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Fiscal Policy, Income Redistribution and Poverty Reduction in Argentina

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"Política Fiscal, Redistribución del Ingreso y Reducción de la Pobreza en Argentina"

<u>Resumen</u>

Aplicamos la metodología del Commitment to Equity (CEQ) Institute para desarrollar un análisis de incidencia fiscal del sistema de impuestos y gastos argentino y medimos el impacto que el mismo tiene en la desigualdad y la pobreza. Haciendo supuesto de identificación y utilizando microdatos de las oleadas del segundo semestre de 2017 de la encuesta de ingresos Argentina y de otras diversas encuestas, concluimos que el sistema fiscal argentino reduce tanto la desigualdad como la pobreza. En nuestro principal escenario, la desigualdad es reducida en 17 puntos del coeficiente de Gini y la tasa de pobreza en 6 puntos porcentuales. Más aún, dada la metodología estandarizada del CEQ, se llevan a cabo comparaciones entre países y Argentina resulta ser el país latinoamericano que más reduce la desigualdad y la pobreza a través de la intervención del gobierno. Sin embargo, todo esto viene también al mayor costo en términos del presupuesto, llevando a preguntas acerca de la "eficiencia" del sistema.

<u>Palabras clave</u>: *Política fiscal, desigualdad, pobreza, incidencia, economía del sector público*

"Fiscal Policy, Income Redistribution and Poverty Reduction in Argentina"

<u>Abstract</u>

We apply the Commitment to Equity (CEQ) Institute methodology to develop a fiscal incidence analysis of Argentina's tax-spending system and measure the impact it has on inequality and poverty. Making identifying assumptions and leveraging microdata from Argentina's income survey 2017 second semester waves and other diverse surveys, we conclude that Argentina's fiscal system is both inequality and poverty reducing. In our main scenario, inequality is reduced by 17 Gini coefficient points and poverty rate by 6 percentage points. Even more, given the standardized CEQ methodology, cross-country comparisons are carried and Argentina turns out to be the Latin American country that most reduces inequality and poverty via government intervention. Nevertheless, this comes also at the highest cost in budgetary terms, leading up to questions about the system's "efficiency".

<u>Keywords</u>: *Fiscal policy, inequality, poverty, incidence, public economics*

<u>Códigos JEL</u>: *E62, D6, H22, H23, I14, I24, I32*

1. Introduction

Income inequality in Argentina, measured by the Gini coefficient, went from 0.510 in the second semester of 2003 to 0.411 in the second semester of 2017 (SEDLAC). Poverty rate by individuals reduced too, from 47.8% in the second semester of 2003 to 25.7% in the second semester of 2017 (INDEC). Primary government spending went from 24.5% of GDP in 2003 to 39.9% in 2017 (AFIP). This increase was financed by an increment in revenues, from 22.75% of GDP in 2003 to 37.3% in 2017 (AFIP). In order to identify to what extent does the first pair of stylized facts owes to the second one, we make a fiscal incidence analysis of Argentina's tax-spending system.

By making identifying assumptions according to the Commitment to Equity (CEQ) methodology (Lustig, 2017), we construct a pre-fiscal income with microdata coming from Argentina's income survey, *Encuesta Permanente de Hogares*, 2017 second semester waves and others complementary consumption, income and socioeconomic surveys. The different components of the fiscal system are subsequentially added to this pre-fiscal income and that is how the impact of each government program on inequality and poverty is measured. We present different metrics of these effects (marginal contributions, concentration coefficients, incidences, etc.) that can be summarized by the 17 Gini points that inequality is reduced, when pensions are treated as deferred income, between a pre-fiscal income Gini coefficient of 0.477 and a final Gini coefficient of 0.308. Also, when pensions are considered deferred income, poverty is reduced by 6 percentage points from a pre-fiscal income poverty rate of 30 percent to a consumable income poverty rate of 24 percent.

Given that the CEQ methodology has been used worldwide, we exploit that cross-country variation to compare Argentina's fiscal performance in terms of inequality and poverty with the one of others Latin American countries. We find that Argentina is an outlier not only in how much inequality and poverty are reduced through government action, but also in how much its government spends and taxes. We show that, in some cases, the latter outweighs the former making the fiscal system not as "efficient" in redistributive terms as one might initially think.

Although fiscal incidence analysis has been carried for Argentina previously (Gasparini, 1998; Lustig & Pessino, 2014), even applying the CEQ methodology (Rossignolo, 2016), our distinction from them is two-fold. In the intensive margin, we distinguish from previous literature in the depth in which each program is treated, the relaxation of some of the assumptions made and the use of additional surveys. In the extensive margin, we depart from previous works in the breadth of the programs considered, the extent of metrics considered and the cross-country comparison.

2. Commitment to Equity (CEQ) Institute Methodology

This paper uses incidence analysis, a description of who benefits when the government spends money and who loses when the government collects taxes, following the methods developed by the Commitment to Equity (CEQ) Institute (Lustig & Higgins, 2017). Incidence analysis elucidates on questions about the effectivity of the state to palliate poverty and income inequality by redistributing resources through taxes and transfers. Are indirect taxes equalizing? Do they reduce poverty? Are they as effective as other measures (as, for example, subsidies)? Answering questions of this kind is the principal matter of incidence analysis. Not only does this enables individuals to judge the redistribution of the state more precisely, but as this analysis has been performed in many countries, it also enables cross-country comparison. In order to do that, it is necessary to construct different measures of income, to disentangle how the state makes a presence in individuals' income. Although it is possible to use incidence analysis to examine one particular expenditure or tax, the thrust of the CEQ analysis is rather to get a comprehensive picture of the redistributive effect of as many tax and expenditure items as possible. This is accomplished by comparing standard poverty and inequality measures for five core income concepts and eight complementary ones.
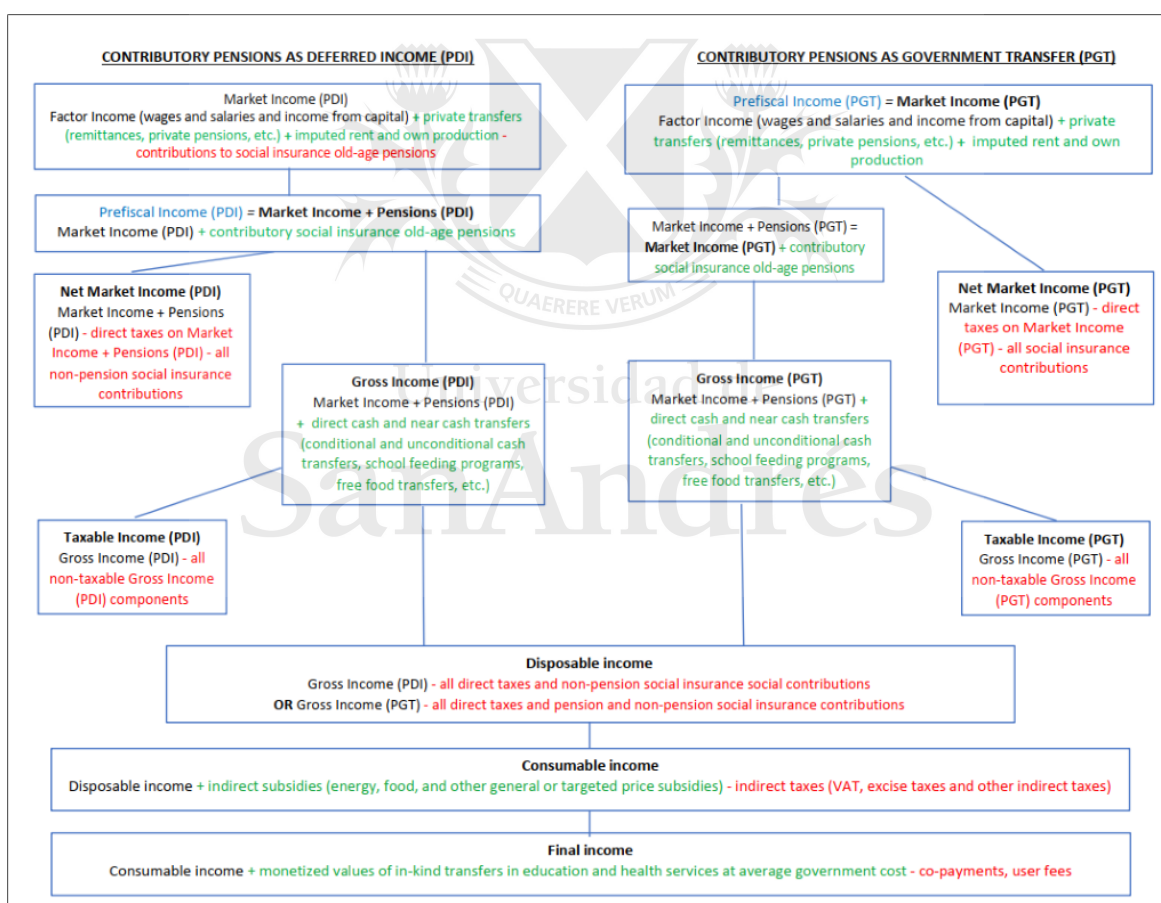
Figure 1. CEQ Income Concepts

Figure 1 illustrates how income measures are differentiated and paves the way to structure incidence analysis. An important discussion in order to define income concepts is whether contributory pensions are to be considered a *government transfer* (henceforth PGT – pensions as government transfers – scenario), *deferred income* (henceforth PDI – pensions as deferred income – scenario) or a hybrid scenario between these two extremes. Choosing which scenario suits best the economic reality of a country requires analyzing the size of the deficit of the pension system (systems with greater deficit imply

a stronger case to think of pensions as government transfers). In the PDI scenario, pensions are thought of as "forced savings" made by individuals during their working years. Thus, individuals in this setting defer a part of their income for a part of their life in the form of contributions to the pension system in order to receive this income the moment they enter retirement. For this to be true, pensions received by individuals in their retirement must be mostly financed by past contributions revenue. When social pensions systems' deficit becomes greater, this setting cease to hold, and one should consider treating pensions as government transfers rather than deferred income. Under the PGT scenario, pensions are taken to be a transfer from the government.

The importance of the scenario used lies in that they affect the income definitions and, therefore, analysis derived from these definitions of income. As incidence analysis relies on comparing income measures that gradually incorporate taxes, transfers and programs, each scenario implies a different pre-fiscal income, which is the starting point of our analysis (as can be seen in Figure 1).

Pre-fiscal income is the income perceived by an agent before any spending or taxing action has been taken by the government. Under the PGT scenario, this is equal to the market income. That is, a measure that includes incomes from all sources (wages, salaries and capital income), with the exception of government transfers and *public* contributory pensions. As pensions under this scheme are government transfers, they are not included in pre-fiscal income. On the contrary, under the PDI scenario, contributory pensions are "forced saving" and, therefore, the state does not intercede neither in their distribution nor financing. Therefore, they *are* included in the pre-fiscal income, which in this case equals market income plus pensions. The only difference in market income between scenarios is that under the PDI scheme, market income does not include contributions to social insurance old-age pensions to avoid an intertemporal double counting of income. Note that the pre-fiscal income distribution is diminished under the PGT scenario and located to the left of the distribution under the PDI scenario, as contributory pensions are not a part of pre-fiscal income.

Disposable income is defined as gross income (near-cash transfers are also included in this income measure, such as community kitchens) available after deducting direct taxes paid by individuals. From this measure on (including it), income measures under both scenarios are the same, as the effects of pensions on income have been accounted along the way.

Consumable income is constructed as disposable income plus indirect subsidies subtracting indirect taxes.

Nominally, each government's intervention in income finishes there, with direct taxes and transfers. However, governments usually provide other transfers that are not monetized and should be, as they impact on income by sparing individuals from spending. These are the so-called in-kind transfers and evident examples of these are public health care programs and education transfers. Adding the monetization of these transfers to the consumable income, the last income measure is constructed; namely, the final income. In this last income we can see the income distribution of individuals once the state machinery has been fully displayed.

3. Description of the Argentinian fiscal system

3.1. Tax revenue

On the revenue side, the tax system was capable of collecting an equivalent of 27% of GDP in 2017. The data is supplied by the Federal Tax Administration (AFIP, in its Spanish acronym), which provides a helpful breakdown of Direct and Indirect Taxes, combined with information about Contributions to Social Insurance[1]:

Table 1.Argentina's General Government Collections, 2017 (as percentage of GDP)

Revenue Source	Administrative Data	Incidence Analysis
Total general government revenue	37.3%	-
Tax revenue	26.7%	14.1%
Direct Taxes	6.3%	1.4%
Personal Income Tax	1.6%	0.9%
Corporate Income Tax	3.2%	-
Other income taxes	0.5%	-
Payroll Tax	0.8%	0.5%
Other direct taxes	0.23%	-
Contributions to Social Insurance	8.1%	6.8%
Contributions to SS	6.8%	5.6%
Contributions to Health	1.3%	1.2%
Indirect Taxes	10.3%	5.9%
VAT	7.2%	3.9%
Ingresos Brutos	0.2%	1.1%
Excise Taxes	0.7%	0.5%
Fuel Taxes	1.0%	0.3%
Customs Duties	1.3%	-
Other indirect taxes	0.0%	-
Other Taxes	1.9%	-

3.1.1. Direct taxes

Direct taxes are taxes that individuals and organizations pay straight to the government, based on their ability to pay. Consequently, those who have more resources or earn a higher income should pay more taxes. Thus, the ability to collect these taxes is a way to redistribute the wealth of a nation.

However, revenues from direct taxes are not particularly high in Argentina. They represent 6.3% of GDP, whereas the average of Latin America is 5.6%. It should be noted that tax avoidance and informality are usual in developing countries such as Argentina, which causes a sub-optimal collection of both Direct

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[1] There are some differences between the information from this source and the data provided by the National Budget Office (https://www.minhacienda.gob.ar/onp/documentos/series/spasc2017.xls). However, we chose to hold on to AFIP's database because its breakdown is more appropriate for our analysis.

Taxes and Social Contributions. It is important to take this into consideration when assessing administrative information and while performing the incidence analysis.

3.1.1.1. Income tax

According to the Income Tax Law[2], there are four categories of income based on their source: personal income, corporate income, land rent and capital gains. It is possible to receive income from one or more income categories at the same time, and the calculation of the taxable income is based on the income and expenses corresponding to the four categories and on the participating interests in companies or activities.

The Income tax is a global type tax, structured with progressive rates. It is based on a sliding scale consisting of a fixed amount plus a rate that increases up to 35%. There are two categories of individuals paying income tax: self-employed taxpayers or salaried workers. The formers must pay income tax each fiscal year in five bi-monthly advanced payments.

It is worth noting that self-employed taxpayers (or "independent" workers) can be classified as *Monotributistas* or *autónomos*. The formers are subject to a simplified tax regime as defined in law 24.977[3] and updated in the 149th article of law 27.430[4]. They pay a unique monthly contribution that replaces the Income Tax and Value Added Tax with a single fixed-amount payment that also includes contributions for Social Security and Health Insurance. After tax collection, AFIP classifies part of the revenues from the *Monotributo* as "Social security resources" and the rest as "Tax Resources". For the sake of our analysis, the latter part will be considered as Personal Income Tax (PIT), whereas the former will be part of the Contributions to Social Insurance.

On the other hand, *autónomos* are defined by decree 1866/2006[5] and are typically owners or members of companies. There are several categories for this type of workers as defined in decree 1866/2006 and modified by resolution 2217/2007[6] and its amendments, which depend on the type of activity the worker does and on its annual gross income.

Table 1 shows that PIT is equal to 1.6% of GDP, whereas Corporate Income Tax represents 3.2% of GDP

3.1.1.2. Payroll income tax

In our analysis, payroll taxes as defined as taxes levied on salaries excluding Social Insurance Contributions and PIT. These include Occupational Risks tax[7] and Group life insurance[8], which represent 0.8% of GDP.

3.1.1.3. Contributions to Social Insurance

Given the importance of social security policies in Argentina, contributions to the system are particularly important as a source of revenue for the government. They are equal to 8.1% of GDP.

Contributions to Social Insurance are calculated based on labor income (which includes any kind of retribution for the worker's labor activity). However, there are both a lower and an upper bound for taxable

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[2] http://biblioteca.afip.gob.ar/dcp/LEY_C_020628_2019_12_05
[3] http://servicios.infoleg.gob.ar/infolegInternet/anexos/50000-54999/51609/texact.htm
[4] http://servicios.infoleg.gob.ar/infolegInternet/anexos/305000-309999/305262/norma.htm
[5] https://www.argentina.gob.ar/normativa/nacional/decreto-1866-2006-123103/texto
[6] https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-2217-2007-125591/texto
[7] http://servicios.infoleg.gob.ar/infolegInternet/anexos/25000-29999/27971/texact.htm
[8] http://servicios.infoleg.gob.ar/infolegInternet/anexos/20000-24999/24301/texact.htm

income as described in 24.241 law[9] and updated by 176-E/2017 resolution[10]. This means that if the wage is smaller than the lower bound, contributions are calculated based on the lower bound. Similarly, if wages are greater than the upper bound, contributions are based on the latter.

For salaried workers, 11% of the contributions are paid by the employees and 16% by the employers. Moreover, it should be noted that a share of the *Monotributo* tax is assigned as part of Social Contributions.

3.1.2. Indirect taxes

Indirect taxes are tariffs levied on goods and services, as opposed to direct taxes, which are levied on income. One thing should be noted about indirect taxes and indirect transfers. Although throughout the analysis we will evaluate the direct impact of these on outcomes of interest through prices faced by consumers, it is known that these transfers/taxes affect outcomes through an indirect channel – namely, impacting prices faced by companies, as services and intermediate goods. However, we do not compute this indirect effect, because an input-output matrix is needed in order to map household consumption expenditures to production sectors, and unfortunately in Argentina the latest IO matrix available dates back to the 90s.

There are a few indirect taxes in Argentina. Value Added Tax (VAT), one of its main sources of indirect revenue, operates in an almost uniform fashion, levying a 21% aliquot on most goods, with special tariffs ranging from 0% to 10.5% for some products of first need (as electronics and food) and another of 27% for services such as telecommunications and electric energy, in addition to some exemptions.

Excise Taxes *(*called *Impuestos internos* in Argentina) is a tax levied on a set of goods, unconditional on whether the good is produced in the country or is imported. A few examples of goods on which this tax is levied are tobacco-related products, beverages with alcohol (mostly beer and champagne), automobiles, and syrups, among others.

Another important indirect tax is *fuel taxes*. There are three main fuel taxes. The first tax affects only diesel oil and is meant to pay for the maintenance of road network as determined by law 26.028 of Tax on Automotive Diesel Oil[11]. It represents a rate of 22%.

The second tax is destined to the Fund of Water Infrastructure and represents a tax rate of 4% only for naphtha as dictated by law 26181 and amendments[12].

Finally, the most important tax is the tax on fuel transfer and import which affects both diesel oil and naphtha created by law 23.966[13] and which determines different tax rates depending on the type of fuel. For diesel oil it amounts to 17.1%, while for naphtha ranges from 55.8% to 63%. It is worth noting that Patagonia is exempted from this tax.

Another important indirect tax is the Sales tax (called *Ingresos Brutos* in Argentina). It is a tax levied on agents developing a commercial activity, consisting of a percentage of enterprise/personal invoicing (and independent of profit of that enterprise/person). As this tax is a source of provinces' income collected by them, percentages varies across provinces, ranging from 1.5% to 5%, with an average of 3.5%. Although

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[9] http://servicios.infoleg.gob.ar/infolegInternet/anexos/0-4999/639/texact.htm

[10] http://servicios.infoleg.gob.ar/infolegInternet/anexos/275000-279999/279713/norma.htm

[11] http://servicios.infoleg.gob.ar/infolegInternet/anexos/105000-109999/106099/texact.htm

[12] http://servicios.infoleg.gob.ar/infolegInternet/anexos/120000-124999/123286/texact.htm and see Decree 2579 for a reduction in the tax rates http://servicios.infoleg.gob.ar/infolegInternet/anexos/240000-244999/240292/norma.htm

[13] http://servicios.infoleg.gob.ar/infolegInternet/anexos/0-4999/365/texact.htm

exemptions to this tax vary across provinces as well, some examples of them are pharmacies, cinematographic productions or activities developed with the obtaining of an undergraduate degree.[14] Regardless of its revenue capacity, this tax is susceptible to double-accounting resulting from enterprises that operate in a certain province but also sell their product in other provinces, because in these situations the two provinces (the one where the enterprise is based and the one where the product/service is sold) are entitled to charge the tax. This adds to another double-accounting problem: that, as products often require multiple steps to become final products, and *Ingresos Bruto*s is levied on all of them, there is also double-taxing through this mechanism. Therefore, there is a cascading effect of this tax, as it is levied multiple times on a single product.

3.2. Expenditures

Total general government spending in Argentina is one of the highest in the region. If interest payments are not included, it amounted to 42.9% of GDP in 2017, as shown in table 2.

Table 2. Argentina's General Government Expenditure, 2017 (as percentage of GDP)

Expenditure Type	Administrative Data	Incidence Analysis
Total general government expenditure	43.9%	-
Primary government spending	39.9%	20.7%
Government Operations	7.3%	-
Social spending	19.7%	18.6%
Social protection	7.2%	4.9%
AUH	0.6%	0.5%
Asignaciones Familiares	0.8%	0.7%
Unemployment insurance	0.0%	0.0%
Jovenes con Mas y Mejor Trabajo	0.0%	0.0%
Becas Progresar	0.1%	0.1%
Seguro de capacitacion y empleo	0.0%	0.0%
Becas	0.0%	0.0%
Comedores	0.0%	0.1%
Noncontributory Pensions	1.0%	1.1%
Moratoria Previsional	2.9%	2.4%
Others	1.8%	-
Education	5.1%	4.7%
Health	3.6%	3.7%
Housing & Urban	1.6%	-
Other social spending	2.2%	-
Contributory pensions	7.9%	5.2%
Subsidies	4.9%	2.1%
Transporte	2.2%	0.4%
Energy	1.7%	1.6%
Other subsidies	1.0%	-
Public debt services	3.4%	-

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[14] More information in the approved law:
http://www.infoleg.gob.ar/basehome/actos_gobierno/actosdegobierno14-10-2008-2.htm

3.2.1. Social protection

The state provides help through several programs of social protection that are described in this section.

The flagship social protection program of Argentina is the Universal Child Allowance (AUH, in its Spanish acronym). It is a cash transfer conditional on education and health conditions. Its objective is to provide help to parents of children of school-age that are either unemployed, employed but not registered or earning incomes below the necessary level to raise a child. Conditions to receive the program, in addition to those mentioned above, are being Argentinian (or, in the case of a foreigner, have been a resident for at least three years) with a National Document Identity (this seek to incentivize low-income people to register their children). 80% of the transfer is unconditional, while the remaining 20% is granted once health and education conditions are verified (such as school enrollment of the child and vaccination up to date). An important condition that enables an individual to apply for the program is belonging to a special tax category called *Monotributo Social*, aimed at taxing the income of socially excluded and vulnerable people or small cooperative of workers, with profits below a certain threshold.[15]

Becas Progresar is a program created in 2014 with the objective of providing individuals between 18 and 24 years old a sum necessary to complete their middle-school education. It provides a monthly transfer for individuals of that age that have unemployed or informally employed parents, or are unemployed or informally employed themselves, earning less than the legal minimum wage. The transfer is conditional, with similarities to the AUH: individuals receive 80% of the transfer regardless of any condition and, in order to receive the remaining 20%, they must certificate their attendance to school.[16]

Jóvenes con Más y Mejor Trabajo is another program aimed at including young adults in the labor market. The target population is, once again, individuals aged between 18 and 24. The program consists of a series of training camps and courses, and individuals can attend these for up to three years.

Seguro de capacitación y empleo is a fixed-sum transfer aimed at helping unemployed individuals. More precisely, the target population is country permanent residents aged between 18 and 25, unemployed and actively looking for a job. Those receiving unemployment insurance are *not* able to apply to the program. However, this transfer is compatible with transfers from other programs, such as the AUH.

Asignaciones Familiares (AAFF) is a series of transfers aimed at providing financial aid to families in need. There are 8 programs, and they provide transfers for soon-to-be mothers, parents of children, pregnant and married couples, among others. Conditions to access depend on the characteristics of each particular program. However, a common requirement is that the total household income is lower than a certain amount.

Lastly, the state provides a fixed-sum unemployment insurance transfer. Besides, the state also counts with programs aimed at combating food insecurity, therefore providing help to community kitchens and investing in food policy through the Food Security Program (*Programa Seguridad Alimentaria*).

3.2.2. Contributory and noncontributory pensions

Social assistance is prioritized in the national budget. Apart from the contributory pensions, which represent 7.9% of GDP, there are several direct transfers in Argentina that take part in the social security

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[15] More information in the approved law: http://servicios.infoleg.gob.ar/infolegInternet/anexos/35000-39999/39880/texact.htm

[16] More information on the law here: http://servicios.infoleg.gob.ar/infolegInternet/anexos/225000-229999/225728/norma.htm

system. There is an open debate about their classification: some authors would consider some of them as non-contributory pensions, while others may call them semi-contributory pensions.

3.2.2.1. Contributory pensions

These pensions are unified by the Integrated Retirement and Pension System (SIPA, in its Spanish acronym) that was created by Law 26425[17]. The National Social Security Administration (ANSES, in its Spanish acronym) is in charge of providing the transfers of this system and the *Ex-Cajas Provinciales* pensions.

However, there are several pension regimes that are not included in the SIPA. At the national level, Air Forces, *Gendarmería*, Federal Police, Prefecture and Penitentiary Service should be accounted for. Moreover, at the provincial level, there are also some regimes that provide coverage to state workers.

Overall, contributory pensions represent 10.7% of GDP, which is one of the largest numbers in the region. Since 2005, the Argentine government relaxed the conditions to get a pension by creating what was called the *Moratoria*. It had several versions but essentially, this allowed people of retirement age who did not have the required years of social insurance contributions or even have never contributed to the Social Security to get the right to receive a pension.

Three Moratoria plans can be taken into consideration:

- Law 24,476[18]: after a socioeconomic assessment, it is possible to cancel the debt in cash or in a plan of up to 60 installments.
- Law 26,970[19]: only for women aged between 60 and 65, and for men who reached the age before 2016.
- Law 25,994[20]: it created the *Early Retirement* benefit for unemployed people who had the years of contribution required to obtain the pension benefit, up to five years before the age established for retirement.

The beneficiaries of these programs usually receive a transfer equivalent to the minimum pension offered in the contributory system minus a deduction, according to the period of lack of previous contributions.

However, since the *Reparación Historica* law 27,260[21], passed in 2016, a universal benefit is offered to anyone who, having reached the age of 65, do not meet the requirements for a contributory pension. Not only this law proposed a solution to the legal claims against the ANSES for the controversies about the method for adjusting the pensions, but it also removed the need for future *Moratorias*.

It is debated whether to consider the pensions included in the *Moratoria* as contributory, semi-contributory or non-contributory pensions. In this analysis, we consider the *Moratoria* as non-contributory pensions and therefore treat them as a direct transfer.

3.2.2.2. Non-Contributory pensions

The importance of Non-Contributory pensions has been increasing since 2004, and they represented 1% of GDP in 2017. Almost 1.5 million benefited from one of these regimes.

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[17] http://servicios.infoleg.gob.ar/infolegInternet/anexos/145000-149999/148141/texact.htm

[18] http://servicios.infoleg.gob.ar/infolegInternet/anexos/30000-34999/30341/texact.htm

[19] http://servicios.infoleg.gob.ar/infolegInternet/anexos/230000-234999/234847/norma.htm

[20] http://servicios.infoleg.gob.ar/infolegInternet/anexos/100000-104999/102726/norma.htm

[21] http://servicios.infoleg.gob.ar/infolegInternet/anexos/260000-264999/263691/norma.htm

For instance, there are several non-contributory pensions programs that can be received:

- Mother of seven children or more: for any age or civil status
- Old Age Pension: for people who are 70 years old or older, without any pension coverage.
- Disability: for people who have a decrease of 76% or more in their work capacity and are in a situation of social vulnerability.
- Special laws: Law 23,848[22] enabled former Malvinas soldiers to receive a non-contributory pension, and law 26,913[23] did the same for ex-political prisoners.
- E*x-gratia*
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3.2.2.3. *Debate on the pension system classifications*

If we only take into consideration the contributory pensions, the deficit of the system would be around 7%. This would lead to the conclusion that the PDI scenario seems to better reflect the situation of the pensions system in Argentina. But the picture changes if we include the semi-contributory pensions (without the *Moratoria*), which increases the deficit up to 17%, and even more so, when we include the Moratoria, and drive up the deficit to 40%.

Furthermore, it is difficult to systematize these definitions, given that these numbers change over time. Hence, it is not as straightforward as it seemed in the beginning the way we should treat pensions in Argentina. In this work, we believe the PDI scenario is closer to 2017's situation for Argentina (provided we consider *Moratoria* non-contributory) but we also think the reality lies somewhere in between the two extreme cases of PDI and PGT scenarios. For this reason, we run both scenarios and leave for future research the development of a tool that allows doing incidence analysis in a hybrid scenario.

3.2.3. Indirect transfers (subsidies)

Indirect transfers are defined as subsidies/transfers made by the state that do not involve direct cash transfers to individuals (such as subsidies to consumption goods or publicly provided goods).

Tarifa social is one of such programs. This program is vast, as it applies a special (lower) tariff to beneficiaries on gas consumption, transportation and electricity. Receiving the program is conditional on several eligibility requirements.[9] This program is federal so, as a consequence, the amount received by beneficiaries depends on the province of residence. Regarding conditions needed to be met, examples of these are earning less than two times the amount of a minimum wage, being a recipient of another social program or unemployment insurance, a *Monotributista Social*, a house in which the head is a domestic employee or being a war veteran, among others. Beneficiaries of these programs faced lower prices on network gas and electricity.

It is worth mentioning that electricity and gas consumption are already subsidized by the state for regular consumers, independently of whether they are beneficiaries of this program or not. Therefore, the subsidy of the Tarifa Social adds up to these subsidies, providing further financial help for those eligible to receive the program.

Programa Hogares con Garrafa (*Programa Hogar*, in short) is a similar program that is targeted to families who do not have access to the gas network and subsidizes bottled gas consumption. Conditions to apply for the program are similar to other programs' conditions: earning less than two times the minimum wage (or three times in the case of having a disabled child). These conditions were less restrictive in the south

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[22] http://servicios.infoleg.gob.ar/infolegInternet/anexos/0-4999/248/norma.htm
[23] http://servicios.infoleg.gob.ar/infolegInternet/anexos/220000-224999/224027/norma.htm

(as it is cold in that region for a larger part of the year). The aid consisted in a fix-sum transfer of the amount required to buy a bottle of gas times the number of gas bottles subsidized by the program, which depended not only on the region of the house but also on the family composition.

The last of gas subsidies' is the one received by enterprises (which may be labeled as a supply-side-subsidy). Although this is relevant for our incidence analysis, as we mentioned before there is no input-output matrix available for more than a decade. Therefore, although we keep in mind this effect should be taken into account, we are not able to calculate it due to the obsolescence of accessible data.

Transportation by train and bus is also subsidized by the state even for those not beneficiaries of the *Tarifa Social*. A part of the price of the train is paid by the state (in 2017, the state paid 50 pesos for each train ticket), and this subsidy is applied "automatically" as the state is the owner of the train company, therefore is able to simply charge the price minus the subsidy to each passenger.
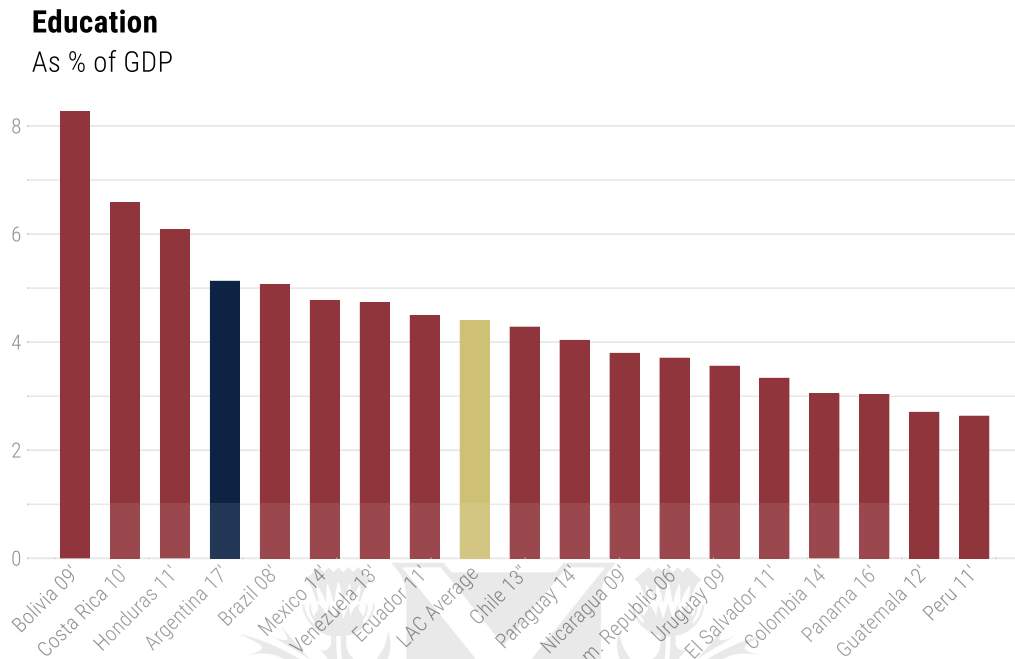
3.2.4. In-kind transfers

The last category of transfers/taxes to be analyzed are in-kind transfers. In-kind transfers are defined as non-cash transfers, where the State provides beneficiaries of public goods directly. In CEQ analyses, these transfers are divided into two categories: health and education, each one to be discussed separately.

3.2.4.1. Education

In Argentina, the state provides aid both to public and private educative institutions. Public schools and universities are financed entirely by government spending. Students that attend those institutions do not pay any kind of fees. However, private educative institutions (namely, those that require a regular student fee) also receive a subsidy from the state. This aid is intended to cover professors' employment costs, as these can sum up to 90% of educative institutions total costs (Sleiman, 2018). The share of total expenditure in education is not equally distributed between provinces and the state: coming from 15% in 2005, now the national state accounts for only 20% of total expenditure in education (Rivas & Dborkin, 2018). This is caused by the fact that the national state takes care of expenditure related to universities and national programs, whereas the provinces assume the cost of financing initial, primary and secondary level, which is presumably a higher volume of money. As provinces are financed mostly by themselves, disparities in tax revenue collection between provinces can (and in fact does) generate disparities in expenditure per student between provinces. However, most educative institutions receive some financial aid either by national or provincial state. For instance, 70% of primary schools across the country received some kind of state subsidy, and these institutions accounted for over 93% of total primary students of that year. If we look at numbers in secondary schools, they are even more encouraging: 77% of high schools received some aid from the state, accounting for over 95% of high school students (Sleiman, 2018). This suggests that the presence of the state in financing education is vast. However, most of the expenditure is used to finance professors' wages. Roughly 80% of the budget is used for this (according to UNESCO data).

Regardless of internal distributions of costs and revenues between the national state and provinces, Argentina ranks fourth in the distribution of expenditure in education (as a percentage of GDP) in the sample of Latin American and Caribbean countries.

Education

As % of GDP

Figure 2. Education expenditure (as % of GDP)

3.2.4.2. Health

Regarding health, state in-kind transfers are divided into 5 categories: public hospitals, PAMI, PROFE, pre-paid insurance and medical insurance. We will briefly describe each program.

Programa de Atención Médica Integral (PAMI) provides a series of financial aids in health issues, such as coverage of a percentage of medicines' price (frequently full coverage) or refunds of money spent on medical examinations, among other medical expenditures. Potential beneficiaries are pensioned people, people over 70 years without medical insurance and family members of the beneficiary.

Programa Federal Incluir Salud (PROFE) aims at providing medical insurance to non-contributory-pensioners. This coverage includes free access to annual medical controls, treatment of chronic diseases and a special emphasis on covering the treatment of "high cost-low incidence" diseases (namely, those entailing both a high risk of recovery and a high fee of the recovery treatment) on the residential area of the beneficiary. Beneficiaries of the program can also include relatives in the program if able to prove they require special medical attention, even if they are non-eligible for a non-contributory pension.[11]

Public hospitals are another category in which the State finances its operation. As public hospitals are available to use by any individual at no cost, all financing comes from the State.

The last two categories in which the State contributes to its financing are public and private health care programs. Personal contributions (3% of the employees' wage, paid by the employee) and employers' contributions (6% of the employees' wage, paid by the employer) finance almost entirely (this source constitutes 87% of their revenue) the *Obras Sociales Nacionales* (OSN), that is, public health insurance entities that operate across the whole country. From these contributions, OSN must transfer between 10% and 20% (conditional on the level of wages perceived by the individuals ensured by each company) of this

revenue to the *Fondo Solidario de Redistribución* (FSR). With these funds, the FSR provides financial aid automatically to low-income families and refunds treatment costs of low frequency-high impact diseases through the APE (*Administración de Programas Especiales*).

It is interesting how this system compares to other countries' in terms of size. As we can see in figure 3, Argentina ranks first in the size of health expenditure as percentage of GDP among other Latin American and Caribbean countries.

Figure 3. Health expenditure (as % of GDP)

Health
As % of GDP
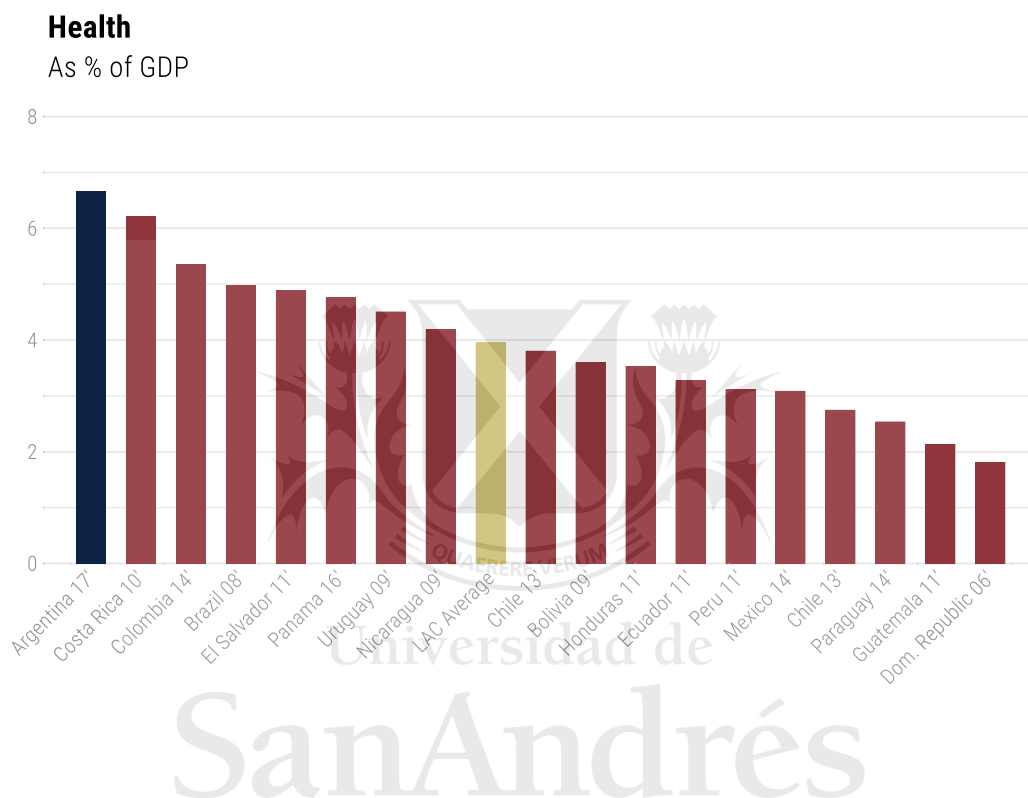
4. Data and assumptions

4.1. Data

The main source of information is the National Household Survey of Argentina (*Encuesta Permanente de Hogares, EPH*) collected by the National Institute of Statistics (*Instituto Nacional de Estadística y Censos, INDEC*) during the third and fourth quarter of 2017. This survey contains information on household and individual income, cash transfers, socio-economic conditions, personal characteristics (including education, labor market conditions, etc).

The EPH is an urban survey that covers around 63% of the total population and it is conducted in four waves spanning a quarter each. Each household is followed during two consecutive quarters, it drops the sample for the following two, and is surveyed again for two consecutive and final quarters. Thus, each household is followed for a year and a half.

Besides, since we cannot obtain all the necessary information to construct the CEQ income concepts from the EPH, we resort to three alternate surveys. One of them is the 2017/2018 National Expenditure Survey (*Encuesta Nacional de Gasto de los Hogares, ENGHo*), which collects information on expenditure, income and characteristics of both households and individuals. The survey was conducted between November 2017 and November 2018.

The ENGHo is also an urban survey but it expands to as much as 92% of the total population. Unfortunately, it has not been carried out frequently. There are only two previous versions of the survey (one of 2004/2005 and one of 2012/2013) and it is unknown the date of the next version.

The second alternate survey is the 2015 National Social Protection Survey (*Encuesta Nacional de Protección y Seguridad Social, ENAPROSS*), which has information regarding socio-economic characteristics and social protection of the Argentinean households. This survey was collected during a 12-month period in Buenos Aires city, the Great Buenos Aires, and villages of at least 5000 inhabitants from five provinces: Catamarca, Corrientes, Chaco, Jujuy y Río Negro. Unfortunately, the most updated version of the survey is dated 2015. As a matter of fact, there exists only one other version of the survey, which dates to 2011.

The third is the 2009/2010 Home Mobility Survey (*Encuesta de Movilidad Domiciliaria, ENMODO*) for the Metropolitan Area of Buenos Aires (*AMBA*), which has information not only on the characteristics of households and their members, but also on their mobility. This survey was collected between the end of 2019 and the beginning of 2010 in 22500 households of AMBA.

Finally, we also use national accounts, administrative, and fiscal account information for 2017, coinciding with the year of the main survey, the EPH.

4.1.1. Missing data

It is often the case that household surveys with reported income have missing data. In the case of the EPH, our main (income) survey, the percentage of missing income data can range from 10% to as much as 25% depending on individual characteristics. Therefore, methods for handling missing data are of utmost importance

The EPH offers a way of handling missing data by including sampling weights that account for the missing observations in each income variable. These weights are equal to 0 for those who fail to answer the corresponding income question and are re-weighted for those who do answer. In the case of the household-level weight, if any member from the household fails to report its income, all members receive a weight of 0.

As a result, there are four weights in the EPH (since 2016): PONDERA, PONDIIO, PONDII, and PONDIH. PONDERA is the sampling weight which does not include the correction for missing income data and is thus used for the rest of the information in the EPH; PONDIIO is the weight that corrects for missing information on income from the main occupation; PONDII corrects for missing data on total individual income; and PONDIH corrects for information on total household income.

However, we find it is not always clear which weight is the most accurate to use when several variables are involved and, most importantly, since our main object of study are the households, we should use the PONDIH for our calculations and we believe there is a lot of information lost due to the correction in that weight.

We opted instead to impute missing data with the hot-deck method, where a missing value is imputed from a randomly selected similar record. This was the procedure chosen by the INDEC prior to 2016 and therefore, we follow its methodological note No. 15[24].

4.1.2. Representativeness

As was previously mentioned, the EPH is an urban survey that represents approximately 63% of the population. Since for the analysis it is necessary to cover the entire population of Argentina, we assumed that the remaining 47% of the population behaved in the same way as the part of the population covered by the survey. Thus, we corrected the sampling weights to cover the total population.

We acknowledge this is a strong assumption and we leave for future research to explore alternative ways of obtaining (frequent) information from the part of the population that is not covered by the EPH.

4.2. Assumptions

In some cases, information on the incidence of a particular component of fiscal policy can be obtained directly from the EPH. Yet, in some other cases, direct identification is not feasible, and we had to resort to other methods to allocate taxes or transfers as described in (Lustig, 2018). The methods used for each category of taxes and transfers are summarized below.

4.2.1. Pensions

In the EPH, one can identify if an individual is receiving a pension but since contributory and non-contributory pensions are lumped together, it is not possible to independently identify one another[25]. Thus, we need to resort to an alternate survey, the ENAPROSS, to identify the beneficiaries of each type of pension and then match the pension markers back to the main survey.

The first step is to identify those who receive any kind of pension in the EPH. Second, we make use of the ENAPROSS's questions to directly identify those who receive each type of pension and then calculate the ratio of non-contributory pensions beneficiaries to contributory pensions ones per decile of the per capita household income. Finally, to match it back to the main survey, for the subset of individuals who receive a pension as identified in the EPH, we repeat the following procedure for each decile of the per capita income: for each individual, we draw a number from a Bernoulli distribution with probability of success equal to the non-contributory to contributory pensions ratio calculated for that decile in the ENAPROSS. If the number drawn is equal to 1, the individual receives a non-contributory pension and if it is equal to 0, receives a contributory one. We also include as receiving a non-contributory pension mother of seven children or more.

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[24] https://biblioteca.indec.gob.ar/bases/minde/4si9_15.pdf

[25] Fewer than 1 % received both pensions, so we assume that individuals have only one of either.

Non-contributory pensions can be received under five regimes: mother of seven children or more, old age, disability, especial laws, and ex-gratia. Each regime receives a different amount of pension. Hence, we need to distinguish which kind of non-contributory pension each pensioner receives. In order to do so, we estimate the distribution of pensioners between the five categories by randomly assigning, per decile, individuals to each category.

Then, we consider old-age pensions all of those which were identified as receiving a non-contributory pension and being at least 70 years old. For the remaining cases, for each decile of the per capita household income in the EPH and all pensioners not previously identified with some category, we draw a number from a Bernoulli distribution with a probability of success equal to the previously estimated percentage of individuals who receive that type of pension in that decile.

Once all non-contributory pensions were classified, we imputed the amounts that corresponded according to the law.

4.2.2. Social insurance contributions, payroll taxes and personal income tax

It is assumed that salaried workers and pensioners report their income net of both pension and non-pension social insurance contributions and personal income tax. As for independent workers, it is assumed that they report their income net of only non-pension social insurance contributions. Therefore, it is not possible to directly identify the burden of these contributions and taxes in the EPH and we simulate them based on the contributions and taxes' rules.

In Argentina, there are two broad categories of independent workers as was previously explained. The first ones are the *monotributistas,* which pay a unique monthly contribution that includes both pension and non-pension social insurance. For this type of independent workers, we take as input the reported income in the EPH and by means of the contributions and tax's rules, we simulate the gross income. We can do this because the tax scheme is much simpler than for the rest. *Monotributistas* are classified based on their annual gross income and certain characteristics of their workplace and they pay a fixed monthly amount for contributions and personal income tax according to their category.

The other type of independent workers is called *autónomos* are typically owners or members of companies. There are several categories for this type of worker depend on the activity the worker does and on its annual gross income. Regarding contributions, these workers should pay a fixed monthly amount, which includes both pension and non-pension social insurance contributions, that depends on their type of activity and category, defined by their annual income.

For this type of independent workers as well as for salaried workers and pensioners, we create a synthetic database per each combination of the number of children -which ranges from 0 to 9- and marital status -which is a dummy variable equal to 1 when the individual is married and 0 otherwise. In sum, we create 20 synthetic databases per working condition (salaried workers, *autónomos*, and pensioners), each of which has a simulated gross and net monthly income and the corresponding burden of the contributions and the personal income tax. We simulate them using the rules for each of the contributions and taxes.

Then, we perform a near merge between the EPH and the corresponding synthetic data sets, splitting the merging procedure by working condition. That is, we merge the information on salaried workers in the EPH with the corresponding 20 data synthetic data sets simulated for salaried workers. More specifically, the merging variable is the net income since it is assumed that reported income in the survey is equal to labor income net of contributions and the personal income tax. This procedure is repeated for independent workers and pensioners.

It worth mentioning that it is common in developing countries such as Argentina that tax avoidance and informality are pervasive. Therefore, it is important to have an estimate of the effective rate of contributions. We have estimated an effective rate per percentile of the income distribution from administrative data. It is worth noting that these effective rates are different depending on whether the contribution corresponds to the employee or the employer.

Moreover, for the first eight deciles, we decided to apply the average of the percentiles per decile. For the 9th and 10th decile, since there was a higher dispersion in income, we decided to keep the effective rates at the percentile level. Hence, we estimated 28 effective rates.

Unfortunately, it is not possible to estimate from administrative data effective rates for pension and non-pension social insurance contributions separately.

4.2.3. Direct Transfers

It is not possible to directly identify the beneficiaries of direct transfers in the EPH and the availability of necessary information to simulate the impact of each program varies. Furthermore, there is a question that collects information regarding the amount received by programs and social protection, but all potential programs are lumped together and that hinders direct identification. Hence, we take different approaches and make different assumptions regarding each program, as summarized below.

4.2.3.1.   Universal Child Allowance

Since no question allows to directly identify the beneficiaries of the Universal Child Allowance (AUH) nor the amount received, we make use of the program's rules to identify them in the survey and simulate the impact of the program. Unfortunately, this has the problem of assuming perfect targeting and no errors of inclusion or exclusion. Once identified, we use information on the amount of the program and impute the corresponding value for that quarter. It is worth noting that 80% of the amount of the AUH is unconditional, while the remaining 20% is conditional on school attendance and medical checkups. Hence, we only impute the unconditional part.

4.2.3.2.   Unemployment Insurance

Although it is possible to directly identify who receives unemployment insurance, the total amount of individuals captured by the EPH is almost half of what the administrative data indicates. Hence, we simulate the program using the program's rules. We identify the potential beneficiaries of the Unemployment insurance and then imputed the value that corresponded to 2017 according to the law.

4.2.3.3.   Asignaciones Familiares

It is not possible to directly identify neither beneficiaries of Asignaciones Familiares (AAFF) nor the amount received in the EPH. Therefore, we simulate the program's impact by using its rules to identify eligible individuals in the survey. This has the problem of assuming perfect targeting and no errors of inclusion or exclusion. So, in order to correct this, we calculated the ratio between the beneficiaries AAFF reported in the administrative data and that estimated in the survey, and for each eligible individual of each program, we draw a number from a Bernoulli distribution with a probability of success equal to that ratio. If the number was equal to 1, then the individual was indeed identified as a beneficiary of the program. Otherwise, it was not.

Once identified the beneficiaries and corrected for imperfect take-up, we impute the amount of the program using the program's rules. It is worth noting that the amount varies according to the category of income and region and on whether the child is disabled or not. Hence, it was necessary to identify the

categories, the different regions, and the characteristics of the children in each household in the EPH prior to the simulation of the AAFF's values.

4.2.3.4. *Moratoria*

Once again, we encounter the problem that we cannot directly identify the beneficiaries of this direct transfer in the EPH and we do not have enough information to simulate them either. Hence, we resort to an alternate survey: the ENAPROSS. There, we identify the eligible individuals for the *Moratoria* by decile of the household per capita income and calculate the ratio between beneficiaries and the total amount of pensioners per decile in the ENAPROSS.

Then, for pensioners in each decile of the household per capita income identified in the EPH, we draw a number from a Bernoulli distribution with a probability of success equal to the ratio estimated in the ENAPROSS. Then, if the number is equal to 1, the individual is identified as the beneficiary of the *Moratoria*; if it is equal to 0, it is not. Finally, we also identify as beneficiaries as those who declare to receive a pension in the EPH and the amount reported for such pension is significantly lower than the minimum pension (i.e., we consider pensions less than $4000 to be part of the *Moratoria*).

As for the amount of the pension, we take the reported amount as valid.

4.2.3.5. *PROGRESAR, Training and Employment Insurance and youth programs*

It is not possible to directly identify neither beneficiaries of the programs PROGRESAR, Training and Employment Insurance and Youth with more and better work nor the amount received in the EPH by each program. Therefore, we simulate the programs' impact by using their rules to identify eligible individuals in the survey. This has the problem of assuming perfect targeting and no errors of inclusion or exclusion. So, in order to correct this, we calculate the ratio between the beneficiaries of each program reported in administrative data and that estimated in the survey, and for each eligible individual of each program we draw a number from a Bernoulli distribution with a probability of success equal to that ratio. If the number was equal to 1, then the individual was indeed identified as a beneficiary of the program. Otherwise, it was not.

Once identified the beneficiaries and corrected for imperfect take-up, we impute the amount of the program estimated from administrative data. More specifically, we divided the expenditure on each program by the number of beneficiaries from 2017's administrative data and thus estimated the amount of the program and imputed it to the identified beneficiaries.

4.2.3.6. *Educational Scholarships*

It is possible to directly identify those who receive an educational scholarship in the EPH but given substantial differences with administrative data, we decided to impute the amount received by the ratio between the expenditure on these scholarships by the number of beneficiaries from 2017's administrative data.

4.2.3.7. *Community kitchens*

There is not enough information in the EPH neither to directly identify nor to simulate the beneficiaries and amount received by economic aid provided to Community kitchens. Therefore, we resort to an alternate survey: the ENAPROSS. There, it is possible to directly identify the proportion of beneficiaries per decile of the per capita household income. Then, for each individual in each decile in the EPH, we draw a number from a Bernoulli distribution with probability of success equal to the proportion estimated in the ENAPROSS. If the number is equal to 1, the individual is identified as a beneficiary; it is equal to 0, it is not.

It is worth noting, that we assume that only individuals from the first six deciles attend community kitchens. Hence, to compare to the administrative data we need to re-scale the number of beneficiaries per decile and make it consistent with administrative data. For that, we calculate the distribution of beneficiaries between the first six deciles, under the assumption that there could not be beneficiaries in the remaining deciles, and used that distribution to allocate the number of beneficiaries reported in 2017's administrative data. Once estimated the corrected distribution of beneficiaries per decile, we calculated the proportion of beneficiaries per decile and for each individual in each decile, we draw a random number from a Bernoulli distribution with a probability of success equal to that proportion. If the number was equal to 1, the individual was identified as beneficiary; it was equal to 0, it was not.

The amount received is estimated based on administrative data of expenditure in feeding programs and the expenditure of the provinces in the Program of Feeding Security.

4.2.4. Indirect taxes

Direct identification of indirect taxes is not possible and since they should be simulated using consumption data and the EPH only has income data, it was used in conjunction with an alternate survey, the ENGHo, that has both consumption and income data.

There are different types of indirect taxes in Argentina: Value Added Tax, Sales Tax, Excise Taxes, and other indirect taxes that include fuel among others. Furthermore, each kind of tax has different regimes (different tax rates and exceptions).

4.2.4.1. Value Added Tax, Sales Tax, and Excise Taxes

As has been described in the previous section, there are several differences in the tax rates. For instance, the default VAT tax rate is 21% but certain purchases and services pay 50% of the default tax rate (i.e. 10.5%), and some are exempted. Hence, the first important step is to identify which consumption is affected by which tax and at which tax rate. We add this to the description of expenditure articles from the 2017/2018 ENGHo and obtain a matrix that identifies if a particular item pays a particular tax and whether it pays the statutory tax rate, a special one of which is exempted.

For the case of Sales Tax, since it varies across provinces and activities, we consider an average statutory rate per province. Moreover, as it was previously explained, this type of tax is a cascading tax since it falls on all stages of production and distribution of goods and services., and therefore effective tax rates are about twice as high as rates on final consumption. We took this into account by following Rossignolo (2017)'s estimation on the cascading effect of this tax.

Then this information is merged with the expenditure module of the ENGHo to estimate the expenditure of households on each type of good and the share of the total household expenditure each type of expenditure represents.

This is a necessary input for the third step in which we account for the evasion of consumption taxes, which is considered implicitly by using "effective" rates (that is, collected tax as a share of total consumption according to national accounts) rather than statutory rates.

Once effective rates are estimated (considering the multiple rate statutory structure of the VAT and the Excise Taxes), we estimate the burden of each tax and the share they represent with respect to total household expenditure in the ENGHo. For this, we assume that no indirect tax is included in other taxes' bases.

Finally, we obtain the average of these burdens per centile of the income per capita and merged them with the EPH income data.

4.2.4.2. Fuel Taxes

Once again, it is not possible to directly identify fuel taxes in the EPH and therefore we simulate them using the EPH in conjunction with the ENGHo. In the latter, we estimate the expenditure on fuel by centile of per capita household income and we merge that back to the EPH. Then, we use the statutory tax rates previously described and obtain the burden of the taxes on fuel by multiplying the expenditure on these goods (taking into account the percentage of biodiesel that is exempted from taxation) and the tax rates.

4.2.5. Subsidies

4.2.5.1. Electricity and Gas

As previously explained, there exist two types of subsidies to the price of gas, electricity, and transportation: one is general and the other only applies to those who qualify for the so-called *Tarifa Social*. In order to simulate the amount of subsidy received in each type of service, we resort to the expenditure module of the 2017/2018 ENGHo and use it in conjunction with the EPH.

A first step is to simulate in the EPH potential beneficiaries of these subsidies by ventile of the income per capita and classify them according to whether they are eligible for the *Tarifa Social* or not, if yes, to which eligibility condition they meet (to be a pensioner, to be a salaried worker who earns less than two minimum wages, etc.) and how many; and the region (north, south, and center). In all cases, we correct to match the administrative data on total recipients.

A second step is to estimate the quantity of gas and electricity that households consume in the ENGHo. However, this procedure was not as straightforward since we found there was considerable noise in the reported quantities consumed. Hence, we used reported expenditure and estimated back the mean quantities consumed by ventile of income per capita and region.

Finally, the size of the subsidies was estimated as the product of the quantity and the imputed subsidy both for the general and the *Tarifa Social*'s component.

4.2.5.2. Program HOGAR

Among the subsidies to gas, we can also find the program HOGAR which is targeted to families who do not have access to the gas network and is meant to equalize the subsidy of these households the one the rest of them receive as explained in the previous section.

Unfortunately, in the EPH is not possible to directly identify the amount of bottled gas bought by the families, but only if the household buys it or if it has access to the gas network. Hence, we simulate potential beneficiaries of the program following the program's rules and assume each household receives the maximum amount of bottled gas as determined by resolution 49/2015[26], according to the region and the number of children. Once imputed the number of bottled gas the subsidy was calculated as the product of these numbers and the amount subsided per bottle of gas as according to the law and updated values for 2017.

4.2.5.3. Transportation

Transportation by train is also subsidized by the government. Unfortunately, direct identification is not possible since transportation data is not available neither in the EPH nor in the ENGHo. Hence, we resort to an alternate survey: the 2010 Home Mobility Survey (ENMODO for its Spanish acronym) for the Metropolitan Area of Buenos Aires. There, it is possible to calculate the proportion of people that travel

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[26] http://servicios.infoleg.gob.ar/infolegInternet/anexos/245000-249999/245475/texact.htm

by train in each quintile of the income per capita distribution. Then, this is matched back to the EPH by quintile of the income per capita distribution.

The amount of the subsidy was calculated from administrative data on total expenditure on transportation subsidy and the number of train passengers.

As for subsidy to bus transportation, there is one general and one that only applies to beneficiaries of the *Tarifa Social.* In this case data on expenditure on this means of transport at the household level is available in the ENGHo. Hence, we use the ENGHo in conjunction with the EPH in the following way.

First, we identify in the ENGHo the expenditure on bus transportation and the number of members that travel by bus in a household to estimate the expenditure per capita per household, as well as the average per capita expenditure per region and decile of the income per capita distribution.

Second, we estimate the proportion of households with more than one member and the proportion of households that use the bus, both per region and decile of the income distribution.

To match it back to the main survey, for the subset of individuals who are household heads and live in a certain region, we repeat the following procedure for each decile of the per capita household income: for each individual, we draw a number from a Bernoulli distribution with probability of success equal to the proportion of households that use the bus calculated for that decile in the ENGHo. If the number drawn is equal to 1, the individual travels by bus and if it is equal to 0, it does not. The same procedure is done to match back the proportion of households with at least two people who travel by bus, by region and decile of the per capita income distribution.

For those now identified in the EPH to travel by bus, we impute the average expenditure on bus calculated according to their region and decile of the per capita income distribution. Then, we calculate the ventiles of the per capita expenditure on bus transportation and the average expenditure by region.

Using SUBE (*Sistema Unico de Boleta Electronica*) -the public transport card- data we estimate the number of bus trips made on average by individual in each region where the system is available. We combine this data with EnGHo data to calculate the average number of trips by an individual in each region-ventile of income, rescaling to match SUBE data.

Similarly, this data set allows us to identify the proportion of individuals who travel by bus and are beneficiaries of the *Tarifa Social* by region. Then, we use this proportion to estimate the corresponding amount of people in the EPH, differentiating the Metropolitan Area of Buenos Aires from the rest of the country.

Finally, the subsidy is imputed using the legal rules.

4.2.6.   In-kind transfers

4.2.6.1.   *Education*

Although it is possible to directly identify in the EPH students from the different levels of education (initial, primary, secondary and tertiary), expenditure per student is imputed using administrative data both on expenditure and the number of students. It is worth noting that expenditure per student varies depending not only on the type of institution (private or public) as explained in the previous section but also on the province and educational level. Hence, the expenditure per student is calculated for each combination of these dimensions. Then, it is aggregated at the household level to finally obtain the expenditure per capita for each educational level.

4.2.6.2. *Health*

Since it is not possible to directly identify in the EPH the type of health insurance, we resort to an alternate survey: the ENGHo. As was explained in the previous section, there are five forms of insurance: public hospitals, PAMI, PROFE and public and private health care programs. In the ENAPROSS it is possible to directly identify if an individual has either one of the last four types. Hence, under the assumption that everybody has health insurance, we define that all the individuals not reporting having any of these forms of insurance, go to public hospitals.

Then, we estimate the proportion of individuals who have access to each type of health insurance per quintile of the per capita household income distribution. With these proportions, we estimate in the EPH the (rounded) number of people who have each kind of insurance per quintile of the income per capita distribution.

To assign the type of health insurance to each individual, we repeat the following procedure per quintile of the per capita household income distribution: we assign a random number drawn for a uniform distribution over the interval (0,1) by which we order the individuals in that quintile, and then assign public health care programs to the first individuals until we cover the proportion estimated in the ENGHo for that quintile, then PAMI until we cover its proportion, and so on, until we cover all five types of health insurance.

However, to impute the expenditure per person we reduce the number of categories to three by considering together public and private health care programs, and PROFE and public hospitals. The reason for this is that we do not have access to administrative data on health expenditure disaggregated by all five types of health insurance. Instead, administrative data is divided into three categories: Health care programs, PAMI and public hospitals. We assume the expenditure reported on health care programs includes expenditure on private programs and that public hospitals' includes expenditure on PROFE.

Also, since we do not have access to official numbers regarding health insurance beneficiaries, we use the total amount of beneficiaries estimated in the ENGHo (with weights corrected to represent the total population). Thus, we estimate the expenditure per person by dividing the administrative data on expenditure by these estimations and impute it to the corresponding individuals in the EPH. Finally, expenditure per household and per capita were calculated.

5. Results

There are some widely desirable properties of a fiscal system. It should be, as a whole, progressive in spite of having some regressive components. One would want the tax-spending system not only to be progressive, but also to have a significant impact on inequality. Even more, it would be prudent that the tax-spending tandem does not induce poverty while reducing inequality, which is both a theoretical possibility and an empirical fact since the former refers to relative incomes while the latter does to absolute incomes.
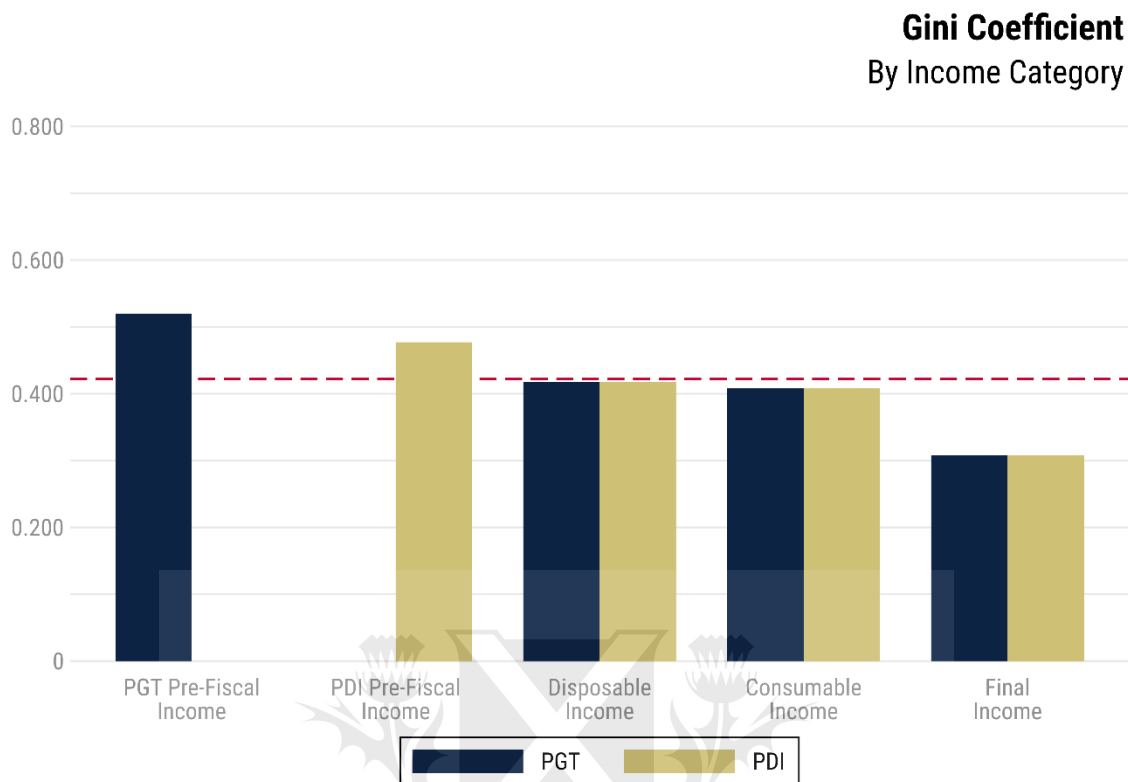
A broad inspection of table 3 shows that Argentina's fiscal system is in line with these advisable properties. This is not to say that it is a role model, not even that it works well, but, at least, is structured under some basic principles. Inequality reduces monotonically from the pre-fiscal baselines as the subsequent budgetary elements are introduced for all the different measures presented. From table 3 it can be inferred that the system, from the pre-fiscal incomes to final income, reduces inequality in approximately 21 Gini points in the PGT scenario and in 17 Gini points in the PDI case. The larger inequality drop when contributory pensions are considered as a government transfer can be visually confirmed by figure 4. It obeys to the fact that contributory pensions are highly equalizing since pre-fiscal income for almost all beneficiaries of these contributory pensions is zero.

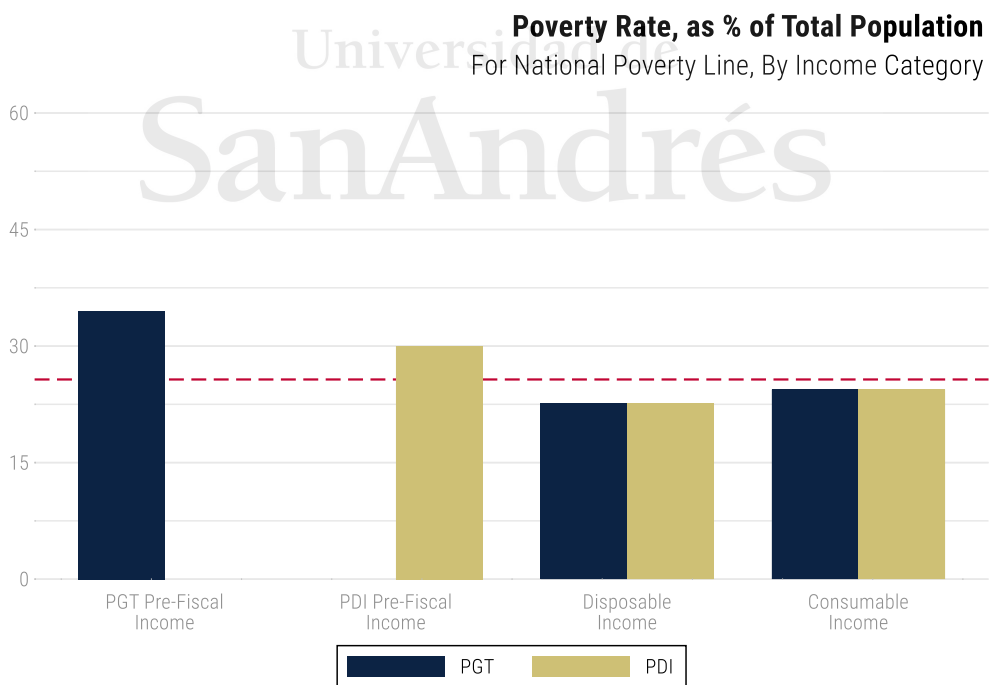*Table 3. Income distribution and poverty, by income category.*

	Market Income		Market Income + Pensions		Disposable Income		Consumable Income		Final Income	
	PDI	PGT	PDI	PGT	PDI	PGT	PDI	PGT	PDI	PGT
Gini Coefficient	-	0.520	0.477	-	0.418	0.418	0.408	0.408	0.308	0.308
Theil Index	-	0.400	0.370	-	0.307	0.307	0.292	0.292	0.173	0.173
90/10 Index	-	38.37	12.80	-	7.612	7.612	7.205	7.205	3.739	3.739
$1.9 Poverty Line	-	10%	5%	-	1%	1%	1%	1%	-	-
$3.2 Poverty Line	-	13%	8%	-	2%	2%	2%	2%	-	-
$5.5 Poverty Line	-	18%	12%	-	6%	6%	6%	6%	-	-
National Poverty Line	-	35%	30%	-	23%	23%	24%	24%	-	-

For poverty, the monotonic reduction is interrupted in the transition from disposable income to consumable income for the national poverty line, as can be seen in figure 5 In other words, the combined effect of indirect taxes and indirect subsidies is equalizing but poverty inducing. The reason is that, for the lower deciles, the money received in the form of indirect subsidies does not compensate the money paid in indirect taxes. However, we do not particularly worry about this somewhat curious quirk, since money is fungible. What is recollected on indirect taxes could be spent somewhere else than in indirect subsidies, therefore we do not pay much attention to what is going on in a particular category of income if is compensated by the system as a whole. In fact, poverty is reduced by 11% when the system is appreciated in the PGT scenario and 6% in the PDI case. Again, the more impressive drop in the former is due to the huge effect the contributory pensions have in the first decile, where the zero income contributory pensions beneficiaries are assigned. A 131% of this 6% reduction in poverty is achieved by the 7% decrease from the PDI pre-fiscal income to disposable income. The extra 31% is explained by the discussed 1% *increase* in poverty between disposable and consumable income.

Figure 4. Gini coefficient, by income category.

Gini Coefficient
By Income Category

Notes: The dashed red line corresponds to Argentina's official Gini coefficient estimate for 2017's second semester.

Figure 5. Poverty rate, as % of total population. For national poverty line, by income category.

Poverty Rate, as % of Total Population
For National Poverty Line, By Income Category

Notes: The dashed red line corresponds to Argentina's official poverty rate estimate for 2017's second semester.

Returning to inequality, in the PDI scenario a 35% of the total drop in the Gini index happens between pre-fiscal income and disposable income. Tables 4 and 5 distinguish how the intertwined action of direct taxes and direct transfers account for this difference. From table 4 it can be read how both of them have monotonically progressive structures as percent of pre-fiscal income. The gigantic incidence on the first decile is due to the presence of a considerable number of individuals with zero pre-fiscal income, mainly because they are beneficiaries of the *Moratoria* (more on this can be found in the appendix). This monotonous pattern does not repeat for direct transfers in dollars per capita terms in table 5, although the concentration in the lower deciles structure is preserved. It is remarkable how the direct transfers are almost perfectly balanced out by direct taxes, going the taxes paid by the tenth decile as transfers to the first decile and so on. This cannot be seen in table 4 since, as a percentage of theirs PDI pre-fiscal income, the direct taxes paid by the upper deciles is pretty small while the direct transfers received by the lower deciles are huge.

Table 4. Incidence, as % of Pre-Fiscal Income.

Decile	Pre-Fiscal Income	Direct Taxes	Direct Subsidies	Disposable Income	Indirect Subsidies	Indirect Taxes	Consumable Income	Education Transfers	Health Transfers	Final Income
1	0%	-1%	473%	472%	77%	-75%	475%	206%	256%	937%
2	0%	-1%	46%	45%	12%	-18%	39%	66%	66%	172%
3	0%	-3%	33%	30%	9%	-16%	24%	35%	42%	101%
4	0%	-4%	23%	20%	7%	-15%	12%	25%	31%	68%
5	0%	-4%	15%	11%	6%	-14%	3%	19%	24%	46%
6	0%	-4%	12%	8%	6%	-13%	0%	13%	19%	32%
7	0%	-5%	8%	3%	5%	-13%	-5%	10%	15%	20%
8	0%	-6%	6%	1%	4%	-12%	-8%	7%	12%	10%
9	0%	-6%	3%	-3%	3%	-12%	-11%	4%	8%	1%
10	0%	-8%	2%	-6%	2%	-12%	-15%	1%	4%	-10%
Total	0%	-6%	11%	5%	5%	-13%	-3%	11%	15%	22%

Table 5. Incidence, in 2011 PPP Dollars Per Capita.

| Decile	Pre-Fiscal Income	Direct Taxes	Direct Subsidies	Disposable Income	Indirect Subsidies	Indirect Taxes	Consumable Income	Education Transfers	Health Transfers	Final Income
1	1.66	-0.01	7.84	9.48	1.28	-1.24	9.52	3.42	4.25	17.19
2	6.48	-0.09	3.00	9.39	0.80	-1.16	9.03	4.29	4.27	17.59
3	10.03	-0.28	3.33	13.08	0.94	-1.62	12.39	3.49	4.23	20.11
4	13.54	-0.48	3.17	16.24	1.01	-2.04	15.21	3.36	4.21	22.79
5	17.31	-0.75	2.67	19.24	1.00	-2.41	17.83	3.28	4.22	25.33
6	21.78	-0.98	2.64	23.44	1.20	-2.91	21.74	2.84	4.17	28.75
7	27.28	-1.40	2.19	28.07	1.23	-3.47	25.83	2.63	4.16	32.62
8	35.05	-1.97	2.16	35.24	1.34	-4.35	32.23	2.32	4.08	38.64
9	48.12	-2.86	1.56	46.82	1.63	-5.84	42.61	1.80	4.01	48.42
10	91.74	-6.94	1.41	86.21	2.03	-10.64	77.60	1.27	4.01	82.88
Total	27.30	-1.58	3.00	28.72	1.25	-3.57	26.40	2.87	4.16	33.43

Although the tax collection is larger for indirect taxes than for direct taxes, as can be confirmed by the totals row in table 5 barely one Gini point reduction, accounting for only a 5% of the total reduction, comes from the difference between disposable income and consumable income. The effect here is negligible because the amount spent in indirect transfers is cut in half with respect to direct transfers and because of how they are concentrated in the lower deciles as can be appreciated in table 5. All in all, this is not necessarily undesirable since, as we previously said, what matters is the system as a whole. A component can be regressive, as the indirect taxes are for Argentina, if they are compensated somewhere else, as it seems to be the case that they are "financing" the spending categories that come next. Moreover, if what is considered are indirect taxes and indirect transfers as a percentage of pre-fiscal income, as in table 4, seem rather progressive.

The largest reduction in inequality, of exactly 10 Gini points (60% of the total inequality reduction), occurs for the difference between consumable income and final income. The fact that there are no taxes as direct taxes reinforcing the equalizing effect of transfers makes this equalizing nature of in-kind transfers even more astonishing. It is true that the progressive structure is not as sharp as for direct transfers, but the large amount spent in these categories of spending makes up for it. An interesting fact in this line of reasoning is that the combined effect of education transfers and health transfers is not as big for the first decile as it is for direct transfers, what puts us to think about the "focus" of these in-kind kind of programs. Particularly, the health system is barely concentrated in the lower deciles (in table 5 terms), transferring almost the same amount of resources to the first decile as to the tenth decile. The education system starts from a lower transfer to the first decile but ends up not transferring much to the tenth decile.

A less intuitive way of getting insight from these broad inequality features is by looking at the whole income distribution. In fact, we had already done this, since if one only pays attention to the income categories columns of table 5, what one is really looking at is how the distribution of income is changing as the components of the fiscal system are introduced. Another, classical, way of looking at the income distribution is as the share of total income captured by each decile, as shown in table 6. A more visual way to grasp the inequality results from an income distribution perspective is by looking at figures 6 and 7, which plot Lorenz curves and densities for the different income concepts. The main takeaways hold for any of these alternative illustrations of the results: the direct taxes and transfers lift people out of poverty, there is not much action from disposable income to consumable income, the in-kind spending moves everyone to the right by displacing the center of the distribution to the right.

Decile	Pre-Fiscal Income	Disposable Income	Consumable Income	Final Income
1	1%	3%	4%	5%
2	2%	3%	3%	5%
3	4%	5%	5%	6%
4	5%	6%	6%	7%
5	6%	7%	7%	8%
6	8%	8%	8%	9%
7	10%	10%	10%	10%
8	13%	12%	12%	12%
9	18%	16%	16%	14%
10	34%	30%	29%	25%
Total	100%	100%	100%	100%

Figure 3. Lorenz curves, by income category.

Lorenz Curves

Per Income Category
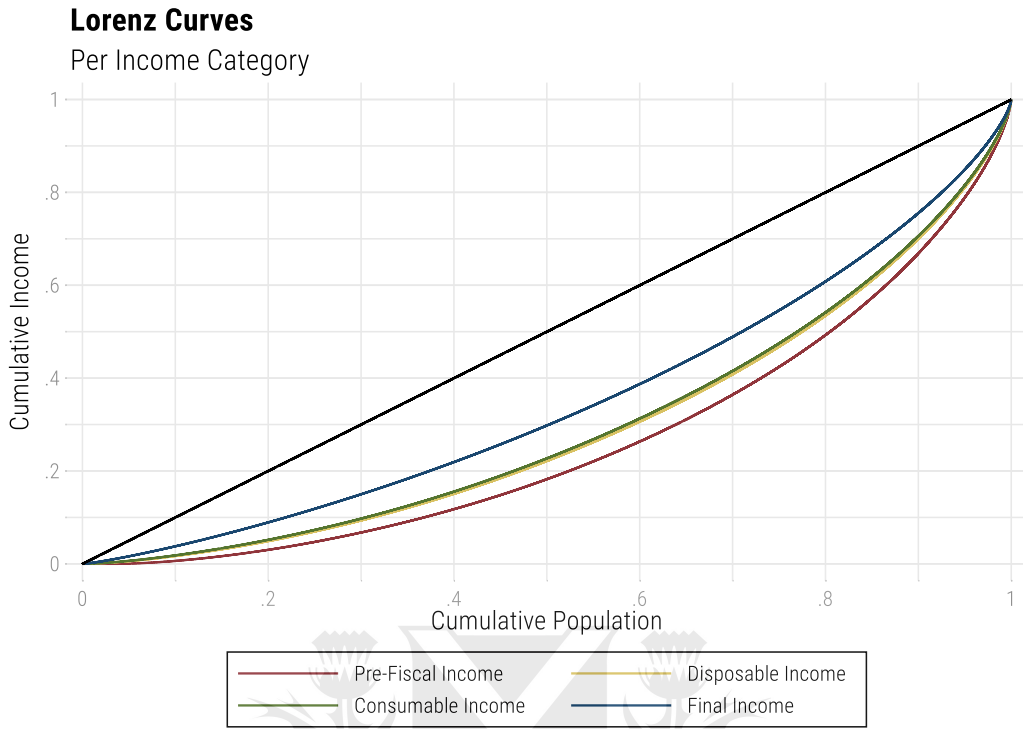
Figure 4. Income distribution, by income category.

Income Distribution

By Income Category
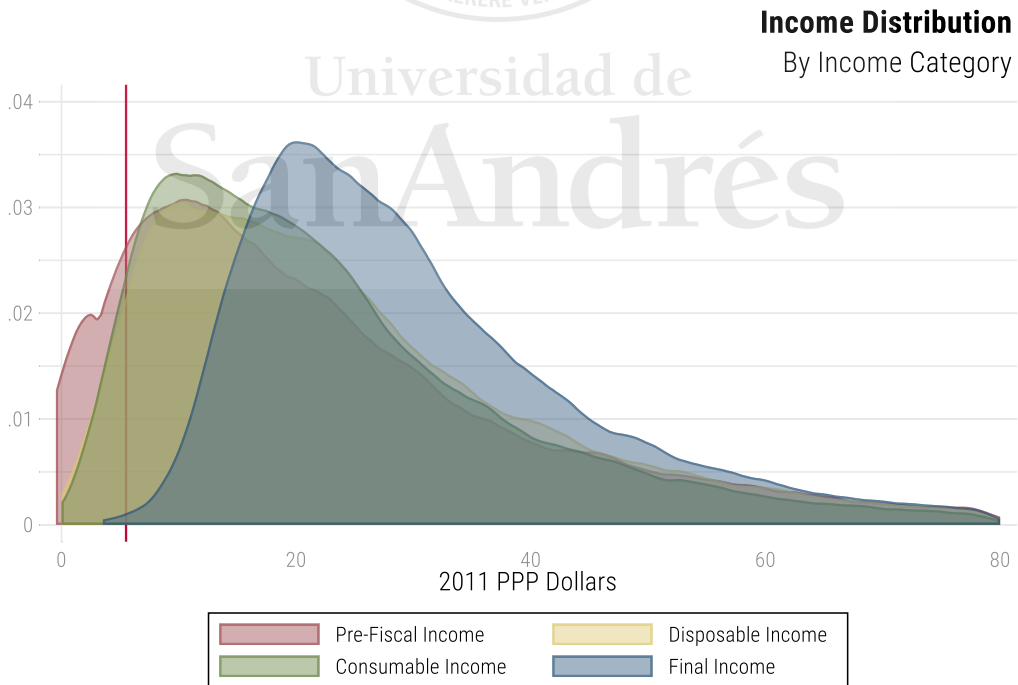
Notes: Right tail truncated at 2011 PPP 80 dollars.
The dashed red line corresponds to World Banks's 2011 PPP 5.5 dollars porverty line.

5.1. Fiscal incidence

Given the heavy reliance on figures and tables for this subsection, we left them for appendix B. In order to gain deeper insights into what is going on, we break down these general categories program by program, as in figure B.1. We present additional measures of how equalizing or progressive each program is in table B.1. Even more, we display the graphical equivalents of tables 4 and for each program.

Figure B.1 works as a more detailed summary of Argentina's fiscal system, from where it can be read how equalizing each program is. But one should not be deceived into thinking that, for example, *Health Hospitals* is the best designed program since the marginal contribution measures how equalizing a program is, for which how the program is structured helps, but is not sufficient. How equalizing a program is depends also on how big in terms of the budget this particular program is. A cleaner measure of how well the program is targeted, which does not depend on program's size, is the concentration coefficient that we present in table B.1 and figure B.2.

Direct taxes turn out to be a rather convenient category of programs to begin with since they allow one to see how the aggregated measures seen until now can hide some subtle intuitions. The two principal categories of direct taxes, personal income tax payroll tax, are both equalizing and progressive according to figures B.1 and B.2 and table B.1. But if we take a closer look, in the fashion of tables 2 and 3, as it is broken down in figures B.3 and B.4 immediately draws the attention to the fact that while personal income tax is highly progressive, concentrating in the upper deciles, payroll tax quickly sets up in the middle deciles as formality kicks in.

Direct transfers is the category of spending that is more concentrated in the lower deciles, though is not the most equalizing one since in-kind transfers take a larger portion of the budget. Besides this shared characteristic, programs within direct transfers have their own particular profile. While the AUH in figure B.5 has the typical targeted shape of the conditional cash transfers programs, non-contributory pensions and *Moratoria* in figures B.6 and B.7, despite being concentrated in the first decile, leak to upper deciles. The different way the incidence as a percentage of pre-fiscal income and incidence in dollars per capita plots look like obeys to the fact that the former is the latter divided by the pre-fiscal income, so, the numerator remains constant across deciles while the denominator is growing.

Between indirect taxes, VAT is the obvious candidate to look for. A strikingly different story is told by the incidence plots in figure B.8, due to the same reasons explained in the previous paragraph. As a percent of pre-fiscal income, VAT looks regressive, as the theoretical intuition indicates. The pattern not only disappears but reverses completely when incidence is considered in dollars per capita, being VAT concentrated in the upper deciles due to their higher spending consumption patterns. We encourage both analyses are for a full comprehension of the subjacent process.

Within indirect subsidies, it is nice to see the contrast between subsidies to bottled gas in figure B.9 and subsidies to gas in figure B.10. While incidence as a percentage of pre-fiscal income looks quite similar for both programs, incidence in 2011 PPP dollars per capita tells again a rather different story. Since bottled gas is mainly consumed by the poorer households and the subsidy goes to the demand side, the lion's share of the spending in the program goes towards the lower deciles, while since the use of gas is widespread and the subsidy goes to the supply side, spending goes to upper deciles. The kink in the first decile of subsidies to gas deserves a special mention: it is due to the *Tarifa Social Federal* benefit, a targeted demand-side subsidy covering all the indirect subsidies. Therefore, this kink could also be seen in electricity subsidies, train transportation, and bus transportation.

Given their importance both as inputs in terms of budget and as outputs in terms of impact on inequality, we give full consideration to in-kind. Primary education in figure B.11 and secondary education in figure
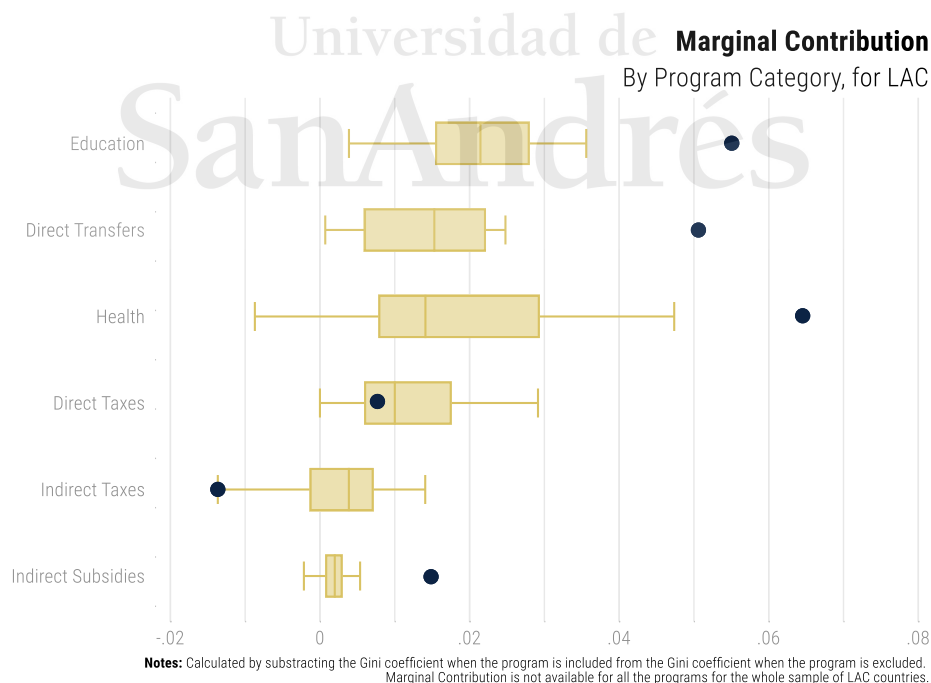
B.12 have a highly similar profile, with primary school peaking slightly higher and falling slightly faster. Both fall as one move to upper deciles, in what it is a characteristic of publicly provided services: higher income individuals migrate towards privately provided services. However, the profile is inverted for tertiary education in figure B.13 as higher income individuals immigrate to public provided upper education. Again, to get this well know feature one needs to go beyond incidence as a percentage of pre-fiscal income into incidence in dollars per capita, since the former drops monotonically as income grows in the plots on the left of figures B.11, B.12 and B.13.

Regarding health, we will insist at the risk of being repetitive, on how crucial it is to look at both incidence pictures in order to get the full picture. If one only stays with the left one, one would get the impression that all three categories of health are pretty much alike. Beyond the as a percentage veil, dollars per capita tell three different stories for each health category. Public and private health care programs in figure B.14 picks up as formality settles in. PAMI is all over the distribution as contributory pensions beneficiaries are in figure B.15, reinforced by the *Moratoria*, which we already showed that not only goes to the lower deciles. Public hospitals gather what is left when upper deciles have migrated towards public or private health care programs in figure B.16.
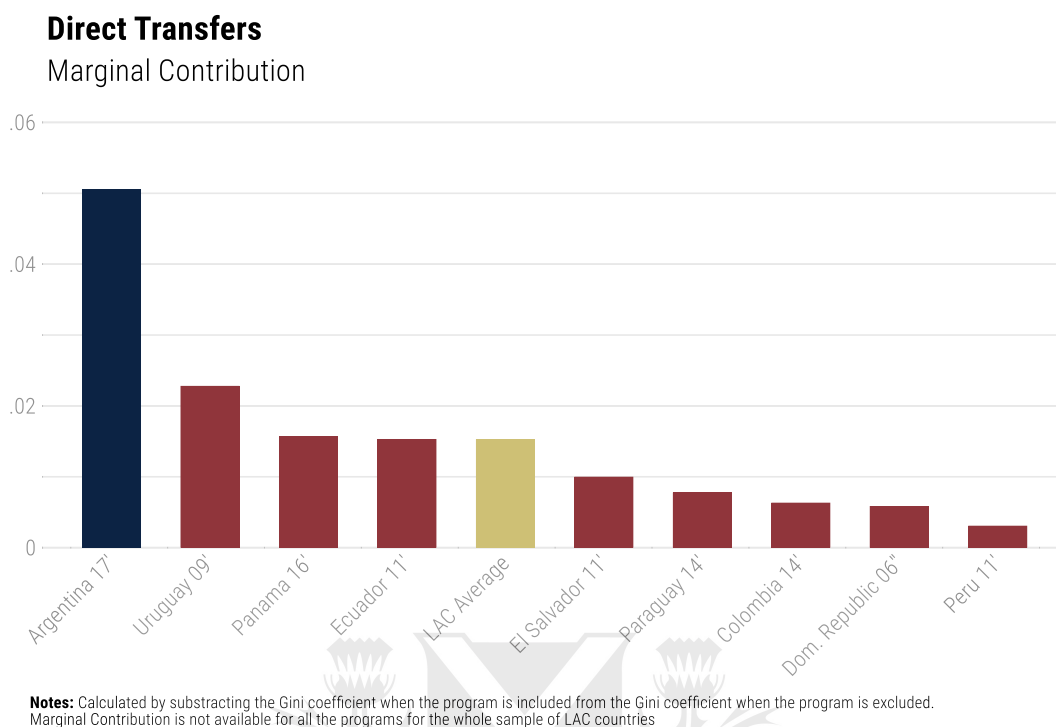
5.2. Cross-Country Results

Up until now, everything has gone pretty standard for Argentina. But, how well does Argentina perform relative to its fellow Latin American countries? Using marginal contributions as a measure of how equalizing a program is, Argentina is, according to figure 8, an outlier in 4 out of 6 of the aggregated categories considered. Argentina particularly excels at education, direct transfers, and health, the three categories which most reduce inequality in other Latin American countries too. So, it seems that Argentina is spending its money wisely. Direct transfers, for instance, can be further analyzed with figure 9.

Figure 8. Marginal contribution. By program category, for LAC.

Notes: Calculated by substracting the Gini coefficient when the program is included from the Gini coefficient when the program is excluded. Marginal Contribution is not available for all the programs for the whole sample of LAC countries.

Figure 9. Direct transfers, marginal contribution.

Direct Transfers

Marginal Contribution

Notes: Calculated by substracting the Gini coefficient when the program is included from the Gini coefficient when the program is excluded. Marginal Contribution is not available for all the programs for the whole sample of LAC countries
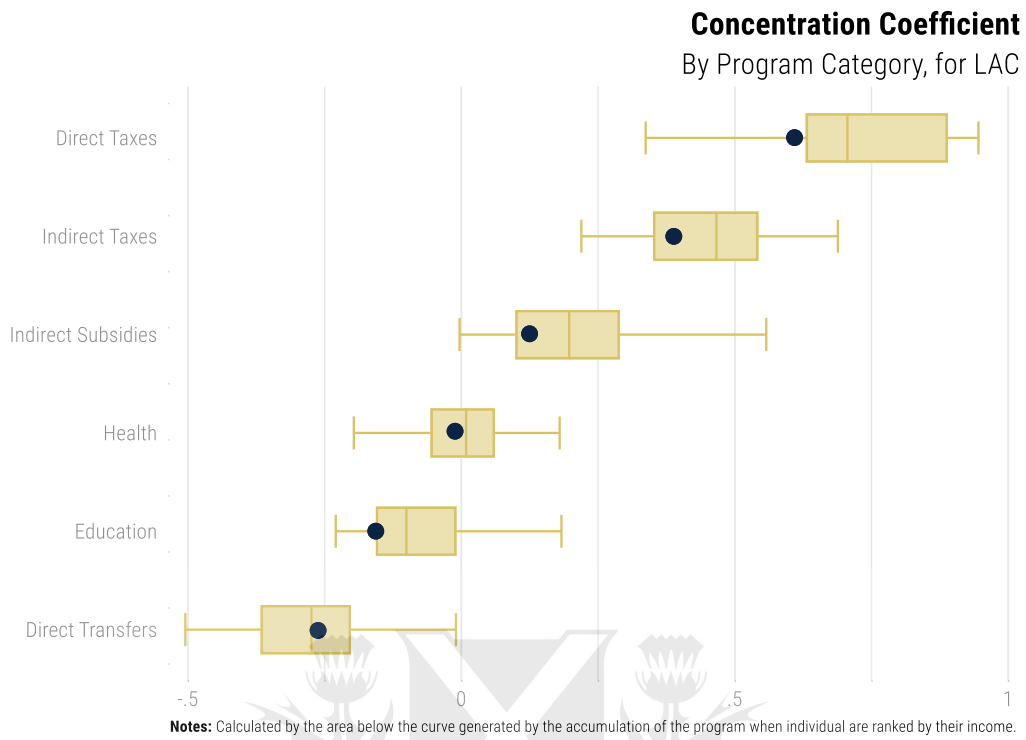
But how robust this result is? If one takes a look at the concentration coefficient, in figure 10, Argentina goes back to standards. The concentration coefficient is less intuitive but grasps efficiency better. Not because it scales for how much is spent on a program in some explicit way, but because it is constructed in order to throw some light on how well the program is designed towards alleviating inequality *independently* of how much is spent on that program. The marginal contribution could be hiding the fact that the problem is being solved by throwing money at it. And, in fact, that is the case for Argentina.
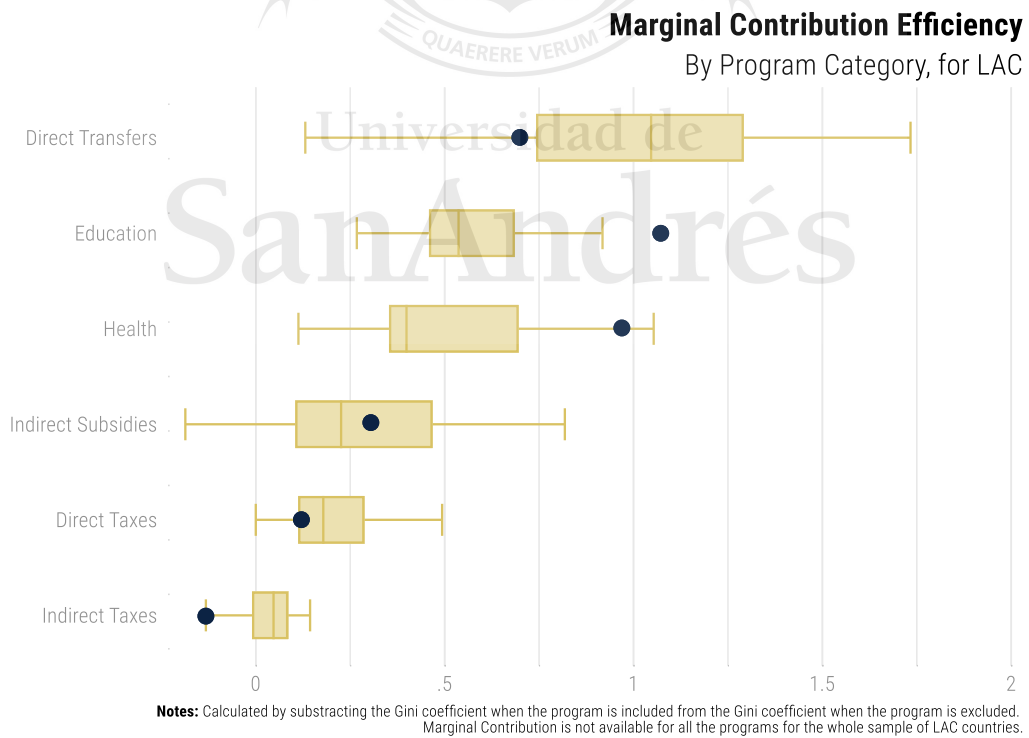
Argentina excels at how much money is spent on education, direct transfers, and health. If we explicitly scale marginal contributions by spending, dividing the program's marginal contribution by the program's spending as a percentage of GDP, the Argentina as a pretty standard Latin American country hypothesis holds in figure 11. This does not mean that Argentina performs poorly at reducing inequality. In fact, as shown, it is one of the countries that reduces most pre-fiscal income inequality in Latin America. But it does it at a huge cost. This dimension needs to be taken into account if one wants to get the story straight. Argentina is still an outlier at education, but drops catastrophically below the mean for direct transfers, which is now the top category for Latin America, proving to be, empirically, the most cost-effective way of reducing inequality, for what it is further analyzed in figure 12. It also maintains the good look for health but it lags behind for direct taxes and, especially, indirect subsidies, at which excelled. Indirect taxes remain performing badly for Argentina. Indirect subsidies which used to be the less equalizing category for Latin America, now looks much better and proves that its equalizing effect was negligible because not much is spent on them, not because some inherently poorly designed structure. Although, of course, all of this could be endogenous. Argentina's direct transfers may be performing poorly because they are effective until a threshold where it gets complicated to expand the program without some leaks to upper deciles. How much can be indirect subsidies increased?

Figure 10. Concentration coefficient. By program category, for LAC.

Concentration Coefficient
By Program Category, for LAC

Notes: Calculated by the area below the curve generated by the accumulation of the program when individual are ranked by their income.

Figure 11. Marginal contribution efficiency. By program category, for LAC.

Marginal Contribution Efficiency
By Program Category, for LAC

Notes: Calculated by substracting the Gini coefficient when the program is included from the Gini coefficient when the program is excluded.
Marginal Contribution is not available for all the programs for the whole sample of LAC countries.

Figure 12. Direct transfers, marginal contribution efficiency.

Direct Transfers

Marginal Contribution Efficiency
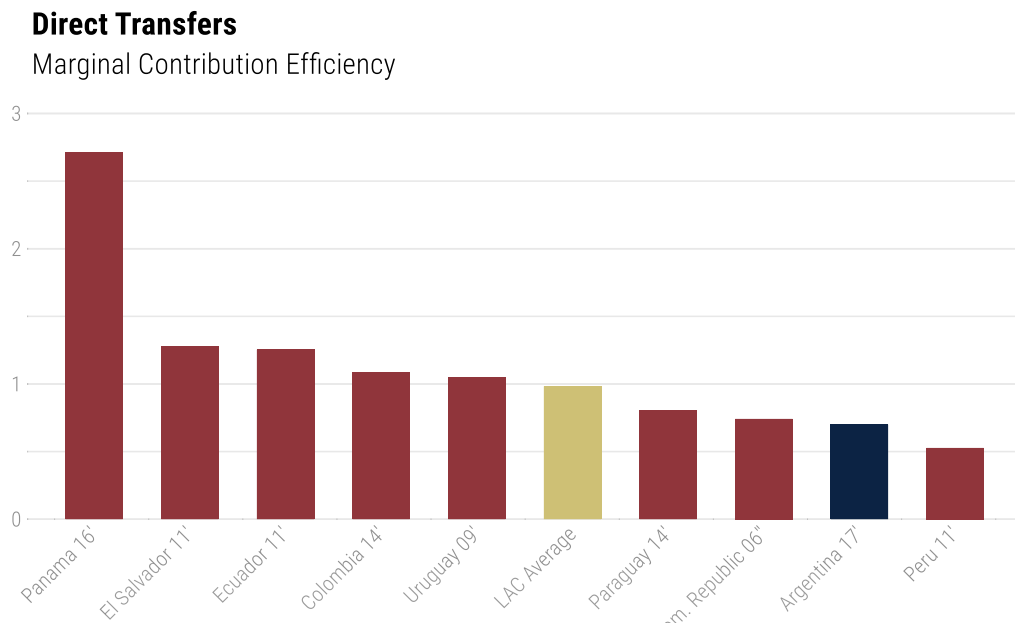
Notes: Calculated by dividing program category's marginal contribution by program category's size as percentage of GDP. Marginal Contribution is not available for Direct Transfers for the whole sample of LAC countries.

6. Conclusions

We run a fiscal incidence analysis of Argentina's tax-spending system following Commitment to Equity (CEQ) Institute methodology. Our results conclude that the fiscal system in Argentina is both equalizing and poverty reducing. On the one hand, when pensions are treated as deferred income, inequality is reduced by government intervention in 17 Gini coefficient points and poverty rate is reduced by 7 percentage points. On the other hand, when pensions are treated as government transfers, inequality is reduced by 21 Gini coefficient points and poverty rate is 12 percentage points.

The considerable difference between these two scenarios are contributory pensions, which are concentrated in the lower deciles and therefore are highly equalizing and lift people out of poverty. This obeys to the fact that most contributory pensions perceivers do not have other sources of income. Turning exclusively to the pensions as deferred income scenario, the rest of the components of Argentina's pension system, *Moratoria* and non-contributory pensions, have similar but less accentuated features not being so progressively designed and taking a smaller portion of the budget.

The rest of the 6 Gini coefficients points reduction carried by direct transfers and taxes is mainly due to, on the spending side, AUH, the program most concentrated on the lower deciles of all. On the taxation side, personal income tax is the most equalizing tax of all while labor taxes burden fall all over the income distribution. Indirect transfers and subsidies only account for a 1 Gini coefficient point reduction, but in-kind transfers reduce inequality by 10 points. This mostly obeys to how much is spent in this category, since there is substantial heterogeneity in the profiles of the specific programs. All health-related expenditures are progressive, but only public hospitals is concentrated in the lower deciles. Conversely, education expense items are progressive, but tertiary education is concentrated in the upper deciles.

Given all this, Argentina is an outlier when compared to other Latin American countries in its government performance reducing inequality and poverty. But all this comes at a high cost in public expenditure terms and, for most categories of government expenses, the "efficiency" is quite standard in relative terms, when not below average.

A. Appendix

Over the whole sample, 3.47% of the pre-fiscal incomes are zero. This makes incidence as percentage of pre-fiscal income gigantic for the first decile since a good share of the decile is receiving a transfer or paying a tax over some zero income. To understand this peculiar feature of Argentina's microdata, employment status is dug in figure A.1. It seems to be the case that these zero incomes, which are allocated on the first 4 centiles, come from inactive individuals. To be more precise, the share of inactives in the first four deciles is 78.74%, when for the others 96 centiles is 39.38%.

Zooming into the first ten deciles and turning into inactivity categories in figure A.2, one can delve deeper into the fundamentals of these zero income. It can be appreciated that the lion's share comes from *Moratorias* and non-contributory pensions perceivers, who represent together 60.33% of the first four centiles, while they represent 10.3% for the others 96% centiles.
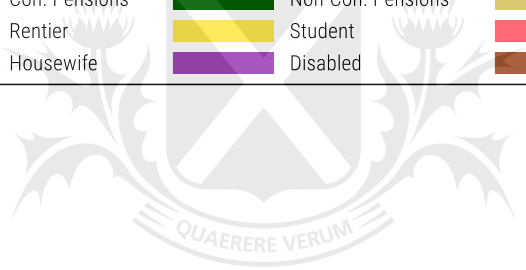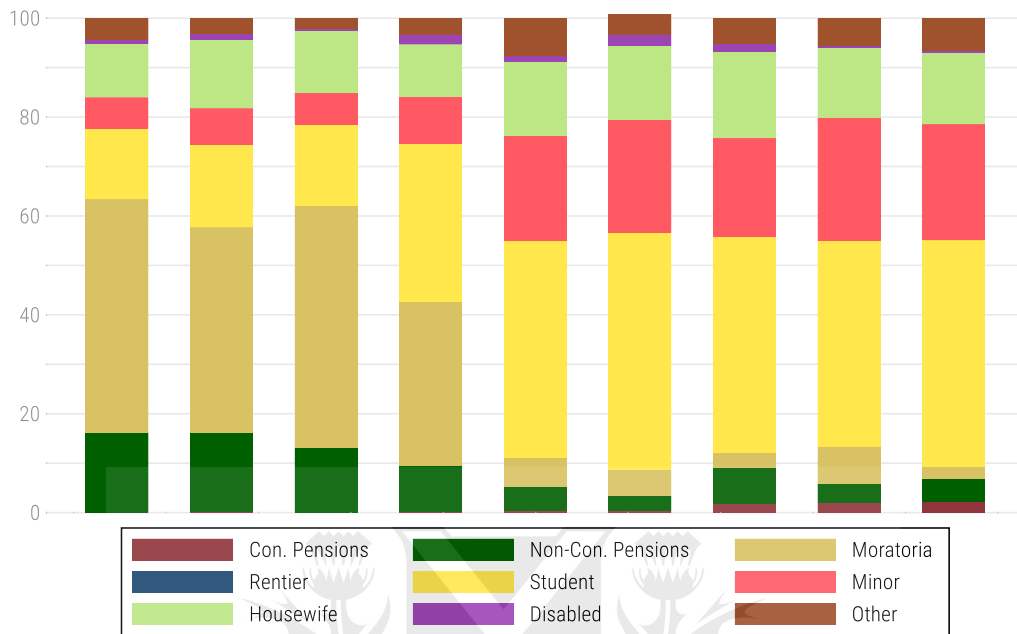
Figure A. 1. Distribution of employment status. (%), by centile of pre-fiscal income.

Distribution of Employment Status

%, By Centile of Pre-Fiscal Income
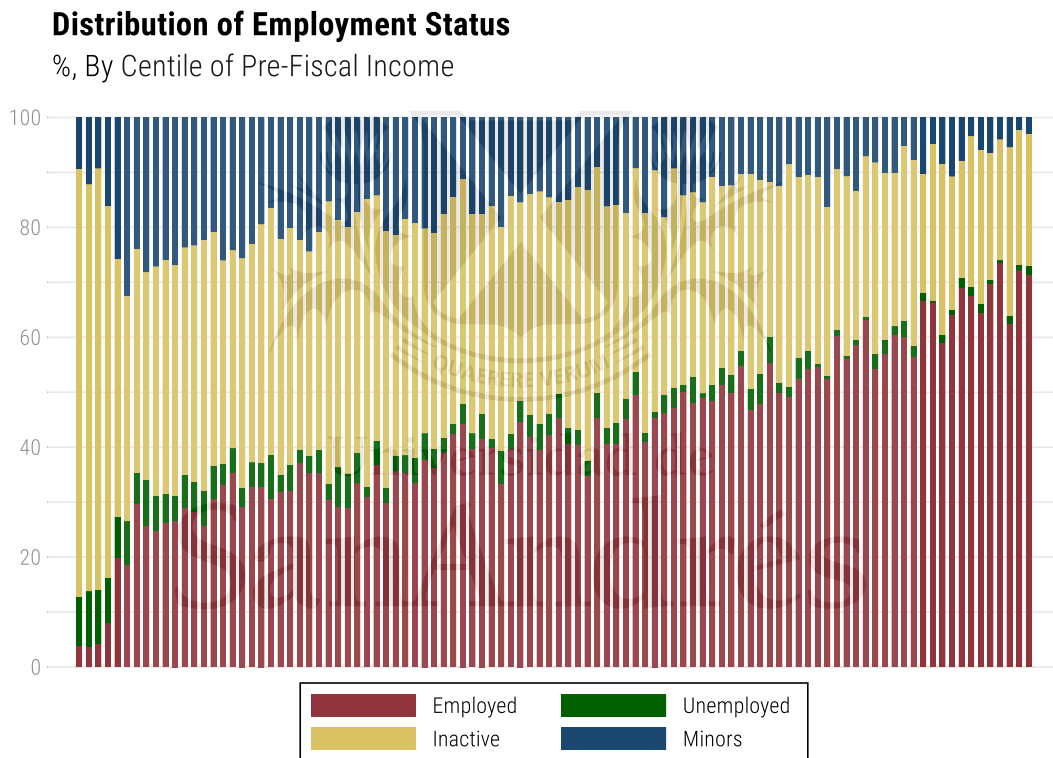
Distribution of Inactives
%, By Centile of Pre-Fiscal Income

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B. Appendix

Figure B. 1. Marginal Contribution, by program.

Marginal Contribution
By Program

Notes: Calculated by substracting the Gini coefficient when the program is included from the Gini coefficient when the program is excluded.
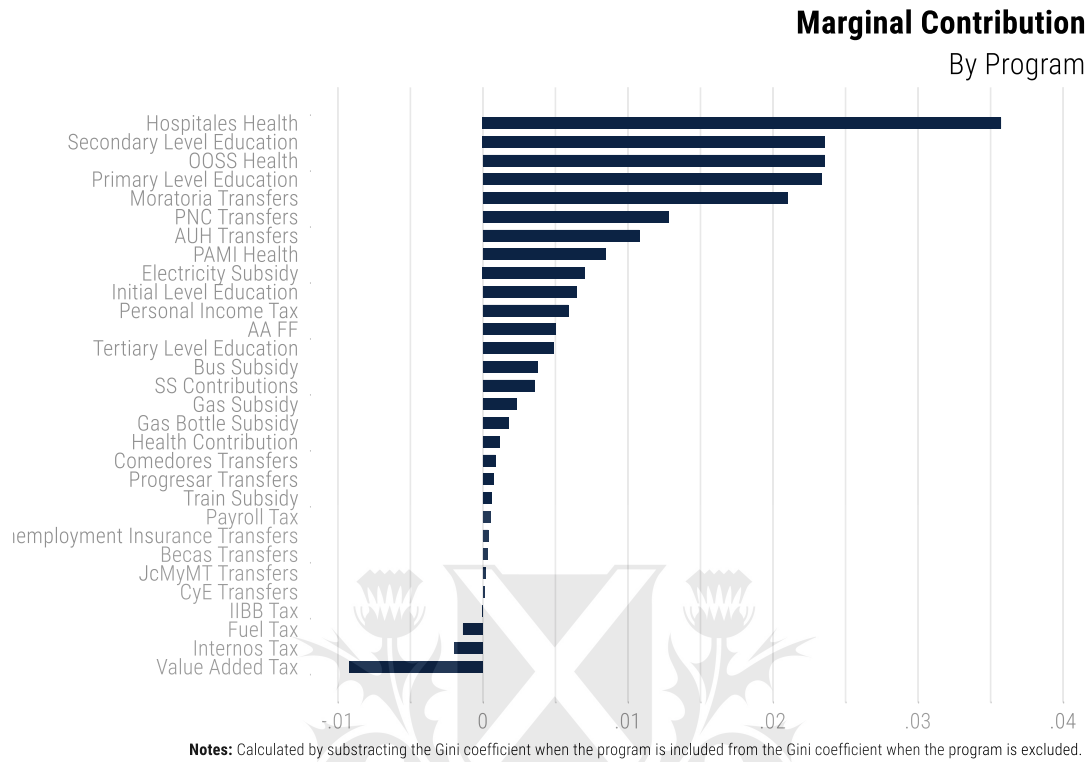
Figure B. 2. Concentration coefficient, by program.

Concentration Coefficient
By Program

Notes: Calculated by the area below the curve generated by the accumulation of the program when individual are ranked by their income.

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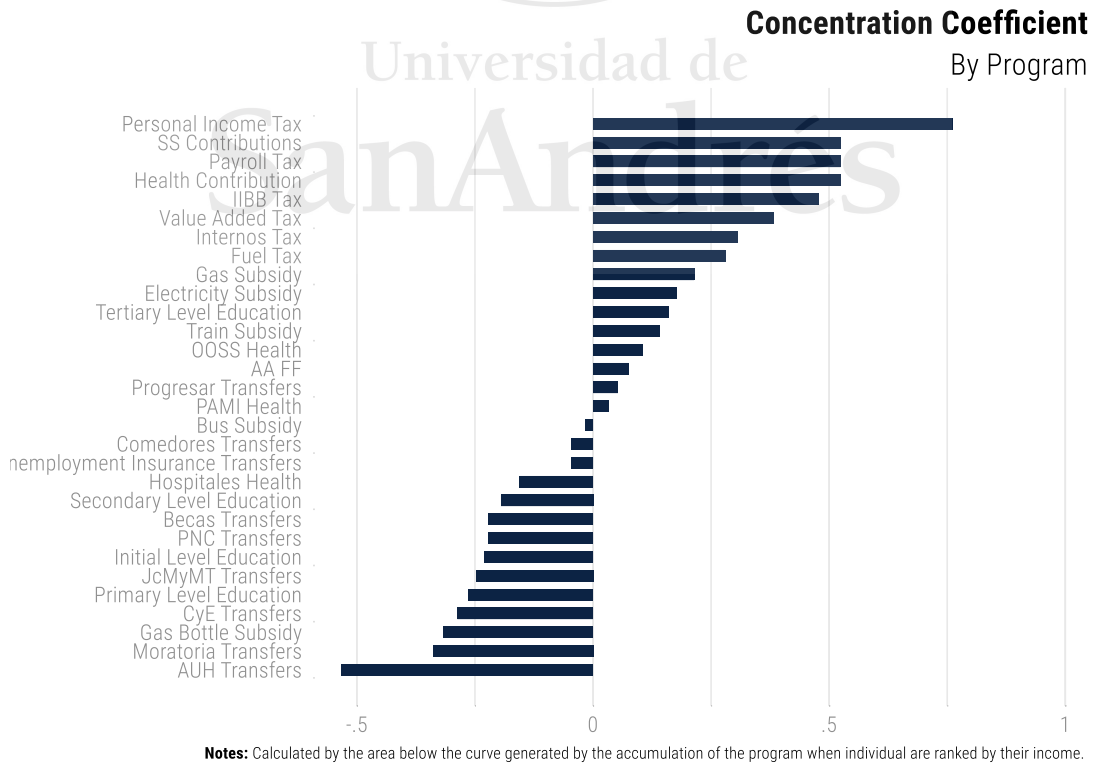
Program	Marginal Contribution	Concentration Coefficient	Kawkani Index	Incidence Gap
All direct transfers	0.05	-0.26	0.74	-0.43
Jubilacion	0.03	0.52	-0.04	0.04
All contributory pensions	0.03	0.52	-0.04	0.04
Asignaciones Familiares	0.00	0.08	0.40	-0.02
Becas estudiantiles	0.00	-0.22	0.70	0.00
Capacitacion y empleo	0.00	-0.29	0.76	0.00
CCT AUH	0.01	-0.53	1.01	-0.13
Comedores	0.00	-0.04	0.52	-0.01
Moratoria previsional	0.02	-0.34	0.82	-0.17
Jovenes con mas y mejor trabajo	0.00	-0.25	0.72	0.00
PNC	0.01	-0.22	0.70	-0.10
Progresar	0.00	0.05	0.42	-0.01
Unemployment insurance	0.00	-0.05	0.52	0.00
All direct taxes	0.01	0.61	0.13	-0.05
Payroll Tax	0.00	0.52	0.05	-0.01
Personal Income Tax	0.01	0.76	0.28	-0.02
Contributions to the public health care system	0.00	0.52	0.05	-0.02
Contributions to the Social Security Institute (SSI)	0.00	0.52	0.05	-0.10
All contributions	0.00	0.52	0.05	-0.10
All direct taxes and contributions	0.01	0.55	0.07	-0.14
All indirect subsidies	0.01	0.12	0.35	-0.09
Subsidy to bus transportation	0.00	-0.02	0.49	-0.03
Subsidy to electricity	0.01	0.18	0.30	-0.03
Subsidy to gas bottle	0.00	-0.32	0.79	-0.02
Subsidy to gas	0.00	0.21	0.26	-0.01
Subsidy to train transportation	0.00	0.14	0.34	0.00
All indirect taxes	-0.01	0.39	-0.09	0.06
Excises taxes - IIBB	0.00	0.48	0.00	0.00
Fuel tax	0.00	0.28	-0.20	0.01
Excises taxes - Internos	0.00	0.31	-0.17	0.01
Value-Added Tax	-0.01	0.38	-0.10	0.04
All taxes	-0.01	0.46	-0.02	0.01
All taxes and contributions	-0.01	0.48	0.01	-0.08
Health	0.06	-0.01	0.49	-0.58
In-kind Health Benefits - Obra social	0.02	0.11	0.37	-0.17
In-kind Health Benefits - PAMI	0.01	0.03	0.44	-0.06
In-kind Health Benefits - Hospitales	0.04	-0.16	0.63	-0.35
Education	0.06	-0.16	0.63	-0.62
In-kind education benefits: initial level	0.01	-0.23	0.71	-0.06
In-kind education benefits: primary level	0.02	-0.26	0.74	-0.26
In-kind education benefits: secondary level	0.02	-0.19	0.67	-0.26
In-kind education benefits: tertiary level	0.00	0.16	0.32	-0.04

Notes: *Marginal contribution* is calculated by subtracting the Gini coefficient when the program is included from the Gini coefficient when the program is excluded. *Concentration coefficient* is calculated by the area below the curve generated by the accumulation of the program when individual are ranked by their income. *Kawkani Index* is calculated by subtracting the Gini coefficient when the program is excluded from the concentration coefficient of the program. *Incidence Gap* is calculated by subtracting the as percentage of pre-fiscal income incidence of the 9th decile from the as percentage of pre-fiscal income incidence of the 2nd decile.

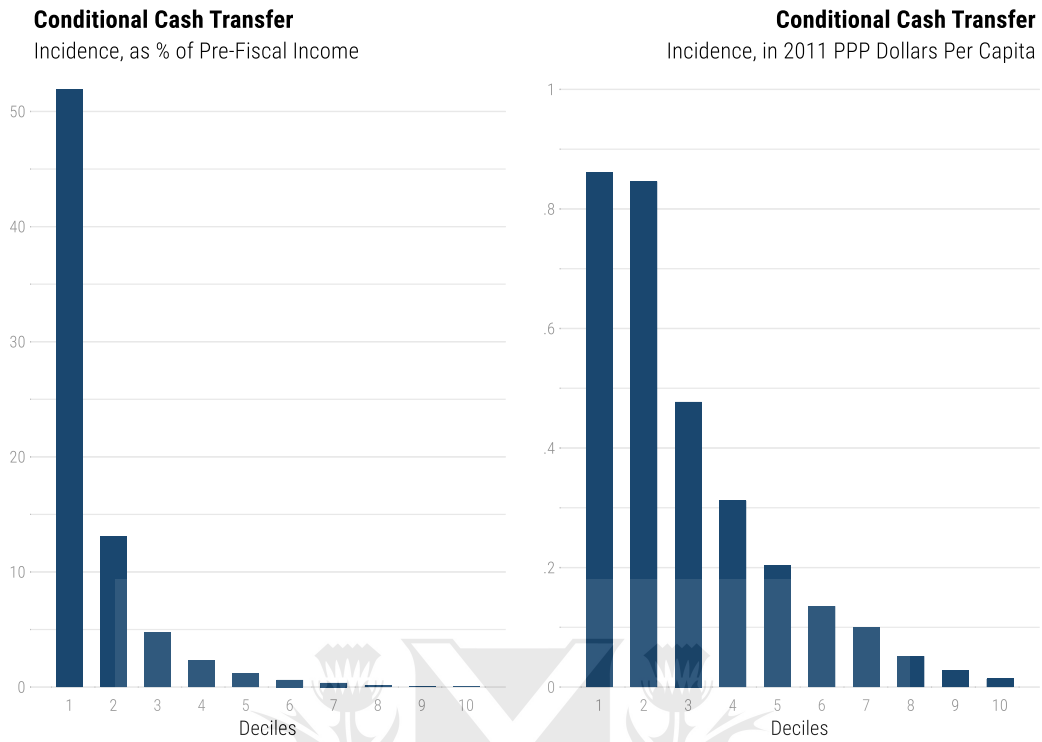**Figure B. 3. Personal Income Tax. Incidence.**

Personal Income Tax
Incidence, as % of Pre-Fiscal Income

Personal Income Tax
Incidence, in 2011 PPP Dollars Per Capita
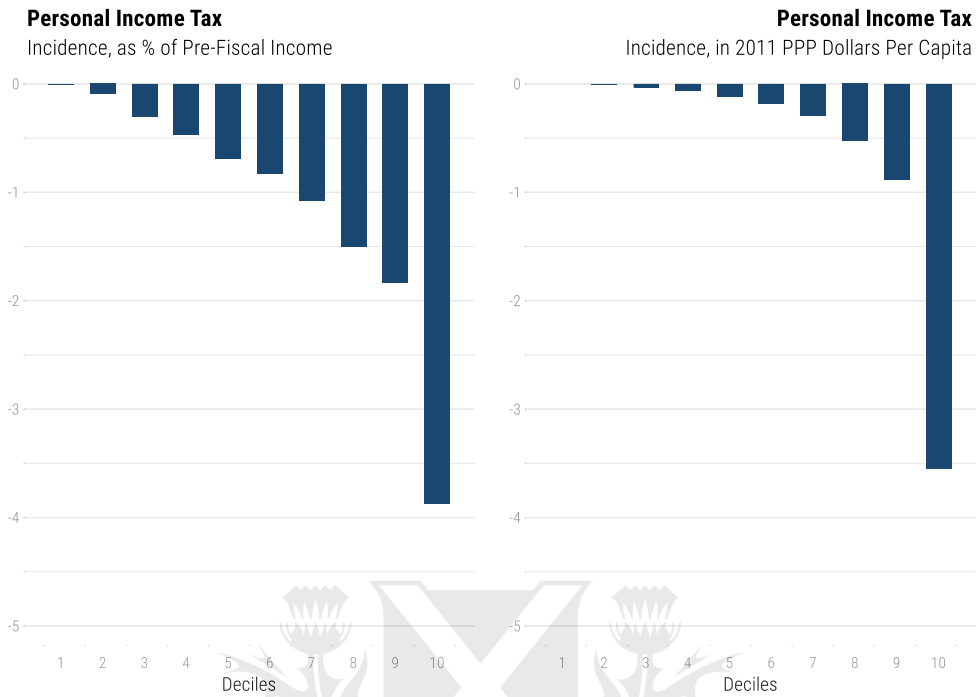
Figure B. 4. Payroll Tax. Incidence.

Payroll Tax
Incidence, as % of Pre-Fiscal Income

Payroll Tax
Incidence, in 2011 PPP Dollars Per Capita

38
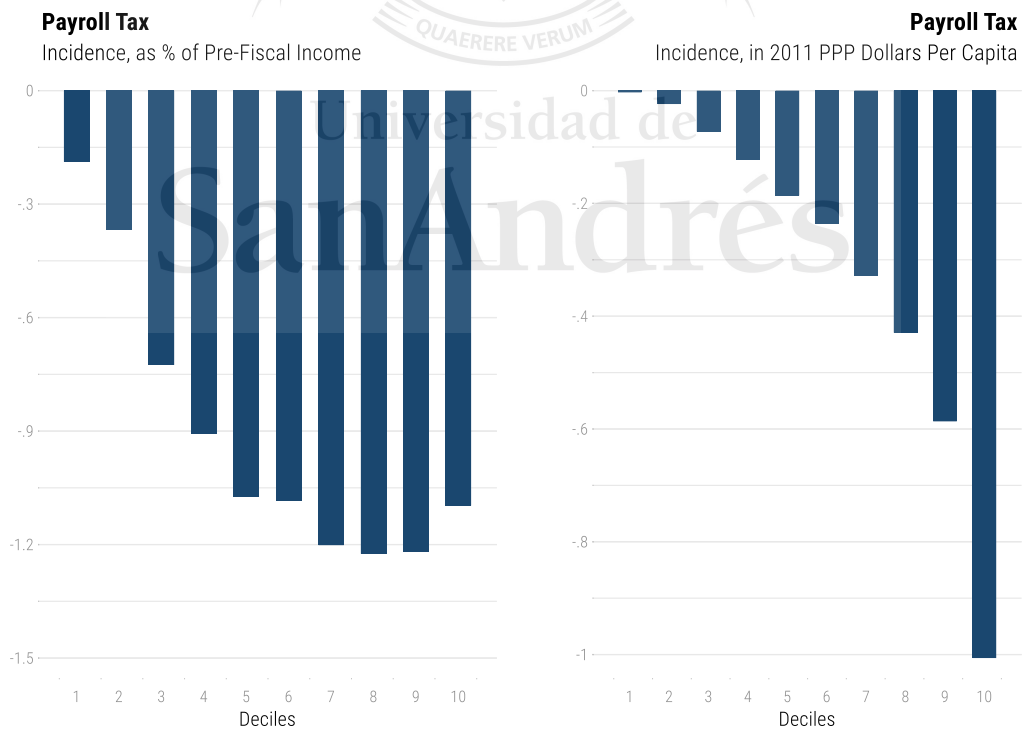
Figure B. 5.AUH. Incidence.

Conditional Cash Transfer
Incidence, as % of Pre-Fiscal Income

Conditional Cash Transfer
Incidence, in 2011 PPP Dollars Per Capita

Figure B. 6. Non-contributory pensions, Incidence

Non Contributory Pensions
Incidence, as % of Pre-Fiscal Income

Non Contributory Pensions
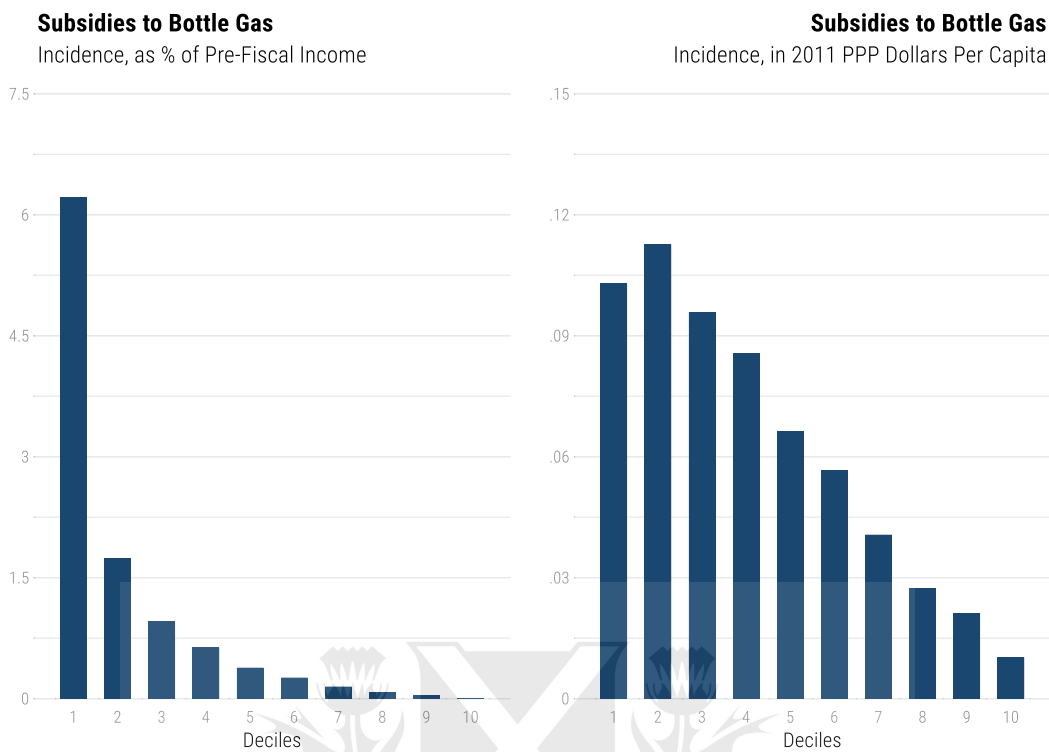Incidence, in 2011 PPP Dollars Per Capita
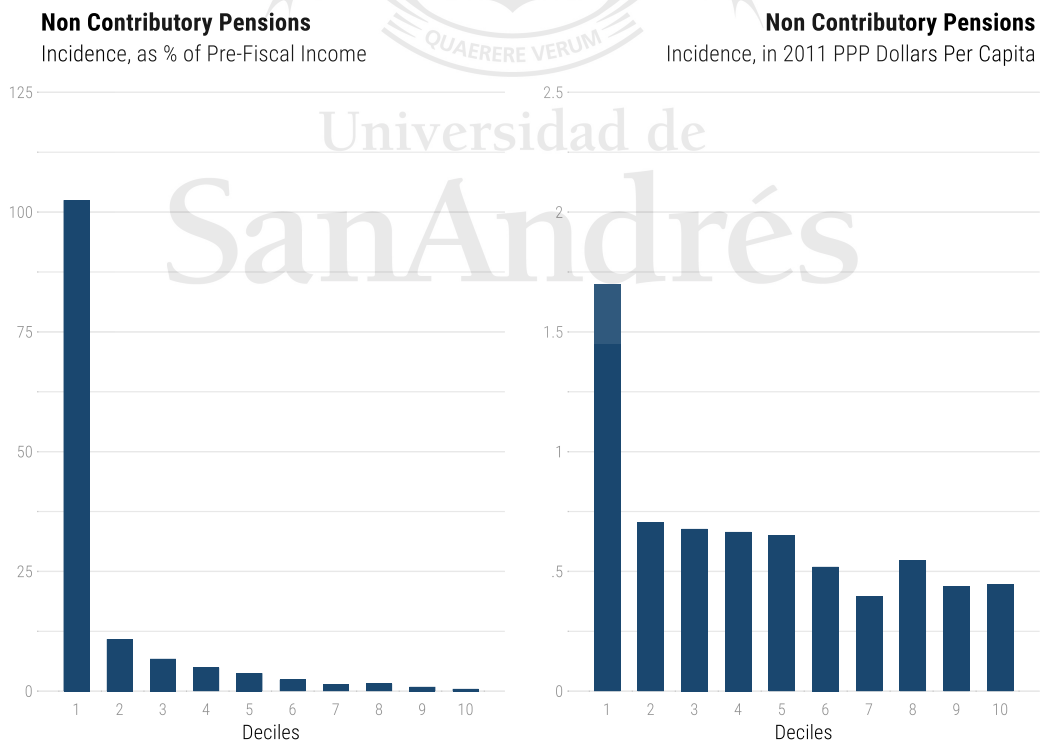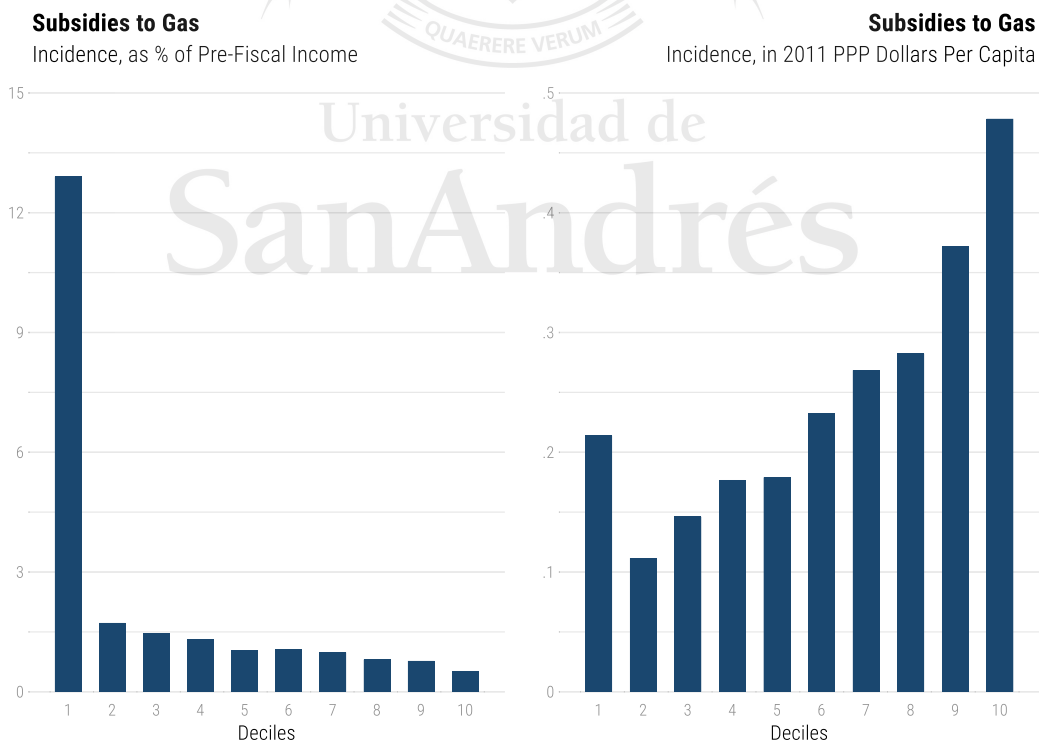
Figure B. 7.Moratoria. Incidence.
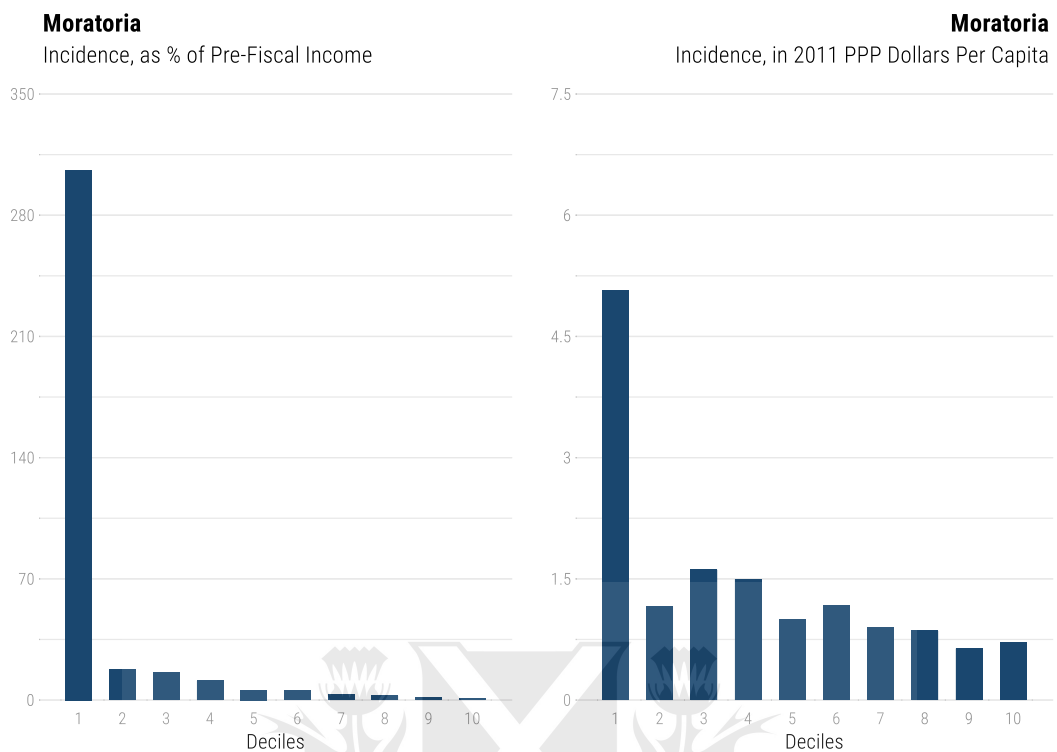
Figure B. 8. Value Added Tax. Incidence.

40
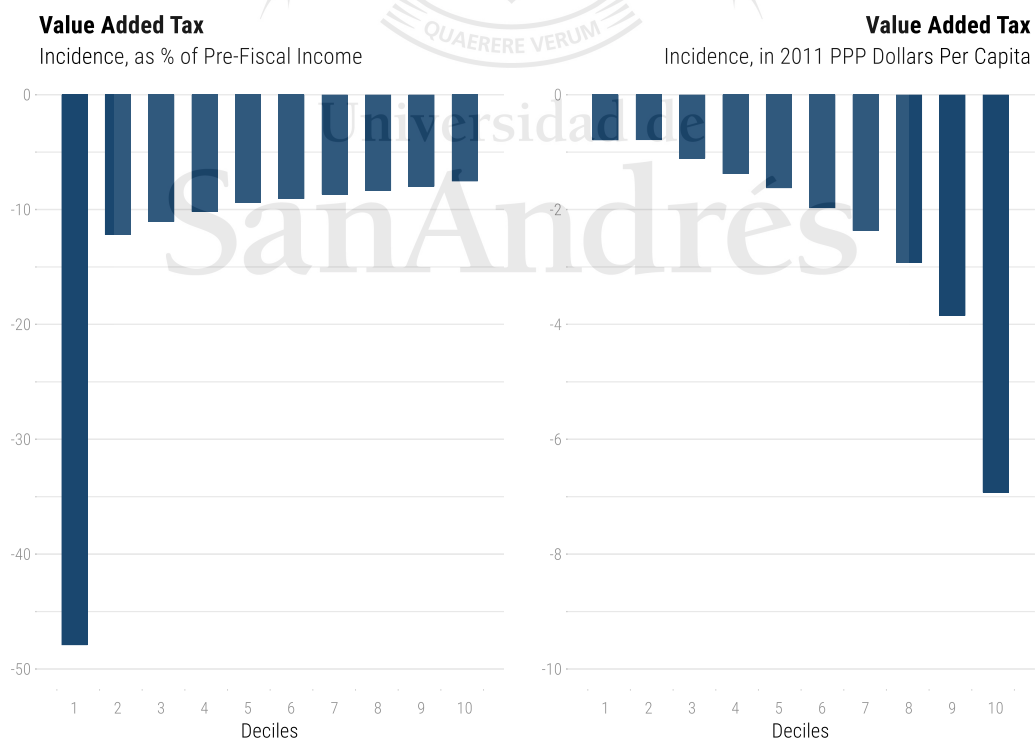
Figure B. 9. Subsidies to Bottled Gas. Incidence.

**Subsidies to Bottle Gas**
Incidence, as % of Pre-Fiscal Income

Subsidies to Bottle Gas
Incidence, in 2011 PPP Dollars Per Capita

Figure B. 10. Subsidies to Gas. Incidence.

Subsidies to Gas
Incidence, as % of Pre-Fiscal Income

Subsidies to Gas
Incidence, in 2011 PPP Dollars Per Capita

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Figure B. 11. Education – Primary Level. Incidence.

Education - Primary Level
Incidence, as % of Pre-Fiscal Income

Education - Primary Level
Incidence, in 2011 PPP Dollars Per Capita
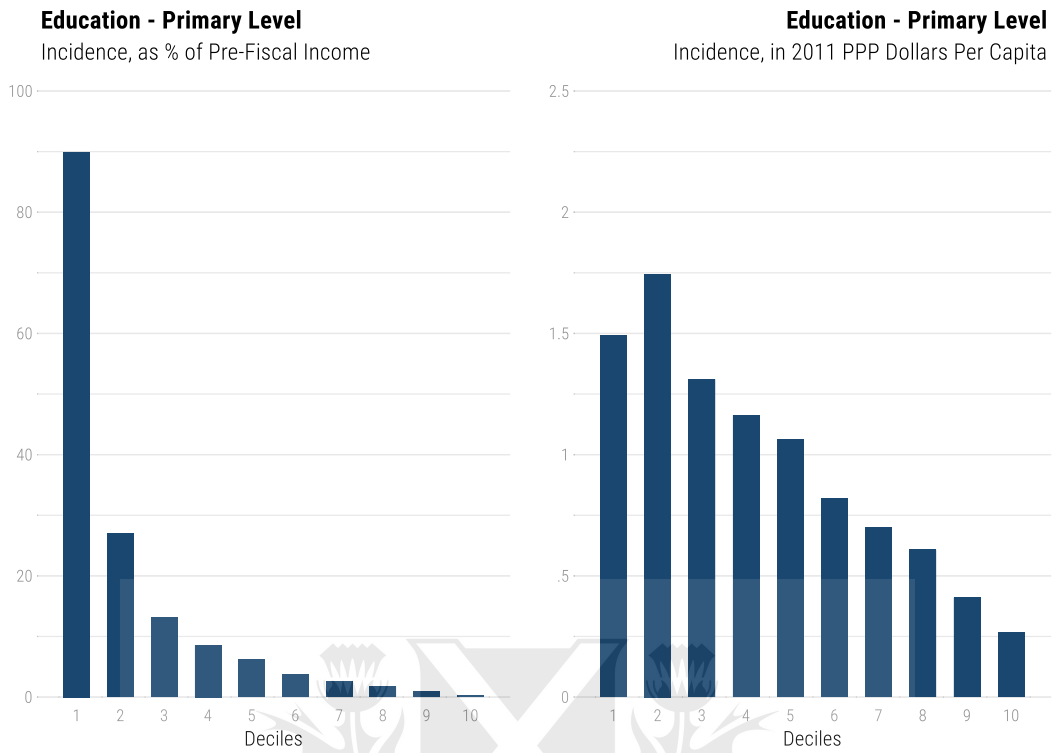
Figure B. 12. Education- Secondary Level. Incidence.

Education - Secondary Level
Incidence, as % of Pre-Fiscal Income

Education - Secondary Level
Incidence, in 2011 PPP Dollars Per Capita

42
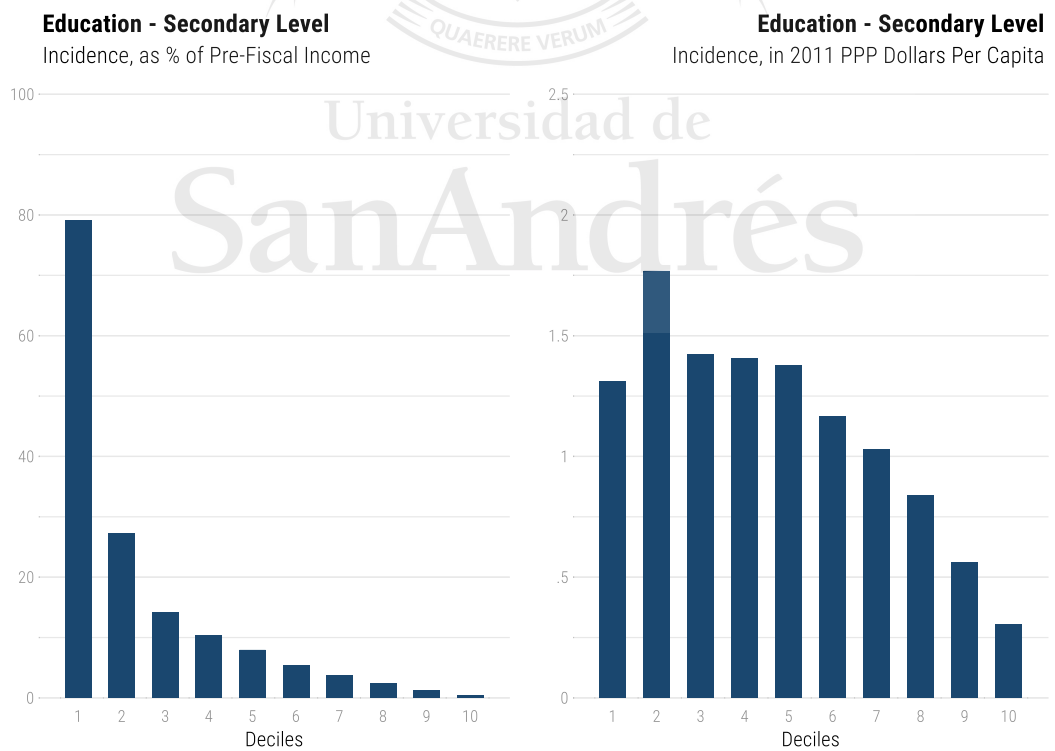
Figure B. 13. Education- Tertiary Level. Incidence.

Education - Tertiary Level
Incidence, as % of Pre-Fiscal Income

Education - Tertiary Level
Incidence, in 2011 PPP Dollars Per Capita
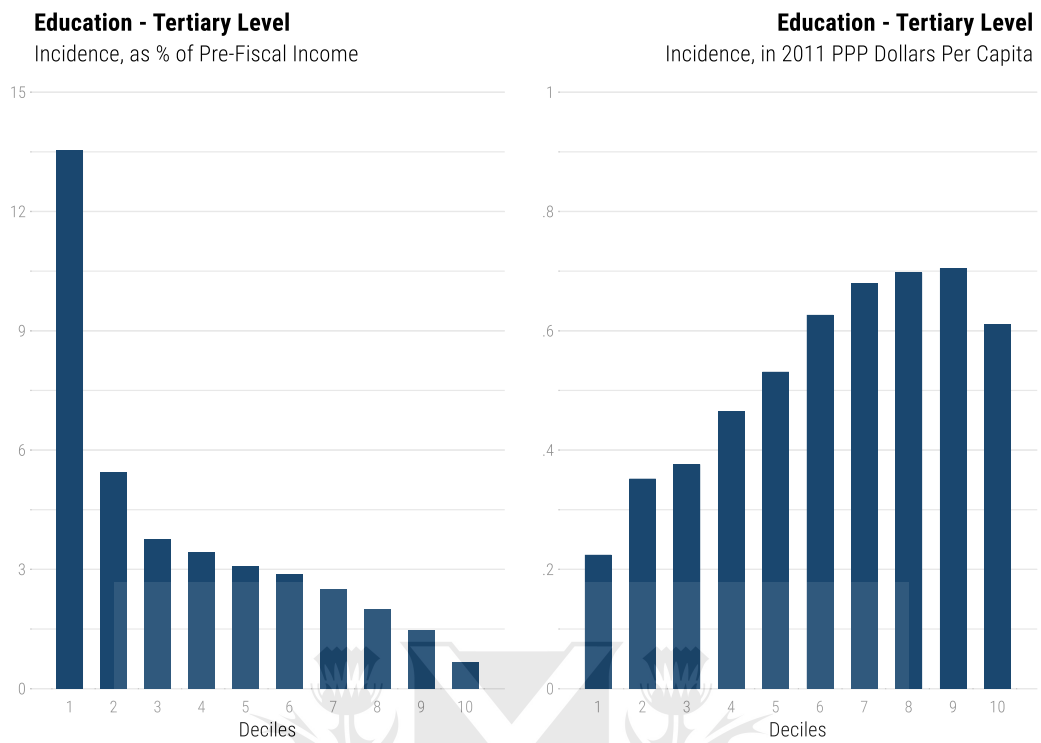
Figure B. 14. Health-Public and private health care programs. Incidence.

Health - Obras Sociales
Incidence, as % of Pre-Fiscal Income

Health - Obras Sociales
Incidence, in 2011 PPP Dollars Per Capita

43
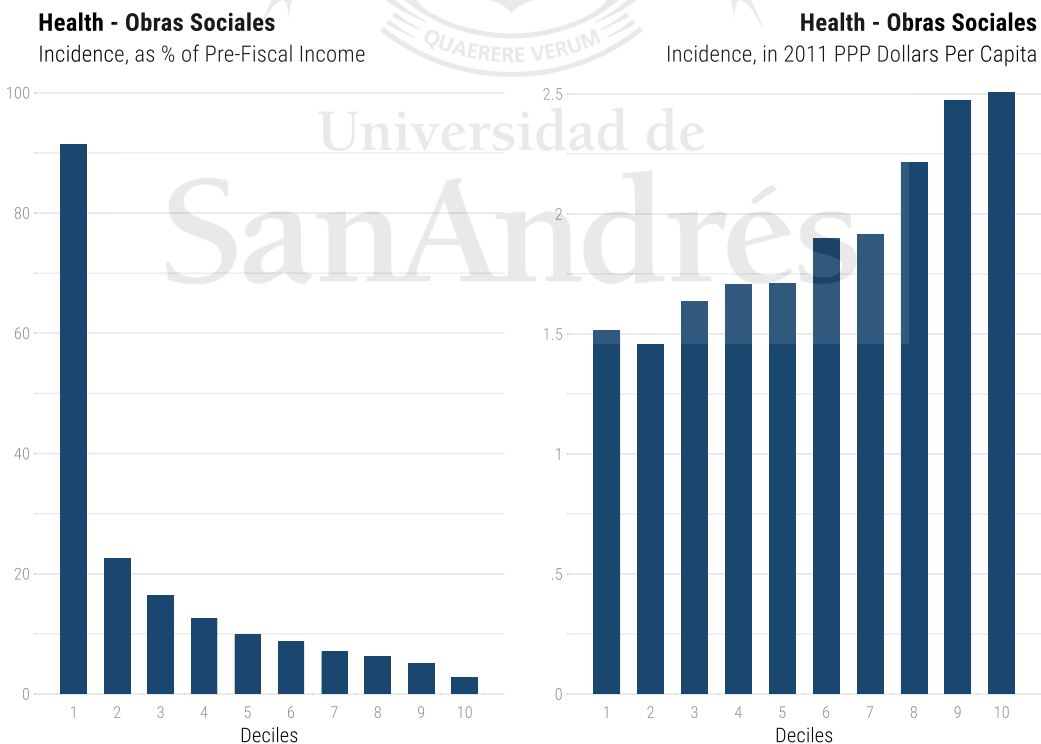
Figure B. 15. Health- PAMI. Incidence.

Health - PAMI
Incidence, as % of Pre-Fiscal Income

Health - PAMI
Incidence, in 2011 PPP Dollars Per Capita
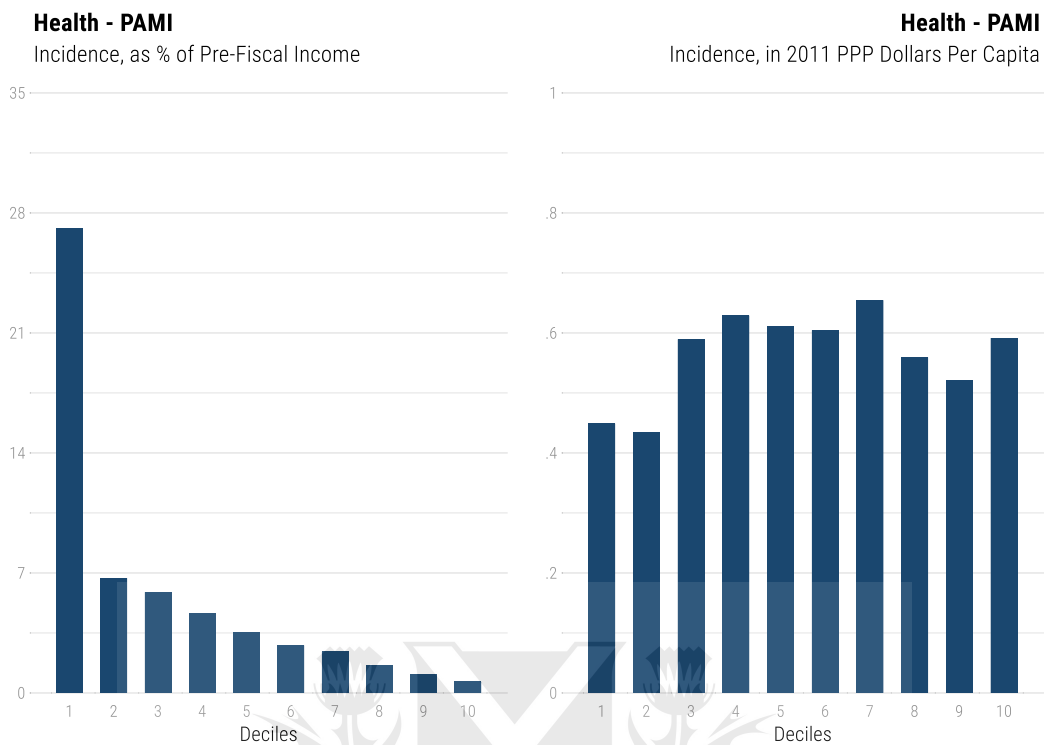
Figure B. 16. Health- Public hospitals and PROFE. Incidence.

Health - Hospitales
Incidence, as % of Pre-Fiscal Income

Health - Hospitales
Incidence, in 2011 PPP Dollars Per Capita
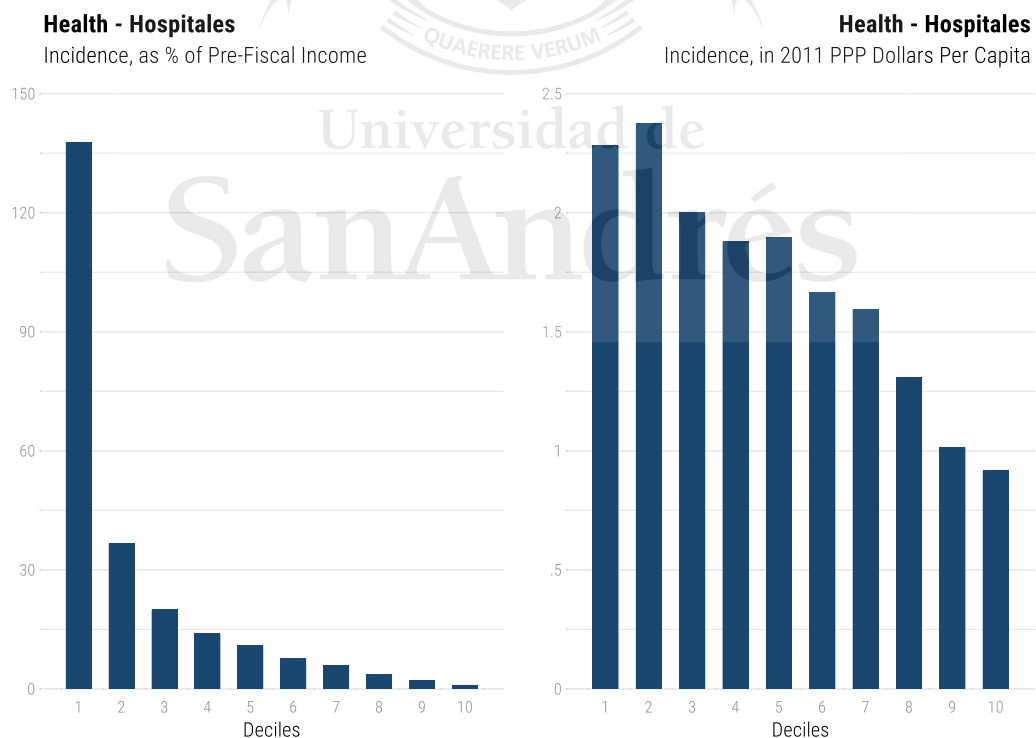
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