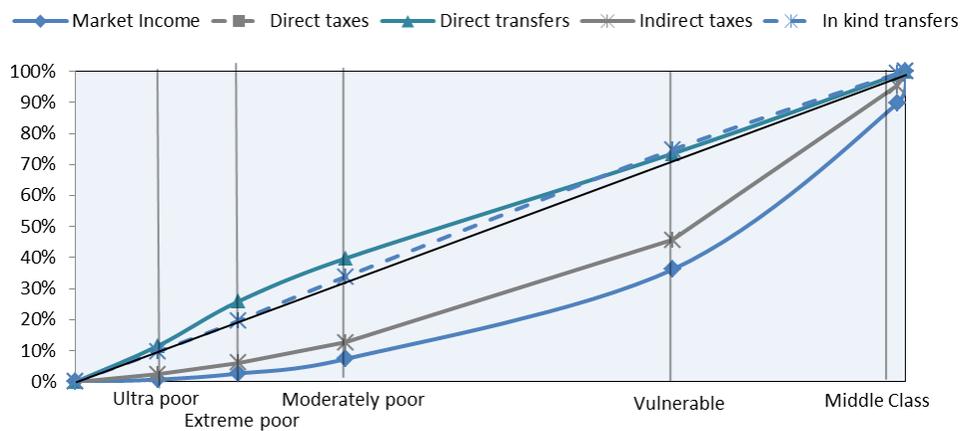
This allows finding several commonalities in the way taxes and transfers affect the distribution of income in Latin America (see Figure 9). First, direct taxes are progressive in relative terms (i.e. when evaluated in comparison to gross income distribution) in all cases for which there is data (i.e., all countries except in Bolivia and El Salvador). This implies that the proportion paid as a percentage of market income increases with income.

Indirect taxes are generally regressive –in relative terms–, particularly in the cases of Bolivia, Brazil, Colombia and Uruguay. Indirect taxes in Costa Rica and Guatemala are ambiguous, with the tax line crossing market income at low income levels. Specifically, indirect taxes are progressive for affluent groups, while being neutral at lower income levels in Costa Rica. In Guatemala, indirect taxes are marginally progressive or neutral across all income levels. Mexico is the only example where indirect taxes are progressive in relative terms, due to exemptions and low rates on primary goods.

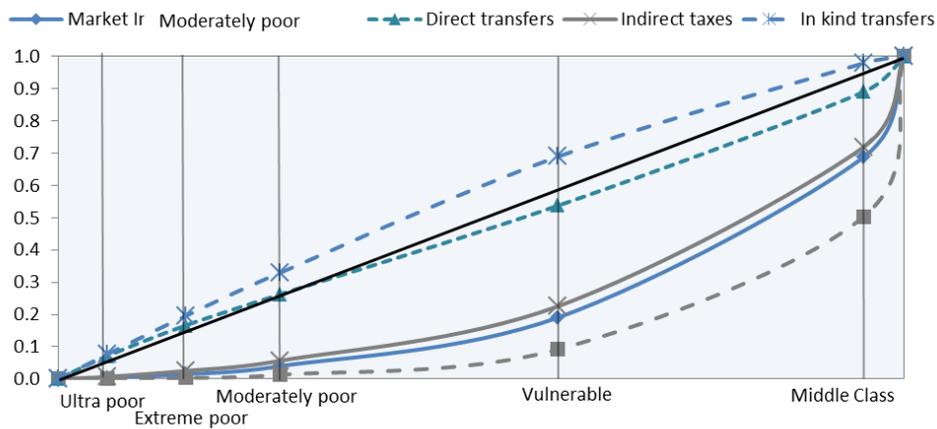
Direct transfers are progressive in absolute terms for all countries but Brazil, where they are progressive only in relative terms (i.e., the transfer line crosses the 45 degree line, at the beginning of the vulnerable segment). In-kind transfers are progressive in absolute terms in all cases. Yet, their progressivity tends to be more nuanced than direct transfers, with most in-kind transfer curves lying between that of direct transfers and neutrality.

Figure 9: Concentration curves of taxes and transfers by country in Latin America

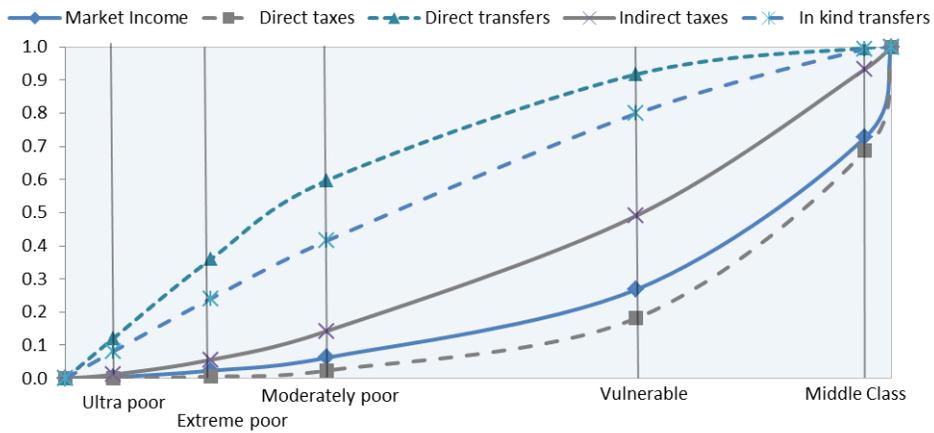
Bolivia



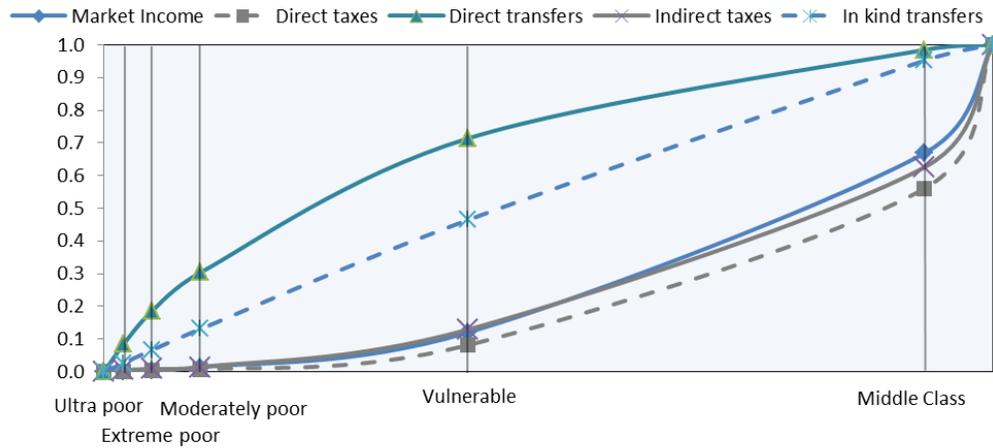
Brazil



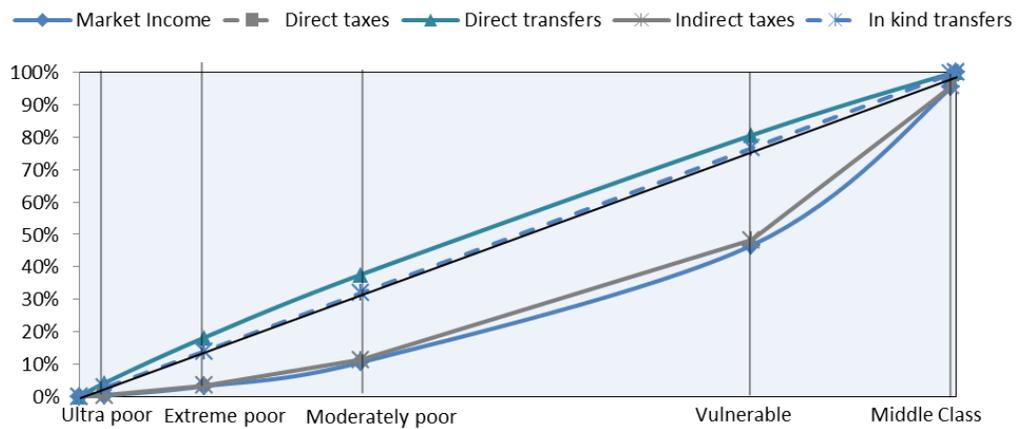
Colombia



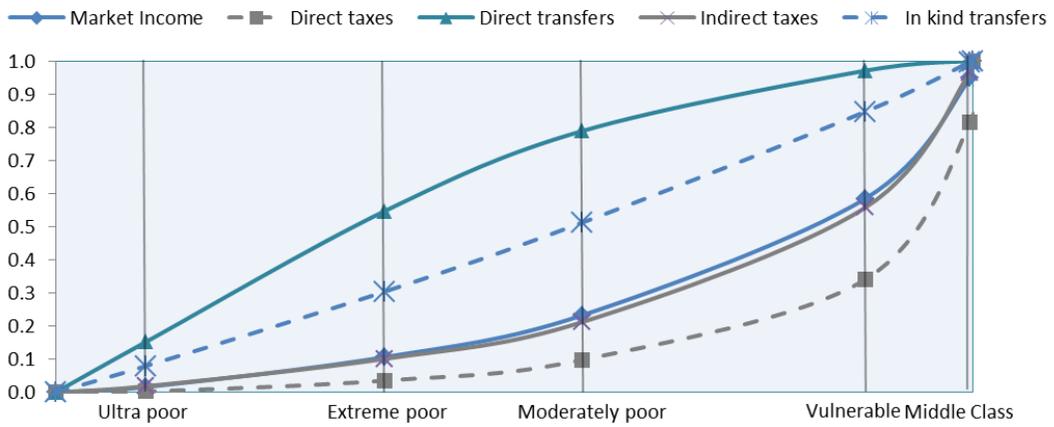
Costa Rica



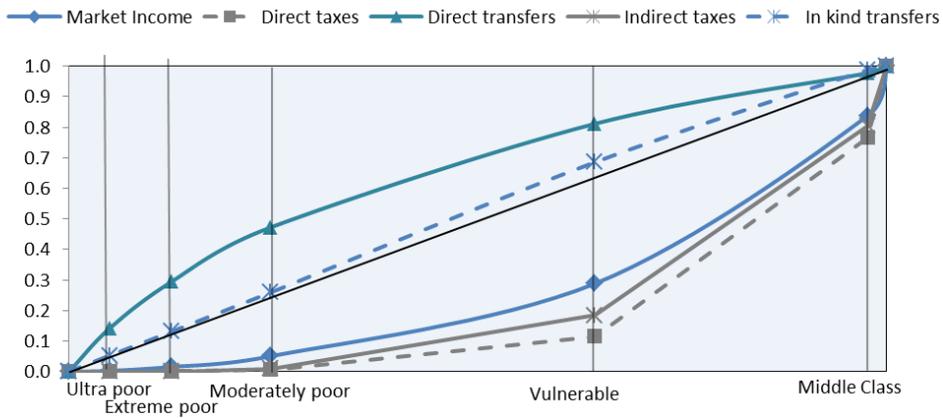
El Salvador



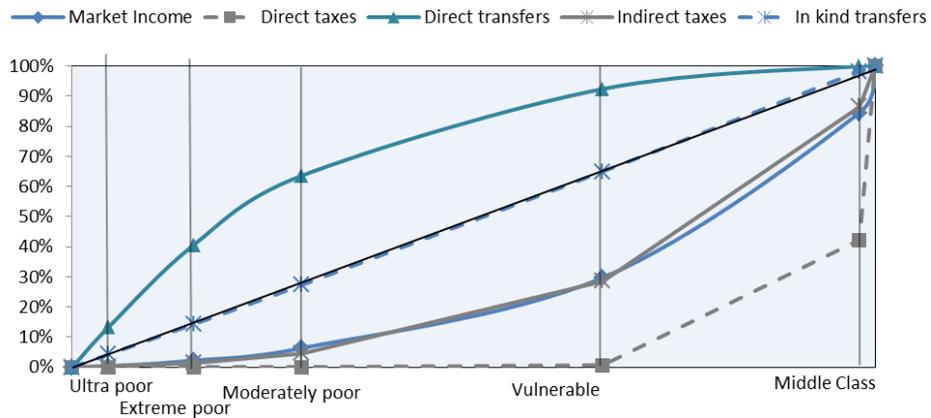
Guatemala



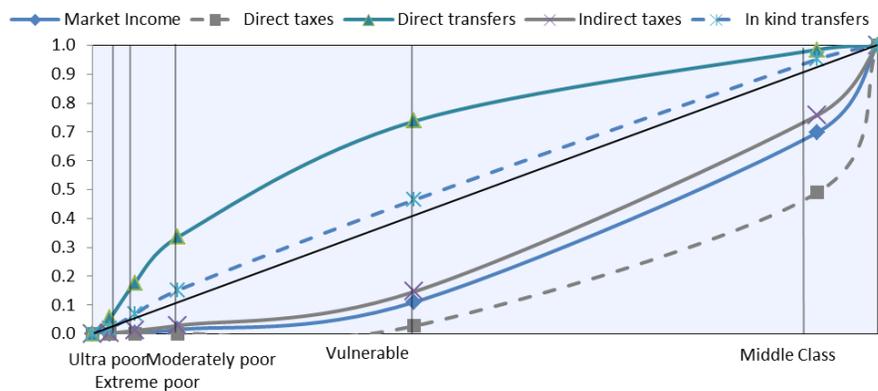
Mexico



Peru



Uruguay



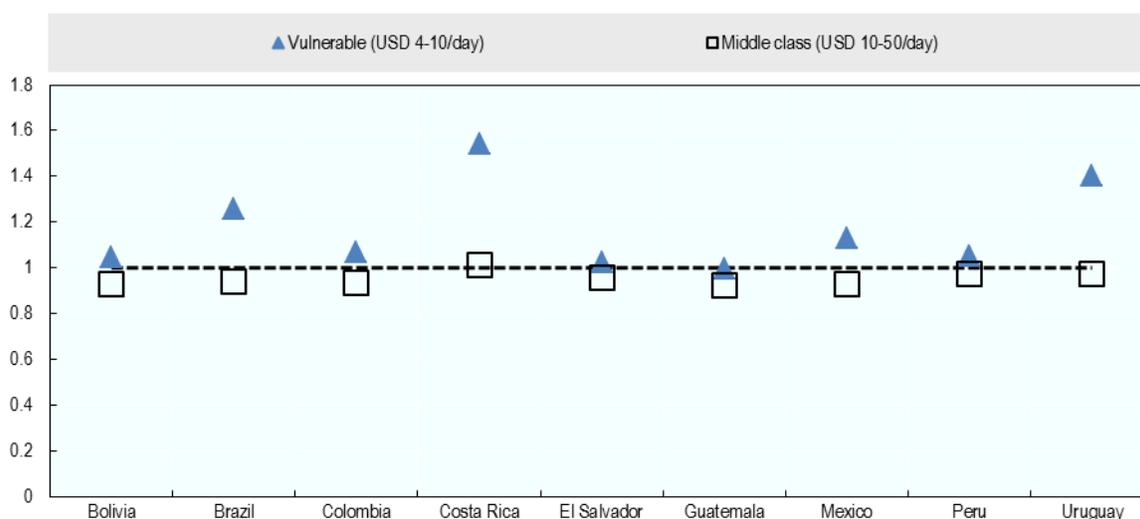
Note: For Bolivia Net Market Income is used. Ultra poor (< USD 1.25/day), Extreme poor (USD 1.25-2.50/day), Moderately poor (USD 2.50-4.00/day), Vulnerable (USD 4-10/day), Middle class (USD 10-50/day) and Affluent (> USD 50/day)

Source: Own elaboration

Focusing on the emerging middle class, there is no clear pattern of tax and transfer systems changing significantly their relative income. The exception is Costa Rica, whose middle class increase most notably its income share when travelling from market to final income. Specifically, the middle classes in Costa Rica move from reaping 62% of market income to 67% of final income. Uruguay shows more modest increases, of around 2 percentage points. In both countries, the growth is concentrated in the vulnerable group, while the established middle class essentially maintains its share of income after taxes and transfers. Against these trends, the most relevant decrease takes place in Guatemala, the only country where both the vulnerable and the established middle class retain a smaller fraction of income as they make their way to final income. Finally, countries where the overall income share attributed to the middle class does not suffer significant variations (i.e., Brazil, Colombia and Mexico) are characterized by mutually compensating forces, with an increase in the share going to the vulnerable group and a decline

for the established middle class. Figure 10 show how the tax and transfer system modifies the amount of income captured by the middle classes. Specifically, we show the percentage of total income distributed among the vulnerable and the middle class, across the various income categories.

Figure 10. **Concentration shares accrued to Latin American *middle classes*, evaluated at market income**



Note: For Bolivia Net Market Income is used

Source: Own elaboration

The role of in-kind transfers in focus: health and education

When analyzing the redistributive impact (i.e., comparing the Gini using market income and the corresponding Gini for final income) of two most important in-kind transfers, health and education, Brazil, Costa Rica, Mexico and Uruguay stand out (Table 2). Brazil posts the biggest difference, with a

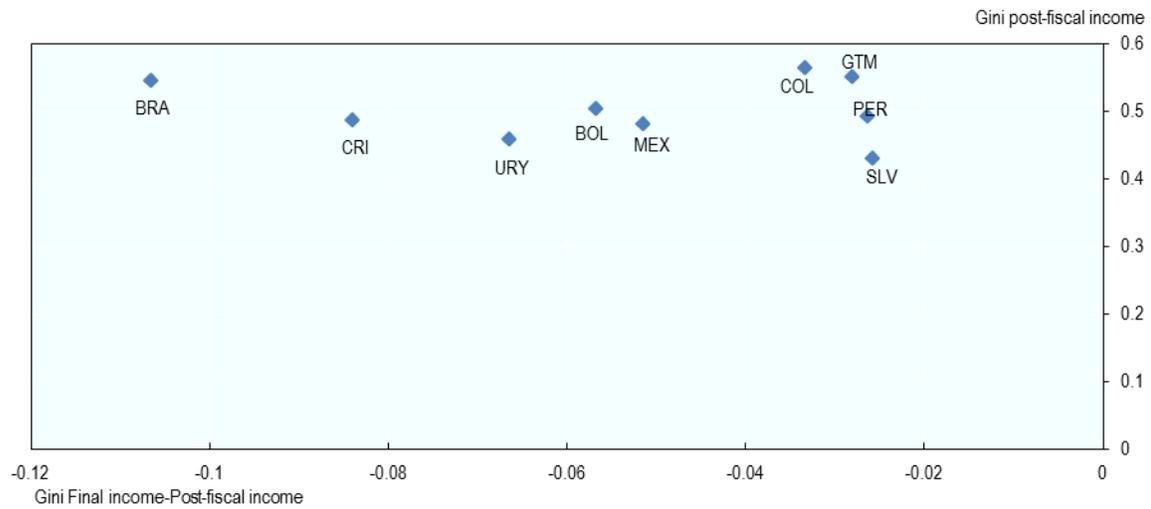
decline in the Gini index of 10 percentage points. Costa Rica is second with a decrease of 8 percentage points. By contrast, El Salvador and Guatemala and Peru achieve reductions that are below 3 percentage points. In all, these latter cases are examples of fiscal systems where neither taxes nor transfers constitute an effective tool to reduce income inequality, showing just marginal changes in the Gini coefficient between market and final income. Another interesting result is that for Bolivia and Guatemala all the reduction in inequality between market and final income is due to education and health services (the lowest in Mexico with 63%). However, despite the lack of redistribution between market and post-fiscal income, we find no indication in favour of the ‘Robin Hood paradox’ by which economies with high levels of inequality redistribute less, as suggested in Lindert (2004) (see Figure 11 for in-kind transfers of health and education).

Table 2. Contribution of spending on education and health to overall redistribution in Latin America

Contribution of Spending on Education and Health to Overall Redistributive Effect									
	Bolivia	Brasil	Colombia	Costa Rica	El Salvador	Guatemala	Mexico	Peru	Uruguay
Gini of Market Income	0.503	0.5788	0.5742	0.508	0.4396	0.5509	0.5107	0.5039	0.492
Gini of Post-Fiscal	0.5028	0.5455	0.5673	0.486	0.4294	0.5508	0.4809	0.4921	0.459
Gini of Final income	0.446	0.439	0.5309	0.402	0.4036	0.5227	0.4294	0.4657	0.3926
Gini of Disposable income		0.544	0.567	0.489			0.4876	0.4937	0.457
Change in Gini: Final vs Market	-0.057	-0.1398	-0.0433	-0.106	-0.036	-0.0282	-0.0813	-0.0382	-0.0994
Change in Gini: Post-Fiscal vs Market	-0.0002	-0.0333	-0.0069	-0.022	-0.0102	-1E-04	-0.0298	-0.0118	-0.033
Change in Gini: Disposable vs Market		-0.0348	-0.0072	-0.019			-0.0231	-0.0102	-0.035
Marginal contribution of spending on education and health									
Difference between Final & Post-Fiscal	-0.0568	-0.1065	-0.0364	-0.084	-0.0258	-0.0281	-0.0515	-0.0264	-0.0664
As a share of difference between final and market	100%	76%	84%	79%	72%	100%	63%	69%	67%

Source: Own elaboration

Figure 11. Impact of health and education on income inequality in Latin America



Source: Own elaboration

The effect of education in particular is illustrated in Tables 3 and 4. Table 3 shows that education exhibits a favorable bias towards lower income groups, which in some cases reaches as high as the vulnerable group. This is particularly the case in Brazil, Colombia and Uruguay, where education services allocated to the poor and the vulnerable far exceed their population share. For instance, in Brazil, education expenses allocated to the poor and the vulnerable reach 70% of the entire education budget, with these groups 59% of total population. In contrast, Costa Rica shows a lower bias of education expenses towards these income groups (45% of education expenses and 41% of total population share). This is mainly due to the fact that Costa Rica has relatively little private enrolment compared to other countries

Daude, Lustig, Melguizo and Perea, WP 72, 2017

at the higher end of the income distribution.⁶ Looking at the same table disaggregated by levels of education, the share of education expenses dedicated to the vulnerable tends to decrease in tertiary levels, particularly in Brazil, Costa Rica and notably, Uruguay. The relative absence of the vulnerable group in tertiary education is filled by the middle class, which increases its share (relative to primary and secondary levels) in all countries. Accordingly, tertiary education has a marked bias towards the middle class.

Table 3. Distribution of market income and cumulative concentration shares of education spending by socio-economic group in Latin America (percentage, by levels of education).

	Bolivia			Brazil			Colombia			Costa Rica			El Salvador			Guatemala			Mexico			Peru			Uruguay		
	Pop share	Mkt income	Education	Pop share	Mkt income	Education	Pop share	Mkt income	Education	Pop share	Mkt income	Education	Pop share	Mkt income	Education	Pop share	Mkt income	Education	Pop share	Mkt income	Education	Pop share	Mkt income	Education	Pop share	Mkt income	Education
y < 4	32.5%	7.3%	33.0%	26.2%	4.0%	36.9%	15.7%	6.7%	38.0%	10.8%	1.0%	12.7%	32.1%	10.2%	40.7%	57.4%	23.3%	59.2%	24.7%	5.7%	28.2%	28.6%	6.3%	37.8%	11.6%	1.5%	17.7%
4 < y < 10	71.9%	36.2%	74.3%	59.1%	19.1%	70.0%	47.0%	28.6%	76.7%	41.0%	9.7%	45.8%	76.7%	45.9%	85.9%	88.3%	58.5%	88.8%	64.3%	31.2%	72.4%	66.0%	29.7%	78.0%	39.4%	11.5%	50.9%
10 < y < 50	99.0%	89.7%	99.1%	95.3%	68.8%	96.6%	93.0%	73.6%	99.2%	92.3%	62.8%	95.1%	99.4%	94.8%	100.0%	99.7%	94.8%	99.9%	97.7%	85.0%	99.4%	98.0%	84.5%	99.5%	93.2%	70.8%	96.9%
y > 50	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Own elaboration

Table 4. Distribution of market income and cumulative concentration shares of education spending by socio-economic group and level of education in Latin America (percentage)

	Bolivia					Brazil					Colombia					Costa Rica								
	Pop share	Mkt income	Primary	Secondary	Tertiary	avg income	Pop share	Mkt income	Primary	Secondary	Tertiary	avg income	Pop share	Mkt income	Primary	Secondary	Tertiary	avg income	Pop share	Mkt income	Primary	Secondary	Tertiary	avg income
y < 4	32.5%	7.3%	47.6%	37.8%	12.5%	953	26.2%	4.0%	45.2%	36.7%	7.6%	888	15.7%	6.7%	53.9%	40.2%	12.4%	3353	10.8%	1.0%	29.5%	21.8%	3.9%	93
4 < y < 10	39.5%	28.9%	40.9%	41.8%	42.5%	3092	32.9%	15.1%	36.2%	39.1%	19.1%	2687	31.3%	21.9%	34.9%	42.5%	38.7%	5569	30.1%	8.7%	45.2%	44.7%	17.1%	277
10 < y < 50	27.0%	53.5%	11.3%	20.2%	43.2%	8353	36.1%	49.7%	18.4%	23.7%	57.0%	8069	46.0%	45.0%	10.9%	16.9%	46.9%	8149	51.4%	53.1%	24.7%	33.0%	69.4%	832
y > 50	1.0%	10.3%	0.2%	0.2%	1.8%	42867	4.7%	31.2%	0.3%	0.6%	16.4%	38627	7.0%	26.4%	0.3%	0.4%	1.9%	32206	7.7%	37.2%	0.6%	0.5%	9.6%	3374

	El Salvador					Guatemala					Mexico					Peru					Uruguay									
	Pop share	Mkt income	Primary	Secondary	Tertiary	avg income	Pop share	Mkt income	Primary	Secondary	Tertiary	avg income	Pop share	Mkt income	Primary	Secondary	Tertiary	avg income	Pop share	Mkt income	Primary	Secondary	Tertiary	avg income						
y < 4	32.1%	10.2%	88.1%	9.5%	3.9%	91	57.4%	23.3%	73.5%	55.9%	9.1%	2379	24.7%	5.7%	37.7%	26.9%	7.1%	1902	28.6%	6.3%	50.7%	37.7%	11.6%	1483	11.6%	1.5%	29.7%	10.7%	0.6%	1154
4 < y < 10	44.6%	35.7%	9.4%	73.6%	69.8%	243	30.9%	35.2%	23.5%	36.9%	34.0%	6600	39.6%	25.6%	45.2%	46.8%	36.4%	5347	37.5%	23.4%	37.4%	44.6%	37.2%	4171	27.8%	10.0%	42.4%	33.9%	7.1%	3166
10 < y < 50	22.8%	48.9%	2.5%	16.9%	26.3%	716	11.4%	36.3%	3.0%	7.0%	56.6%	18591	33.4%	53.8%	16.9%	25.9%	54.3%	15384	32.0%	54.8%	11.8%	17.6%	49.1%	11466	53.8%	59.3%	27.6%	53.4%	77.9%	9745
y > 50	0.6%	5.2%	0.0%	0.0%	0.0%	2729	0.3%	5.2%	0.0%	0.1%	0.3%	136089	2.3%	15.0%	0.3%	0.4%	2.1%	70295	2.0%	15.5%	0.1%	0.2%	2.1%	52835	6.8%	29.2%	0.3%	1.9%	14.5%	37853

Source: Own elaboration

⁶ We do not have enrolment data by socioeconomic group, but the data by income quintile. For example, in Costa Rica the share of public enrolment in total secondary education enrolment during 2010 for the richest quintile was 68%, In comparison, for Brazil, Colombia, and Uruguay, this share is 54%, 49%, and 43%, respectively.

Compared to education, the bias of health expenditures (Table 5) in favor of less advantaged groups does not seem as important. In most cases, health expenditures allocated to the vulnerable remain close to its associated population share, with Brazil, Colombia and Guatemala having the most pro-vulnerable health expenditure. In contrast, in El Salvador, Guatemala and Peru, the expenditure share of the vulnerable falls substantially below the population share of the group. For the middle class, health expenditures fall below population shares in Bolivia, Brazil, Uruguay, and very notably in Colombia. In view of this situation, concentration curves for health expenses are progressive in relative terms for Brazil, El Salvador, Guatemala, Mexico and Peru.

Table 5. Distribution of market income and cumulative concentration shares of health spending by income group (in %) and associated concentration curves in Latin America

	Bolivia			Brazil			Colombia			Costa Rica			El Salvador			Guatemala			Mexico			Peru			Uruguay		
	Pop share	Mkt income	Health	Pop share	Mkt income	Health	Pop share	Mkt income	Health	Pop share	Mkt income	Health	Pop share	Mkt income	Health	Pop share	Mkt income	Health	Pop share	Mkt income	Health	Pop share	Mkt income	Health	Pop share	Mkt income	Health
y < 4	32.5%	7.3%	36.1%	26.2%	4.0%	28.8%	15.7%	6.7%	47.0%	10.8%	1.0%	12.0%	32.1%	10.2%	25.7%	57.4%	23.3%	40.0%	24.7%	5.7%	23.0%	28.6%	6.3%	17.7%	11.6%	1.5%	14.1%
4 < y < 10	71.9%	36.2%	77.2%	59.1%	19.1%	68.0%	47.0%	28.6%	86.1%	41.0%	9.7%	43.4%	76.7%	45.9%	70.1%	88.3%	58.5%	78.9%	64.3%	31.2%	63.3%	66.0%	29.7%	53.1%	39.4%	11.5%	45.7%
10 < y < 50	99.0%	89.7%	99.6%	95.3%	68.8%	99.3%	93.0%	73.6%	99.3%	92.3%	62.8%	95.3%	99.4%	94.8%	99.3%	99.7%	94.8%	99.4%	97.7%	85.0%	97.8%	98.0%	84.5%	97.2%	93.2%	70.8%	95.2%
y > 50	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Own elaboration

V. Perceptions of education and health by socio-economic groups in Latin America⁷

A key assumption to evaluate the impact of fiscal systems is the actual use of public services, notably on health and education. Budget allocations could (under)overestimate its redistributive impact, if the supply of these services is not met by the demand from citizens. This is particularly relevant for analyzing the impact of fiscal policy on the emerging middle class given ‘being middle class’ in many Latin American countries is associated to ‘opting-out’ from public services, using private health-care services, sending the children to private schools, and even paying for private security. This section sheds some light to this opting-out hypothesis by exploring empirically information on use and satisfaction with public services, in particular education and health.

For that matter, we use the 2008, 2010 and 2014 rounds of the *AmericasBarometer* elaborated by the Latin American Public Opinion Project (LAPOP)⁸. We estimated social perceptions on these key public policies applying ‘reconstructed’ socio-economic groups. For this matter, we calculated per capita income in PPP terms, and classify each corresponding income bracket to the previously set poor (less than 4 USD per capita per day), vulnerable (4-10 USD per capita per day), middle class (10-50 USD per capita per day), and affluent (more than 50 USD per day per capita).⁹

Overall, the analysis confirms an extended dissatisfaction with education and health-care services among the Latin American population (see Figures 12 to 15). Moreover, dissatisfaction tends to grow with

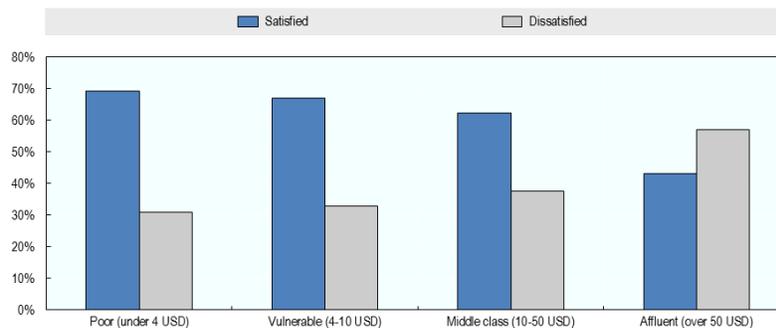
⁷ This section was jointly elaborated with Adriana Caicedo, from the OECD Development Centre.

⁸ The *AmericasBarometer* surveys democratic public opinion and behavior covering the Americas. It uses national probability samples of voting-age adults, with samples of around 1500-2000 interviews per country. See www.vanderbilt.edu/lapop/.

⁹ Estimates must be taken with caution. First, given that the 2008 *AmericasBarometer* round did not provide household composition, we imputed estimates of household size taken from the 2014 round (specific for each country and income group). In all three rounds, per capita household income was using OECD equivalence scales. This definition assigns a value of 1 to the first household member, of 0.7 to each additional adult and a value of 0.3 to each child. Also, note that the correspondence between the income brackets of self-reported income and the socio-economic income brackets do not fit perfectly all the time, so in these cases we allocated all interviews to the one with higher overlap. For instance, for 2010, our calculations using *AmericasBarometer* for the nine Latin American countries show that poor represent 48% of respondent (27% according to World Bank data), the vulnerable the 36% (40% in World Bank data), the middle class 13% (vs. 31%), and the affluent 3% (vs 2%). Finally, the brackets of the household income vary in the round 2014 with respect to 2008-10.

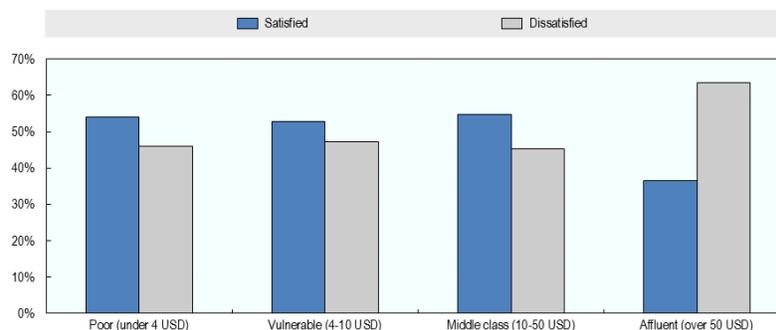
income, as shown particularly in the cases of education (Figure 12) and public medical and health services (Figure 15). Focusing on the emerging middle class, in general the middle class is less satisfied than the vulnerable, as well as the vulnerable vs. the poor. However, the empirical analysis cannot firmly state that these perceptions of low quality of low quality translates into opting-out, given the affluent (le less satisfied in both education and health in all years) declare to use public health services more (Figure 16).

Figure 12. **Satisfaction with education in selected Latin American countries by socioeconomic groups, (Are you satisfied or dissatisfied with: the educational system and schools?; percentage of interviews)**



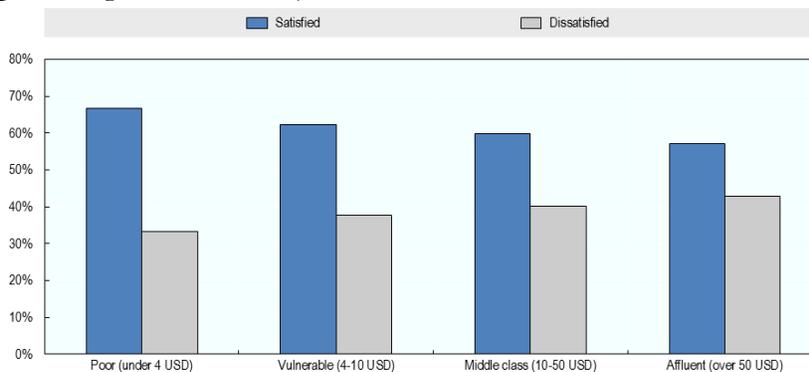
Note: Latin America covers Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Mexico, Peru, El Salvador and Uruguay
 Source: Own elaboration using *AmericasBarometer* 2008

Figure 13. **Satisfaction with health in selected Latin American countries by socioeconomic groups (Are you satisfied or unsatisfied with the availability of health services and health care? ; percentage of interviews)**



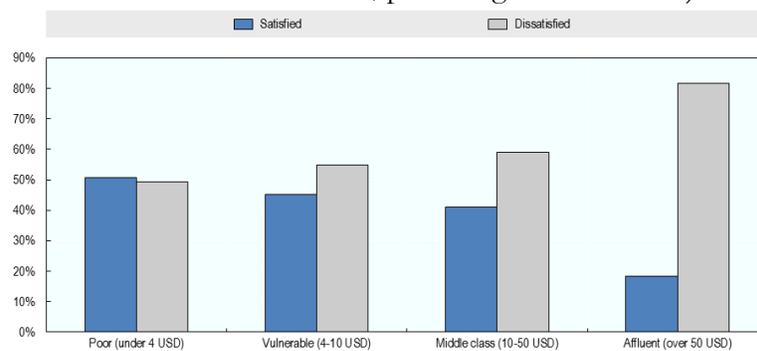
Note: Latin America covers Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Mexico, Peru, El Salvador and Uruguay
 Source: Own elaboration using *AmericasBarometer* 2008

Figure 14. **Satisfaction with public schools in selected Latin American countries by socioeconomic groups** (Are you very satisfied, satisfied, dissatisfied, or very dissatisfied with the quality of public schools?; percentage of interviews)



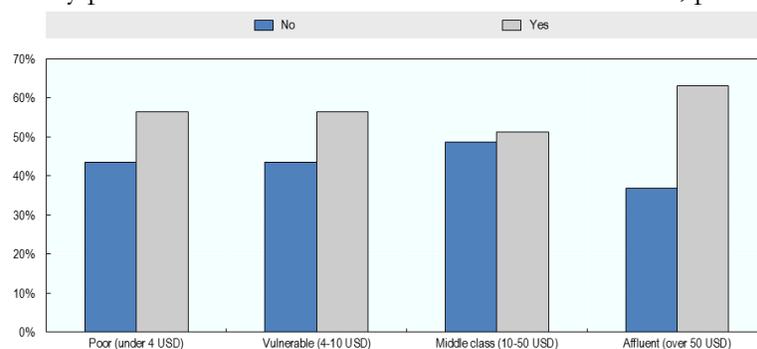
Note: Latin America covers Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Mexico, Peru, El Salvador and Uruguay
 Source: Own elaboration using AmericasBarometer 2014

Figure 15. **Satisfaction with public medical and health services in selected Latin American countries by socioeconomic groups** (Are you very satisfied, satisfied, dissatisfied, or very dissatisfied with the quality public medical and health services? ; percentage of interviews)



Note: Latin America covers Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Mexico, Peru, El Salvador and Uruguay
 Source: Own elaboration using AmericasBarometer 2014

Figure 16. **Use of public health services in selected Latin American countries by socioeconomic groups** (Have you used any public health services in the last twelve months?; percentage of interviews)



Note: Latin America covers Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Mexico, Peru, El Salvador and Uruguay
 Source: Own elaboration using AmericasBarometer 2010

VI. Conclusions

While poverty reduction during the recent economic expansion in Latin America has led to an increase in the *emerging middle class* (a ‘middle 70%’), this advancement hides the fact that these emerging middle classes remain fragile. This paper deepens the analysis on whether the Latin American emerging middle classes (the *vulnerable* and the consolidated *middle class*) are a net payer or receiver in fiscal terms in a sample of nine countries in the region: Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Mexico, Peru, El Salvador and Uruguay around 2010.

In order to do so, we rely on the *Commitment to Equity* project, and show the impact on different socio-economic groups (poor, vulnerable, consolidated, middle-class and high-income) of direct and indirect taxes, transfers, as well as education and health-care services. The phenomenon of informality is also taking into account. Our results highlight the heterogeneity of the impact of fiscal policy on all socio-economic groups. In general, both the vulnerable and the middle class are impacted significantly by taxes, transfers and education and health-care services. Additionally, we used survey data from LAPOP to shed some light on the different access to public services, based on the perception of its quality.

As potential future research would help understanding if the progressivity of in-kind transfers is “genuine” or result of middle classes and the affluent opting out. If middle classes opt out because of low quality, this has important implications for its support regarding public services. Better soft data (on perceptions of quality, satisfaction and use), linked to households surveys, is needed. From a methodological viewpoint, it would be advisable to estimate the impact of taxes and transfers using valuations of education and health-care services, instead of budget allocations. Finally, the analysis could be updated to capture the effects of the economic slowdown that has impacted the region since 2010.

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