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

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FISCAL POLICY, INCOME REDISTRIBUTION AND POVERTY REDUCTION IN ARGENTINA[*]

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ABSTRACT

We implement a fiscal incidence analysis for Argentina with data from the 2017 national household survey. We find that Argentina's fiscal system reduces inequality and poverty more than it is the case in many other comparable countries. This result is driven more by the size of the state (as measured by social spending to GDP) than by the progressivity of the fiscal system. While there are spending items that are quite progressive and even pro-poor, taxes are unequalizing and a number of subsidies benefit disproportionately the rich.

JEL Codes: E62, D6, H22, H23, I14, I24, I32

Key words: Fiscal policy, inequality, poverty, incidence, public economics

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Fiscal Policy, Income Redistribution and Poverty Reduction in Argentina

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August 9, 2021

Abstract

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1. Introduction

Argentina is an upper middle-income country with relatively low levels of inequality and poverty by Latin American standards. In 2017 the Gini coefficient was 0.418 and the poverty rate 6%. The averages for Latin America equaled 0.486 and 23.7%, respectively.[1] Applying the methodology described in Lustig (2018), we carry out a fiscal incidence analysis to assess the extent to which the fiscal system reduces inequality and poverty in Argentina. We present indicators of the effects of fiscal policy on inequality and poverty at the aggregate level and for specific taxes and transfers, including in-kind transfers.

Our analysis addresses the impact of taxes and government transfers on inequality and poverty. And tries to identify who wins and who loses, and which taxes and spending categories are more or less equalizing. We explore how progressive is government spending on cash transfers, education, and health services, and what are the leakages to the non-poor of the different spending programs.

The Argentine fiscal system reduces the Gini coefficient from 0.477 to 0.308 (a 16.9 Gini points reduction) and the incidence of poverty from 12.4 to 6% (a reduction of 6.4 percentage points).[2] To put these results in perspective, we compare with other countries with similar level of development: Brazil, Chile, Mexico, Poland, Russia, and Uruguay.[3] The average decline in inequality and poverty for the Latin American countries is 12 Gini and -0.6 percentage points; for the other comparator countries, 10.1 and 1.1.[4]

Thus, Argentina is an outlier in how much inequality and poverty are reduced through fiscal redistribution. However, the enthusiasm is curbed as soon as one compares the amount of government spending it takes to achieve it. In 2017, public spending is 42.9% of GDP, while the average for the comparator Latin American and other upper-middle income countries is 20.7% and 37.5%. The Argentine state is the largest in Latin America and similar to that observed in advanced countries with large welfare states. In fact, the large redistributive impact in Argentina is mainly the result of its size and not its overall progressivity. While there are spending items that are quite progressive and even pro-poor, taxes are unequalizing, and a number of subsidies benefit mainly the rich.

Even though it is not the focus of this study, in order to put redistributive policies in adequate perspective, we must recognize that such high levels of spending have had large macroeconomic costs, and that such poor macroeconomic performance had its heavy toll in terms of poverty. Revenues have not kept up with spending and, thus, fiscal deficit and indebtedness are high. Between 2007 and 2017, fiscal deficit has gone up 7 GDP points (from -1% to almost 6%), the external debt has grown 45%, and GDP per capita has grown only 5%! The large fiscal deficit has

[1] CEQ data and the $5.5 per day (2011 PPP) poverty line are used to calculate these indexes.
[2] The results reported here correspond to the case in which we treat Pensions as Deferred Income (PDI). We also carry the analysis treating Pensions as Government Transfers (PGT), which can be found in the online appendix. For the PGT scenario, the inequality reduction is of 21.1 Gini points from 0.519 to 0.308, and poverty reduction of 11.8 percentage points from 17.9 to 6.1%.
[3] The information for the rest of the countries is available in the CEQ Data Center on Fiscal Redistribution that has results for over fifty countries applying the *same* methodology worldwide.
[4] For the PGT scenario, the decline for Latin American countries' Gini and poverty rate is 13.7 and 3.4 percentage points. For the other comparator countries, the analogous numbers are 21.9 and 15.9.

caused recurrent crises and high inflation rates (the annual inflation rate was never lower than 10%, reaching tops of over 48%). High inflation is a tax whose incidence is known to be unequalizing given that the affluent have better ways to cope and avoid such a tax (Ahumada et al., 1993; Canavese et al., 1999). High tax burdens have caused distortions and inefficiencies, while large government transfers have created disincentives to work, all this hampering growth. Gasparini et al. (2012) and Gasparini et al. (2019) convincingly show that economic growth is strongly correlated with poverty reduction, suggesting that economic growth is the main driver of changes in poverty in the long term. A counterfactual exercise suggests that, had Argentina grown the last several decades like the average country in Latin America, poverty (by the national poverty line), would have been 14% instead of 35%. Had it grown like the fastest growing country in the region, Chile, it would have been only 5%.

Given the inefficiencies and unsustainable nature associated with the Argentine fiscal system, a logical follow-up question is what needs to change. In particular, how should taxes, transfers, and subsidies be reformed to reduce their costs while at the same time protecting the poor and keeping the system as equalizing as possible? This crucial question is beyond the scope of this paper. Nevertheless, on first approximation, it would seem that price subsidies that benefit the rich are promising candidates for reform.

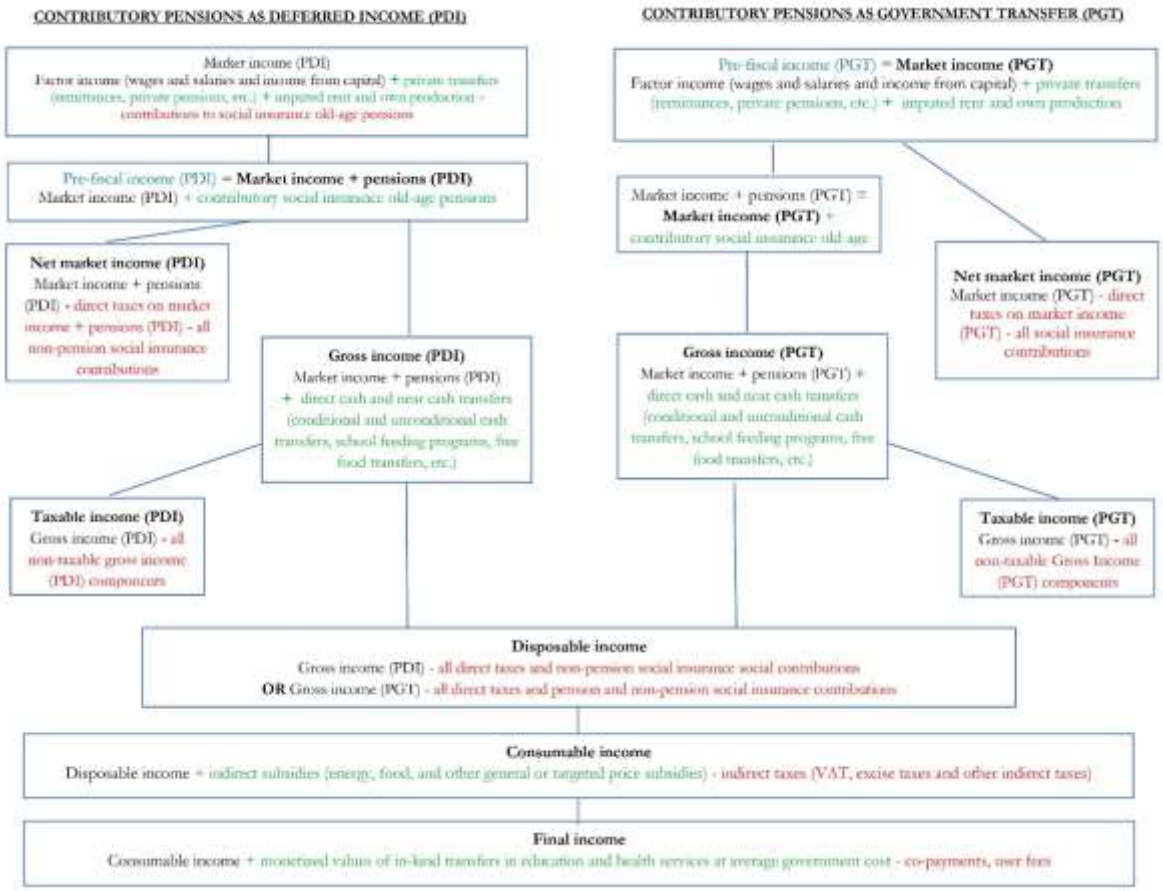
There have been a few other fiscal incidence studies for Argentina – for example, Gasparini (1998, 1999), SPE (2002), SPER (1999), Gómez Sabaini & Rossignolo (2009), Gómez Sabaini et al. (2013), Lustig & Pessino (2014), Rossignolo (2018), and Cruces et al. (2018) — on which the present work is based. Given the significant differences in dates, scope, methodologies, and indicators, a review of results from previous studies would not be a useful exercise: we would neither be able to assess whether the system became more or less redistributive over time nor identify the methodological assumptions that affect results the most since so many of them change in tandem. Thus, no attempt is made to compare our findings with those of previous studies.

2. Fiscal incidence analysis: methodological highlights

This paper uses incidence analysis, a description of who benefits from government spending and who is burdened by taxation, following the methods developed by the Commitment to Equity (CEQ) Institute (Lustig, 2018). Although it is possible to use incidence analysis to examine one particular expenditure or tax, the thrust of the CEQ analysis is to get a comprehensive picture of the redistributive effect of as many tax and expenditure items as possible. Since this analysis has been performed in many countries, it enables cross-country comparisons.

In order to do that, it is necessary to construct income concepts that incorporate the effect of fiscal interventions. Figure 1 shows the four core income concepts used: pre-fiscal income, disposable income, consumable income, and final income.

Figure 1. CEQ income concepts



Source: Lustig (2018)

The analysis is carried out for two concepts of pre-fiscal income depending on the treatment of contributory pensions. If pensions are treated as a pure *government transfer* (PGT), the pre-fiscal income is market income. If pensions are treated as *deferred income* (PDI), the pre-fiscal income is market income + pensions. These two scenarios are shown on the right- and left-hand sides of Figure 1. Choosing which scenario best suits the reality of a country requires analyzing the deficit of the pension system. Systems with large deficits lead 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. Individuals in this setting "defer" a part of their current income to the moment they enter retirement. For this to be true, pensions received by individuals must be financed mostly by past contributions. When pension systems' deficit become large, this mechanism ceases to hold. The importance of which scenario is used lies in that both the level of pre-fiscal income and the ranking of households by pre-fiscal income is different under PGT and PDI. This affects the size of redistribution and poverty reduction. In countries with high coverage of social security and a high share of people in retirement age, this difference can be quite high (Lustig, 2018, chapter 10).

Pre-fiscal income is the starting point for the analysis. Under the PGT scenario, the starting point is market income, which includes incomes from all sources (wages, salaries, and capital income), except for government transfers and *public* contributory pensions. In contrast, under the PDI scenario, contributory pensions are "forced saving" and, therefore, they *are* included in the pre-fiscal income. The two "market incomes", however, are not identical. Under the PDI scheme,

market income does not include contributions to social insurance old-age pensions to avoid an intertemporal double counting of income.

Disposable income is defined as pre-fiscal income minus direct taxes plus direct transfers. Disposable income and all the income concepts that follow are the same under both scenarios. Consumable income is constructed as disposable income plus indirect subsidies minus indirect taxes. In terms of the "cash component" of the fiscal system, state action ends with consumable income. However, governments usually provide other transfers in the form of in-kind transfers: free or quasi-free services such as public education and healthcare. These transfers are monetized at average government cost and added to consumable income to obtain final income.

3. Description of the Argentine fiscal system

In Table 1, we present the composition of government spending and revenues in 2017. Notice that while expenditure data includes all levels of government, revenues are those collected at the national level (before tax sharing). The reason for this discrepancy is that information on tax revenues disaggregated at this level is only available for national taxes. National government revenues represent around 80% of total tax collection and include the most important taxes in terms of revenues.[5] Our analysis captures 53% of tax revenue and 70% of expenditures.[6] We will usually refer to size as the one that comes from administrative accounts, with some exceptions.

3.1. Tax revenues[7]

Revenues from **direct taxes** (14.4% of GDP) seem high compared to similar countries. However, when we exclude social security and health contributions, they are not particularly high (6.3%) compared to similar countries (4.9%) or to the overall size of the Argentinean government. The most important components of tax revenues are social security contributions (6.8%), corporate income tax (3.2%) and personal income tax (1.6%).

[5] For the intricacies of the Argentine federal fiscal system see, for instance, Tommasi et al (2001). It is worth mentioning that a small share of *Ingresos Brutos*, the most important provincial tax, is collected at the national level and this is what is reflected in the administrative accounts' data reported in Table 1. The bulk of its revenues are collected by the provinces and are therefore not included in the table.

[6] These figures are somewhat lower than the, on average, 84% and 81% captured by the analyses carried in the comparator countries. This difference may be due to the greater level of precision of our allocation methodology.

[7] The data is supplied by the Federal Administration of Public Revenues (*AFIP*). Based on information availability, some taxes (such as corporate) were not included in our analysis.

Table 1. Revenues and expenditure (% of GDP)

	Administrative	Analysis	Methodology
TAX REVENUES			
Direct taxes	**14.4%**	**8.2%**	
Social security contributions	6.8%	5.6%	S
Corporate income tax	3.2%	n.i.	
Personal income tax	1.6%	0.9%	S
Health contributions	1.3%	1.2%	S
Payroll taxes	0.8%	0.5%	S
Other income taxes	0.5%	n.i.	
Other direct taxes	0.2%	n.i.	
Indirect taxes	**10.3%**	**5.9%**	
Value added tax	7.2%	3.9%	AS and I
Customs duties	1.3%	n.i.	
Fuel tax	1.0%	0.3%	AS and I
Excise taxes	0.7%	0.5%	AS and I
Ingresos Brutos	0.2%	1.1%	AS and I
Other indirect taxes	0.0%	n.i.	
Other tax revenues	**1.9%**	**n.i.**	
EXPENDITURES			
Pensions	**7.9%**	**5.2%**	
Contributory pensions	7.9%	5.2%	AS and I
Direct transfers	**7.3%**	**4.9%**	
Moratoria	2.9%	2.4%	AS and I
Other direct transfers	1.8%	n.i.	
PNC	1.0%	1.1%	AS and I
AAFF	0.8%	0.7%	S and I
AUH	0.6%	0.5%	S and I
Progresar	0.1%	0.1%	S and I
Community kitchens	0.1%	0.1%	AS and I
Unemployment insurance	0.0%	0.0%	S and I
Educational scholarships	0.0%	0.0%	DI and I
JMyMT	0.0%	0.0%	S and I
Capacitación y Empleo	0.0%	0.0%	S and I
Subsidies	**4.9%**	**2.1%**	
Electricity subsidy	n.a.	1.1%	DI, AS and I
Gas subsidy	n.a.	0.4%	DI, AS and I
Bus subsidy	n.a.	0.4%	DI, AS and I
Bottled gas subsidy	n.a.	0.1%	DI, AS and I
Train subsidy	n.a.	0.1%	DI, AS and I
Education	**5.2%**	**4.8%**	
Initial education			DI and I
Primary education	3.9%	3.9%	
Secondary education			
Tertiary education	1.3%	0.9%	DI and I
Health	**6.7%**	**6.9%**	
PAMI	3.0%	3.1%	AS and I
Social security health insurance	2.7%	2.8%	AS and I
Public health care	0.9%	0.9%	AS and I
Other expenditures	**2.2%**	**n.i.**	

Source: Administrative: Ministry of Economy, *AFIP* and National Social Security Administration *(ANSES)*. Analysis: authors' own calculations. **Notes:** n.a. = not available. n.i. = not included in the analysis. *PNC = Pensiones No Contributivas. AAFF = Asignaciones Familiares. AUH = Asignación Universal por Hijo. JMyMT = Jóvenes con Más y Mejor Trabajo. PAMI = Programa de Atención Médica Integral.* S = Simulation. AS = Alternate Survey. DI = Direct Identification. I = Imputation. Methodology follows taxonomy described in Chapter 6 of Lustig, (2018). Expenditure data includes all government units of central, state, provincial, regional and local government units, among others, while tax revenues are those collected at the national level before fiscal co-participation.

The personal income tax is a global tax with progressive rates, based on a scale of a fixed amount plus a rate that increases up to 35%. Two categories of individuals pay income tax: salaried workers and the self-employed. Self-employed taxpayers can be classified as *monotributistas* or *autónomos*. *monotributistas* are subject to a simplified tax regime. They pay a unique monthly contribution that

includes contributions to social security and health. *AFIP* classifies part of the revenues from the *monotributo* as "social security revenues" and the rest as "tax revenues." For our analysis, we consider *autónomos* are sole owners or partners of companies, with several categories depending on type of activity and annual gross income.

Payroll taxes (0.8% of GDP) are taxes levied on salaries. Given the size of social security, contributions to the system (8.1%) are particularly important as a source of revenue.

There are several types of **indirect taxes**, levied on the purchases of goods and services. The value added tax is the most significant (7.2% of GDP). There is an almost universal 21% rate applied to most goods. Lower rates, from 0% to 10.5%, are applied to certain foods and electronics, while a higher rate of 27% is applied to telecommunications and electricity. There are some exempt items such as books and newspapers.

Another important group of indirect taxes are fuel taxes (1% of GDP). There are three main fuel taxes: one on diesel oil at 22%, one on gasoline at 4%, and, most important, a tax on fuel transfer and import. The rate – from 17.1% to 63% - depends on the type of fuel. Excise taxes (0.7% of GDP) are levied on goods such as tobacco-related products, alcoholic beverages, and vehicles.

Ingresos Brutos (0.2% of GDP) is a percentage of firm/personal invoicing, independently of profit collected by provinces. Rates vary from 1.5% to 5%, with 3.5% average. Even though it is an important source of provincial income, it has a cascading effect and double counting problems which make it a very inefficient tax.

3.2. Expenditures

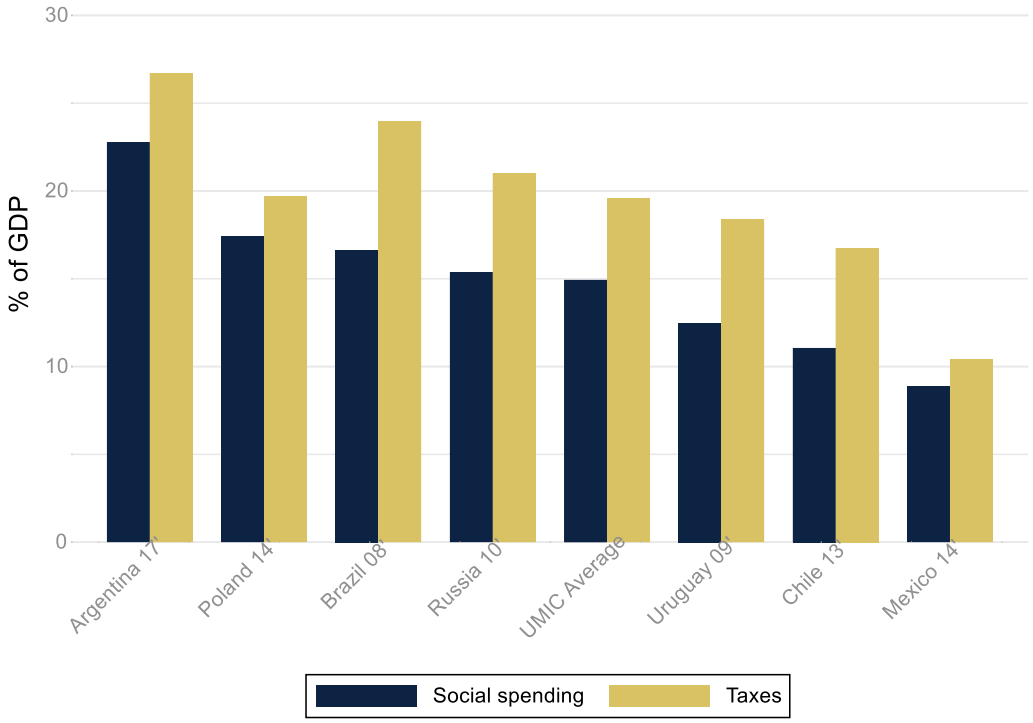
As can be seen in Figure 2, Argentina ranks first in social spending among the comparator sample of upper middle-income countries. The social security system consists of contributory pensions, non-contributory pensions and other direct transfers.

3.2.1. Pensions

The Argentine **contributory pensions** system is one of the oldest in the region, and it has suffered a series of fundamental changes, including privatization in 1994 and re-nationalization in 2008. It consists of an Integrated Retirement and Pension System (*SIPA*) administered by the National Social Security Administration (*ANSES*), as well as a number of pensions regimes not included in *SIPA*, such as pensions for several armed and security forces, and some remaining provincial workers pension regimes. Contributory pensions amounted to 7.9% of GDP in 2017 (Figure 3).

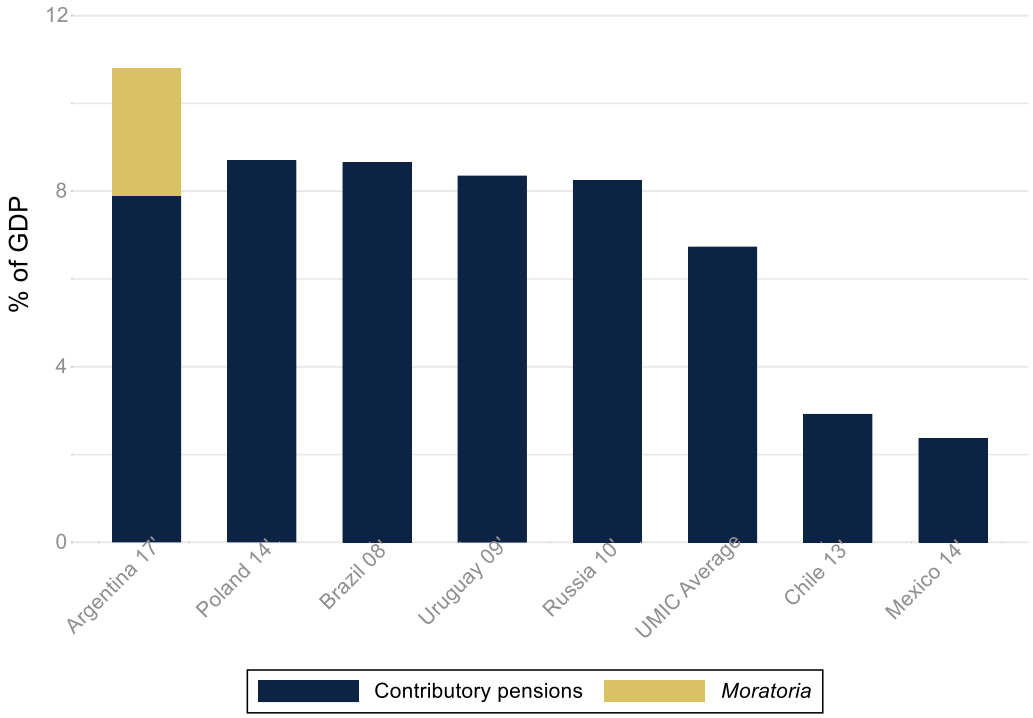
Since 2005, the government relaxed the conditions to get a pension through a number of laws collectively known as the ***Moratoria***. These laws allowed people of retirement age who had not contributed to social security for the required 30 years of formal employment – even those who had never contributed – to receive a pension. The beneficiaries of these programs usually receive a transfer equivalent to the minimum pension of the contributory system minus a deduction based

Figure 2. Social spending and taxes (% of GDP) by country



Source: Bucheli et al. (2013); Goraus & Inchauste (2016); Higgins & Pereira (2014); Lopez-Calva et al. (2017); Martínez-Aguilar (2019); and Scott et al. (2017).
Notes: Social spending includes expenditure on direct transfers, education, health and other social spending. It does not include neither contributory pensions nor indirect subsidies.

Figure 3. Old age pensions (% of GDP) by country



Source: see Figure 2.

on the period of unpaid contributions.[8] Additionally, since Law 27,260 (*Reparación Histórica*) was passed in 2016, a benefit is offered to anyone over 65 who does not meet the requirements for a contributory pension. These programs amounted to 2.9% of GDP in 2017 (Figure 3).

There are also social assistance programs which in Argentina are called *Pensiones No Contributivas* (***PNC***). The bulk of these *PNC* are disability pensions and pensions for mothers of seven children or more, but there are also special laws for former soldiers and political prisoners, and E*x-gratia* pensions granted by Congress. The size of these programs, which are administered in a more discretionary manner, has been increasing since 2004 and in 2017 there were almost 1.5 million beneficiaries amounting to 1.0% of GDP.

As we will explain in the next section on methodology, in the incidence analysis we will treat the contributory pensions as deferred income and the *Moratoria* pensions as direct transfers. In spite of that, from a macroeconomic perspective and from the point of view of intergenerational dynamics, they have similar effects. Considering both types of old-age pensions jointly, the total amount spent climbs up to 10.8%, making Argentina the country that spends the most in pensions among comparator countries (Figure 3).[9] Considering Argentina's pension system as a whole, the size of expenditures not only exceeds those of similar countries but also the system's revenues (mostly social security contributions). Cetrángolo & Grushka (2020) estimate that the pension system's disequilibrium would still be of around 3% of GDP by 2050, which casts doubts on its financial sustainability.

3.2.2. Other direct transfers

Among direct transfers (other than pensions), the flagship cash transfer program is the *Asignación Universal por Hijo* (*AUH*; 0.6% of GDP). Its objective is to help parents of school-age children who are unemployed, employed but not registered, or have earnings below the level necessary to raise a child. 80% is unconditional, while the remaining 20% is granted once health and education conditions are verified.

Asignaciones Familiares (*AAFF*; 0.8% of GDP) is a series of different programs aimed at providing financial aid to salaried workers to cope with different family-related burdens. *Progresar* (0.1% of GDP) provides individuals from 18 to 24 years old with a monthly transfer to help complete their middle-school education. The transfer has conditions similar to the *AUH*'s. There are also programs aimed at combating food insecurity, aiding community kitchens and related programs that amount to 0.1% of GDP.

There exists a fixed-sum unemployment insurance transfer (with very low coverage). *Jóvenes con Más y Mejor Trabajo (JMyMT)* is a training program aimed at including young adults in the labor market. *Capacitación y Empleo* is another fixed-sum transfer for unemployed individuals, compatible with programs like the *AUH* but not with the unemployment insurance.

[8] In Appendix A.1 we uncover that *Moratoria* is behind a number of cases of households with zero income. This is due not only to the fact that the beneficiaries of *Moratoria* are currently pensioners but also that they are mainly woman that had informal jobs or were housewives.

[9] To the best of our knowledge, none of the comparator countries has any program with characteristics similar to *Moratoria*. In Argentina 3.2 out of 6.3 million pension benefits correspond to the *Moratoria*.

3.2.3. Indirect subsidies

Indirect subsidies (4.9% of GDP) are benefits in the form of reduced prices for specific goods and services, mainly electricity, gas, and transportation. While many of them are across the board price subsidies, *Tarifa Social* provides additional focalized financial help, conditional on some eligibility requirements.

There are several consumption-price subsidies for electricity and gas. One is a fund financed through charge on consumer price of gas. These funds are distributed unevenly across regions; with some subsidized, and others taxed. There are also direct subsidies to gas companies to cover the cost of price controls. Bottled gas consumption is subsidized for families who do not have access to the gas network, depending on income and other vulnerability conditions.[10]

Transportation by train and bus is subsidized. In the case of train, as the state owns the company, it just charges artificially low prices. In 2017, the state subsidized 50 pesos for each train ticket.

3.2.4. In-kind transfers

3.2.4.1. Education

Public schools and universities are financed entirely by the government, and the service is free to students. Private schools also receive a subsidy from the state, intended to cover professors' salaries, which are the main cost of the whole system. Primary and secondary education are in the hands of the provinces, but some financing, such as said subsidies to private schools comes from national funds. 70% of primary schools across the country receive some kind of state subsidy, and these institutions account for 93% of primary students. 77% of high schools, accounting for 95% of high school students, received aid. State financing of education is vast. Argentina ranks second in expenditure in education as a percentage of GDP in the sample of upper middle-income countries, with 5.2%, as seen in Figure 4.

3.2.4.2. Health

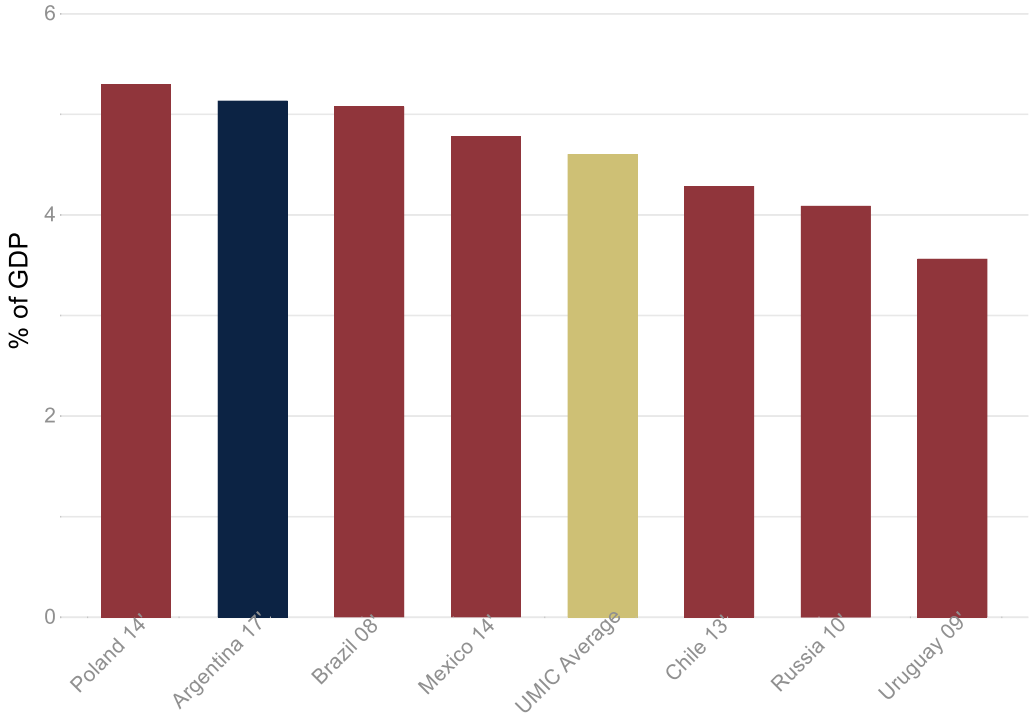
In-kind public transfers in health belong to two broad categories: the coverage of the formal protection system and the public healthcare subsystem.[11]

The social insurance subsystem includes the National Institute of Social Services for Retirees and Pensioners *(INSSJyPJ)*. This Institute offers a Comprehensive Medical Assistance Program (*PAMI*) to the elderly.

The second component is the coverage of the formal social protection system —that is, the coverage for formal workers—, through the social security health insurance system (*Obras Sociales*), including both provincial and national plans. Workers (and their employers) also finance this system through their contributions. As a result, formal workers are entitled to receive a health insurance plan.

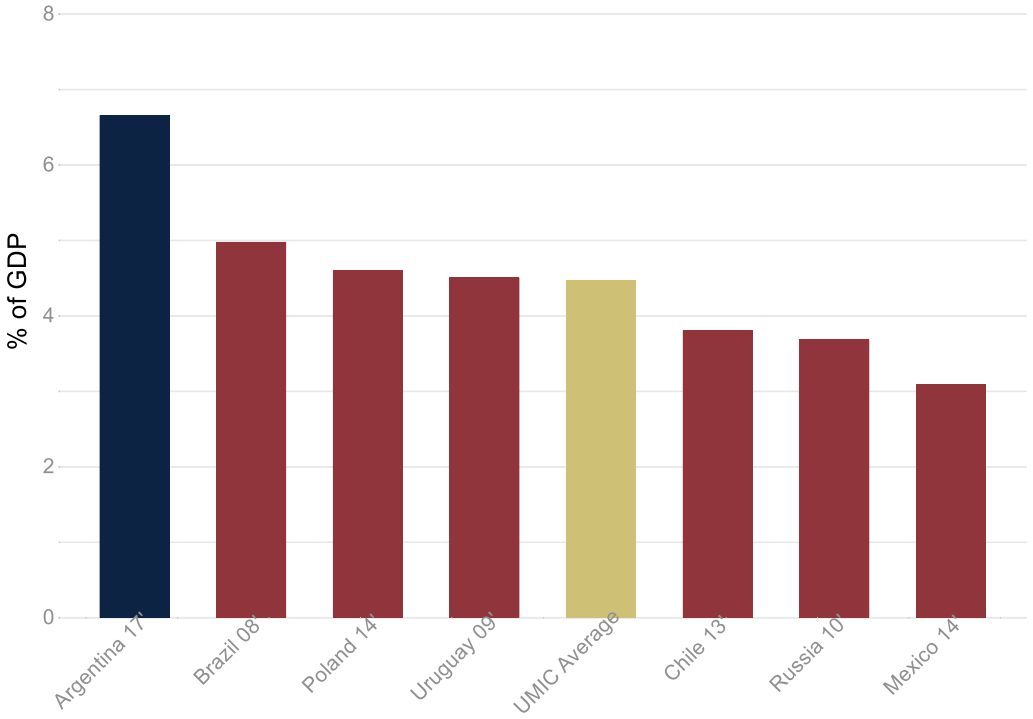
[10] There are also supply-side-subsidies to gas, which we are not able to calculate due to the obsolescence of accessible data, in particular the fact that the most recent input matrix available is from more than a decade ago.
[11] For a more detailed description see Gragnolati et al. (2015).

Figure 4. Education expenditure (% of GDP) by country



Source: see Figure 2.

Figure 5. Health expenditure (% of GDP) by country



Source: see Figure 2.

The public healthcare subsystem consists of subsidized medical attention services provided by government entities. This is accomplished in two ways: (i) by a supply subsidy structure that

includes hospitals and primary care clinics throughout the country, and (ii) by a program called Include Health, former Federal Health Care Program (*PROFE*), that provides coverage to beneficiaries of non-contributory pensions.

This complex system amounts to nearly 7% of GDP. As we can see in Figure 5, Argentina ranks first in the size of health spending among comparable countries.

4. Data and methodology

4.1. Data

The main source of information of the analysis is the household survey *Encuesta Permanente de Hogares (EPH)*. The *EPH* is an urban survey that covers 63% of the population and includes information on household and individual income, cash transfers and personal characteristics including education and labor market conditions. It does not include information on consumption. Since our exercise needs to cover the entire population, we assume that the remaining 37% of the population is similar to those individuals in the survey. We adjust the sampling weights to make the total population in the survey equal the total population in the country.[12]

Since Argentina has a medium-high inflation regime, purchasing power can change significantly throughout a semester. To adjust for inflation, we convert all prices to December 2017's values.

There is significant item non-response for incomes in the *EPH*.[13] To deal with item non-response we imputed the missing data applying hot-deck methodology. This method consists of imputing a missing value from a randomly selected record of individuals with similar characteristics.[14]

There are also a number of cases of households with zero income. We analyzed their characteristics to determine whether the income reported is plausible or if it is an error. Most of these households are inactive individuals, students, under-age, and pensioners who receive the *Moratoria* or a non-contributory pension (see Appendix A.1). Hence, we conclude that these reported zero pre-fiscal incomes are correct.

Since we cannot obtain all the necessary information for the core income concepts from the *EPH*, we resort to three complementary surveys. One of them, the 2017/2018 *Encuesta Nacional de Gastos de los Hogares (ENGHo)* which collects information on expenditure, income, and characteristics of households and individuals. The *ENGHo* is also an urban survey but it expands to as much as 92% of the population.

The second complementary source is the 2015 *Encuesta Nacional de Protección y Seguridad Social (ENAPROSS)* which has information on socio-economic characteristics and social protection of

[12] This strong assumption is the same approach followed by previous similar efforts (Cruces et al., 2018; Rossignolo, 2018). We leave for future research exploring alternative ways of obtaining information from the population that is not covered by the *EPH*.

[13] For instance, depending on individual characteristics, the proportion of individuals who did not respond to the question on main source of income ranges from 12.5% (for salaried workers) to as much as 30.9% (for employers).

[14] This was the method used by the *Instituto Nacional de Estadísticas y Censos* (*INDEC)* – the Argentine statistical institute – prior to 2016. Since missing values are imputed, there is no need to reweight the observations, so that we use the uncorrected base weights (called PONDERA). See also Tornarolli (2018).

households. This survey was collected in the city of Buenos Aires, the Great Buenos Aires, and villages of at least 5000 inhabitants from five provinces.

The third is the 2009/2010 *Encuesta de Movilidad Domiciliaria (ENMODO)* for the *Área Metropolitana de Buenos Aires* (*AMBA*), which has information on the characteristics of 22,500 households and their members and on their mobility and use of public transportation.

Finally, we use national administrative and fiscal information for 2017.

4.2. Methodology

For some taxes and transfers, the information for how much a household pays or receives is reported in the *EPH*. However, direct identification is not always available, so we resort to other allocation methods as suggested in Lustig (2018). The methods used for each category are summarized in Table 1 and explained below. In all cases, taxes and transfers were aggregated at the household level to obtain per capita amounts. For more details, see Appendix A.2.

4.2.1. Tax allocation

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. For independent workers, it is assumed that they report income net of only non-pension social insurance contributions. Therefore, it is not possible to directly identify the burden of direct taxes in the *EPH*, and we simulate them based on the contribution and tax rules.

Since the *EPH* does not have consumption data, direct identification for indirect taxes is not possible. We use the *ENGHo* to estimate the burden of the different indirect taxes. Consumption taxes are assumed to be shifted forward to consumers. Evasion is taken into account implicitly by using effective rates rather than statutory rates.

4.2.2. Pensions as deferred income or government transfer (PDI or PGT)

Deciding which way pensions should be treated in Argentina's case is not straightforward. The system's disequilibrium (expenditure minus revenues as a share of revenues) is around 40% (Cetrángolo & Grushka, 2020). However, 57% of this disequilibrium is explained only by *Moratoria*, while the remaining 43% is due to contributory pensions and special regimes. In fact, if we only consider contributory pensions, the disequilibrium is around 7%.

For practical purposes, in this analysis we take the PDI scenario as closer to Argentina's situation in 2017 —provided we treat the *Moratoria* as non-contributory and hence as a transfer—, but we believe the reality lies somewhere in between the two extreme scenarios (the non-contributory feature of *Moratoria*, for instance, is an unsolved debate). For this reason, we run both scenarios (PGT results can be found in the online appendix) and leave the development of a tool that allows for an incidence analysis in a more realistic hybrid scenario for future research.

4.2.3.Public spending allocation

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

from the other. [15] Thus, we resort to the *ENAPROSS* to identify the beneficiaries of each type of pension and then match the pension markers back to the main survey. The amount received is then imputed according to the law's rules.

It is not possible to directly identify the beneficiaries of cash transfers in the *EPH*, and the availability of information necessary to simulate the impact of each program varies. One question on the amount received from social programs lumps all of them together. Hence, we take different approaches and assumptions for each program. Below, we summarize the two most important direct transfers; for the rest of the programs see. Appendix – Methodology Appendix A.2.

For the *AUH* we make use of the program's rules to identify recipients in *EPH* and simulate the impact of the program.[16] Once identified, we use information on the statutory amount of the program given to beneficiaries to impute the corresponding value. We only impute the 80% unconditional part.

For the *Moratoria* we resort to the *ENAPROSS* to identify the eligible individuals by decile of the household per capita income and calculate the ratio of beneficiaries to total amount of pensioners per decile. Then, for pensioners in each decile in the *EPH*, we draw a number from a Bernoulli distribution with probability of success equal to the ratio estimated in the *ENAPROSS*. The 1s are considered the beneficiaries of the *Moratoria*. We also identify as beneficiaries those who declare to receive a pension if the amount reported is significantly lower than the minimum pension (using 4,000 pesos as the cut-off). We take the reported amount as valid.

It is possible to directly identify students from different levels of education in the *EPH*. Expenditure per student is imputed using administrative data on expenditure and on the number of students. Expenditure per student varies depending on the type of institution (private or public), province, and education level and it is calculated for each combination of these dimensions.

Since it is not possible to directly identify type of health insurance in the *EPH*, we use the *ENGHo*, where one can identify if an individual has any form of insurance. We define that all the individuals not reporting having any form of insurance goes to public hospitals. Then, we estimate the proportion of individuals who have access to each type of health insurance per quintile of per capita household income. 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.

In the *EPH*, we assign a random number from a uniform distribution over (0, 1) by which we order the individuals in each quintile; we then sequentially assign a form insurance until we cover the estimated proportion of each type. Expenditure per capita is imputed using administrative data on expenditure and, since there are no official numbers regarding health insurance beneficiaries, we use the total beneficiaries estimated in the *ENGHo* (with weights corrected to represent the total population).

In order to simulate the amount of subsidy (both general and the *Tarifa Social*) received in each service, we use the *ENGHo* in conjunction with the *EPH*. We first simulate in the *EPH* potential beneficiaries of these subsidies by ventile of income per capita and classify them according to whether or not they are eligible for the *Tarifa Social*. If they are eligible, we classify them further by

[15] Fewer than 1% received both pensions, so we assume that individuals have only one.
[16] This has the problem of assuming perfect targeting and no errors of inclusion or exclusion.

the eligibility condition they meet, the number of eligibility conditions they meet, and the region in which they reside. Then we estimate the quantity of gas and electricity that households consume in the *ENGHo*. Since there was considerable noise in the reported quantities consumed, we estimated the mean quantities consumed by income ventile and region. The size of the subsidies was estimated as the product of the quantity and imputed subsidy for both the general and the *Tarifa Social* component.

5. Results

In this section, we quantify the extent to which the fiscal system impacts overall inequality and poverty, and identify which components drive the results. To give perspective, we compare Argentina with other upper middle-income countries from the CEQ Data Center of similar income per capita: Brazil, Chile, Mexico, Poland, Russia, and Uruguay.[17]

5.1. The impact of fiscal policy on inequality and poverty

To see the impact of taxes and transfers on inequality and poverty, we present in Table 2 inequality measures (Gini coefficient, Theil index, and the 90/10 ratio) and poverty indicators (headcount ratio, poverty gap index, and squared poverty gap index) with the standard international poverty lines and the national poverty line.

Table 2. Inequality and poverty by income concept

Measure	Market income + pensions	Disposable income	Consumable income	Final income
Gini	0.477	0.418	0.408	0.308
Theil index	0.371	0.308	0.293	0.173
90/10	12.80	7.643	7.204	3.735
$5.5 per day (2011 PPP) poverty line				
Headcount index	12.4%	6.0%	6.1%	Not applicable
Poverty gap	7.2%	2.2%	2.1%	Not applicable
Sq. poverty gap	5.7%	1.2%	1.1%	Not applicable
National poverty line				
Headcount index	29.5%	22.2%	24.1%	Not applicable
Poverty gap	14.3%	8.1%	8.6%	Not applicable
Sq. poverty gap	9.7%	4.3%	4.4%	Not applicable

Source: authors' own calculations.
Note: these measures are calculated for the PDI scenario. Poverty calculations for final income are not calculated since they would require a significantly different poverty line (Lustig, 2018).

Argentina's fiscal system features two characteristics which are desirable for equity in the income dimension in the short-run. It is overall progressive (reduces inequality), and it lowers poverty.

The redistributive effect of direct and indirect taxes, direct transfers, and subsidies combined is positive and relatively large comparing with other countries. When pensions are treated as deferred income, the Gini coefficient declines by 6.9 Gini points.[18] Most of the decline occurs through the effect of direct transfers net of direct taxes. While the combined effect of indirect taxes and subsidies is still equalizing (something which does not happen in many countries), the size of the impact is small in comparison. If one also contemplates the impact of transfers in-kind, the fiscal

[17] Unless otherwise noted, we present results for the scenario of pensions as deferred income. The results for pensions as transfers is available in the online appendix.
[18] If pensions are considered a government transfer, the redistributive effect rises to 11.1 Gini points.

system is even more equalizing. Compared to the Gini coefficient for consumable income, the Gini coefficient for final income is 10 points lower. The combined effect of all taxes and all transfers (including in-kind transfers) leads to a reduction of 16.9 Gini points.

The headcount ratio falls significantly for all poverty lines considered. Generous cash transfers are the main driver of this result. Even net of direct taxes, the headcount ratio with the $5.5 per day (2011 PPP) poverty line falls by half of its pre-fiscal level when pensions are treated as deferred income (and to one third of its pre-fiscal level when pensions are treated as transfers). The marginal effect of indirect taxes and subsidies on poverty (the difference between disposable and consumable income headcount) is nil when using the international poverty lines. When poverty is measured with the national poverty line, the effect is poverty increasing.

Net payers to the fiscal system are those who live in households that receive less in transfers and subsidies than they pay in taxes – i.e., those whose consumable income is lower than pre-fiscal income. Net payers in Argentina start at the 6th decile and the more than $10 per day (2011 PPP) income category, which means that the extreme poor, moderate poor, and vulnerable to poverty groups are net receivers.[19] Argentina stands out by this high number of net receivers compared with Brazil 2009 (3rd decile), Mexico 2014 (4th decile), and Uruguay 2009 (3rd decile). In Chile and Russia, net payers also start at the middle class.

The estimated reduction in inequality and poverty is quite large, especially compared with the other upper middle-income countries, as Table 3 shows. While these results put Argentina seemingly in a bright spot, we will see that the main factor behind these results is the amount of public spending and not its overall progressivity. Tax revenues are quite high, and yet not enough to keep up with problematic spending levels. Even though not the direct focus of our analysis, we cannot finish a section on the impact of fiscal policy on poverty without taking these effects into consideration.

Fiscal imbalances have been a key cause in subsequent recessions in recent Argentine macroeconomic history.[20] In the two-year period 2018-2019, GDP per person fell by 3%. The incidence of poverty rose 8.2 percentage points from 27.3 to 35.5% between the first semester of 2018 and the second semester of 2019 (*INDEC*, 2020). Using the same metric of national poverty line and disposable income, the headcount ratio fell by 6.4 percentage points as a result of direct transfers (net of taxes). That is, the recession caused poverty to rise in two years by more than the fiscal system reduced it in 2017. This suggests that redistributive policies can be self-defeating if not anchored in a fiscally prudent framework.

5.2. Determinants: size, progressivity and reranking

The extent of fiscal redistribution and poverty reduction depends on the size and progressivity of the fiscal system. To see which factor is more important in the Argentine case we use Lambert (2001)'s equation for the overall progressivity of the fiscal system, which equals a weighted sum of the progressivity of taxes and transfers:

$$\Pi_N^{RS} = \frac{(g\Pi_T^K + \mathbf{b}\,\rho_B^K)}{(1 - \mathbf{g} + \mathbf{b})}$$

[19] Income categories income are standard definitions based on dollars per day (2011 PPP).
[20] See, for instance, Llach & Gerchunoff (2018), Mussa (2002), and Sturzenegger (2019).

Table 3. Inequality and poverty by country

Country	Market income + pensions	Disposable income	Consumable income	Final income
		Gini coefficient		
Argentina 17'	0.477	0.418	0.408	0.308
Brazil 08'	0.573	0.545	0.542	0.430
Chile 13'	0.494	0.467	0.464	0.419
Mexico 14'	0.528	0.494	0.492	0.393
Poland 14'	0.412	0.345	0.355	0.291
Russia 10'	0.379	0.348	0.351	0.299
Uruguay 08'	0.505	0.467	0.468	0.377
		$5.5 per day (2011 PPP) poverty line		
Argentina 17'	12.4%	6.0%	6.1%	Not applicable
Brazil 08'	32.0%	30.3%	35.7%	Not applicable
Chile 13'	8.3%	5.3%	6.7%	Not applicable
Mexico 14'	36.3%	36.1%	37.4%	Not applicable
Russia 10'	6.9%	4.9%	5.9%	Not applicable
Uruguay 08'	15.9%	11.5%	15.0%	Not applicable

Source: see Figure 2.
Note: data for Poland not available.

where $\boldsymbol{\Pi_N^{RS}}$ is the Reynolds-Smolensky (RS) index of progressivity of the fiscal system ("Vertical Equity"). In the absence of reranking, RS is identical to the difference between the post-fiscal and pre-fiscal Gini coefficients. **g** and **b** are the ratio of taxes and transfers to pre-fiscal income, and $\boldsymbol{\Pi_T^K}$ and $\boldsymbol{\rho_B^K}$ are the Kakwani indexes for total taxes and total transfers.[21] This equation can be used to compare the relative importance of size versus progressivity (in the absence of reranking, which we shall assume away for now in analyzing the drivers of fiscal redistribution).

Measured by the ratio of social spending to GDP (even leaving out contributory pensions), Argentina's fiscal system is the largest among similar countries (Figure 6).

Regarding progressivity as measured by the Kakwani index, Table 4 shows that direct taxes in Argentina are the least progressive except for Russia. Indirect taxes are the most regressive in Argentina. All taxes combined are regressive only for Argentina.[22] Direct transfers are relatively progressive but less so than in Uruguay, Mexico, and Chile, while subsidies are the least progressive. In the case of education spending, Argentina is among the most progressive. For health, the country is among the less progressive group.

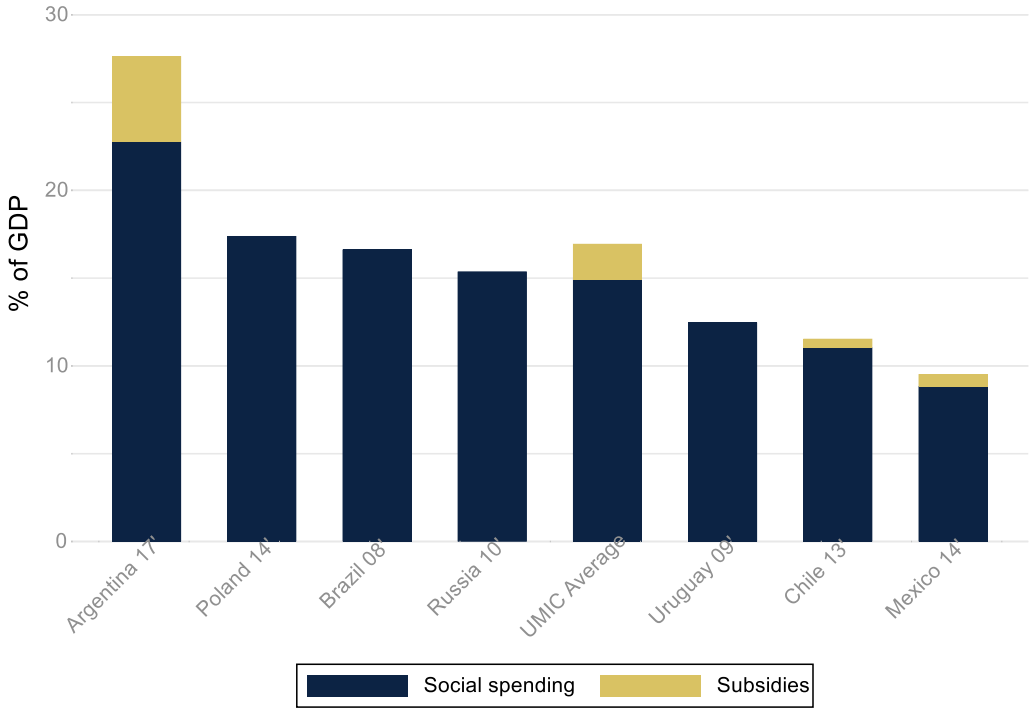
Thus, the large impact on inequality and poverty observed in Argentina is primarily driven by the large amount of resources devoted to social spending and subsidies. The poor performance in terms of progressivity on some of the spending components must mean that a nontrivial portion of resources is spent on the non-poor. As we shall see, this is particularly true for subsidies.

Beyond low progressivity, another factor that can weaken the redistributive power of taxes and transfers is the presence of reranking. Reranking, the swapping of individuals in the distribution, is considered a measure of horizontal inequity and of "waste" in the redistributive machinery. The reranking effect for all taxes and transfers equals 0.022. To put this in perspective, we take the

[21] The Kakwani index for tax (transfer) is defined as the (negative of the) difference between the concentration coefficient for the tax (transfer) in question and the Gini coefficient. A positive (negative) Kakwani index means that the tax or transfer is progressive (regressive).
[22] We carried out a sensitivity analysis to uncover the reasons behind this seemingly odd feature and found that a main driver of this result is the existence of a quite special program: *Moratoria*. For more details, see Appendix A.1.

ratio of this effect to the redistributive and the vertical equity effects. These ratios equal 13% and 12%. Comparing with other countries in Table 5 we observe that the extent of reranking is much lower than Russia's, much higher than Uruguay, and similar to Brazil, Chile, and Mexico. Argentina's fiscal system does not seem to feature more reranking than comparable countries.[23]

Figure 6. Social spending and subsidies (% of GDP) by country



Source: see Figure 2.
Notes: social spending includes expenditure on direct transfers, education, health and other social spending. It does not include contributory pensions. Indirect subsidies not available for Poland, Brazil, Russia, and Uruguay.

Table 4. Kakwani index by country

Country	Gini coefficient	Kawkani Index							
		Direct taxes	Direct transfers	Indirect taxes	Subsidies	All taxes	Education	Health	SS + subsidies
Argentina 17'	0.477	0.132	0.738	-0.088	0.352	-0.021	0.633	0.489	0.578
Brazil 08'	0.573	0.169	0.464	-0.025	0.712	0.046	0.711	0.690	0.647
Chile 13'	0.494	0.143	0.824	-0.027	0.497	0.025	0.664	0.592	0.674
Mexico 14'	0.528	0.167	0.852	-0.005	0.060	0.104	0.608	0.466	0.539
Russia 10'	0.379	0.116	0.594	-0.066	0.173	0.020	0.510	0.371	0.472
Uruguay 09'	0.505	0.151	0.979	-0.050	n.a..	0.042	0.668	0.608	0.684
Average	0.493	0.146	0.742	-0.043	0.359	0.036	0.633	0.536	0.599

Source: see Figure 2.
Notes: n.a.= not available. Gini coefficient is calculated for market income + pensions. Data for Poland not available.

[23] There are countries in which the reranking effect is so large that it takes away the entire redistributive effect. In the CEQ Data Center sample, this occurs in Bolivia and Indonesia.

Table 5. Redistributive, Vertical Equity and Reranking Effects by country

Country	Redistributive Effect (RE)	Vertical Equity Effect (VE)	Reranking Effect	Reranking over RE	Reranking over VE
Argentina 17'	0.169	0.192	0.022	13%	12%
Brazil 08'	0.143	0.158	0.015	10%	9%
Chile 13'	0.075	0.084	0.009	12%	10%
Mexico 14'	0.135	0.151	0.016	12%	11%
Russia 10'	0.080	0.105	0.025	32%	24%
Uruguay 09'	0.128	0.135	0.007	5%	5%
Average	0.122	0.137	0.010	14%	12%

Source: see Figure 2.
Note: data for Poland not available.

5.3. Components of the fiscal system: marginal contributions, pro-poorness, and leakages to the non-poor

The previous section analyzed the determinants of the broad redistributive effect of the Argentine fiscal system. In this section, using marginal contributions[24], we focus on identifying which specific taxes, transfers, and subsidies contribute the most to the reduction in inequality and poverty and which ones are most unequalizing. We also assess which specific transfers are more targeted to the poor and which ones allocate an inordinate amount of resources to the non-poor. For this purpose, we will look at the concentration coefficients and concentration shares by income category.

Table 6 shows that the spending interventions which contribute more to reducing inequality are the *Moratoria*, the *PNC*, and the *AUH*. These are also the programs that contribute the most to reduce poverty. These results are not surprising because the first two programs are non-contributory pensions whose beneficiaries are likely to have zero or very low pre-fiscal incomes.[25]

Subsidies are equalizing but to a much lower extent. They are also poverty reducing. One aspect to note is that the marginal contribution of subsidies to poverty reduction increases as we measure it with higher poverty lines. This is telling us that subsidies benefit the moderate poor relatively more than the extreme poor. Regarding in-kind transfers, the most equalizing is public health care and primary and secondary education, in that order. The least equalizing is spending on tertiary education.[26]

On the tax side, excise taxes, fuel taxes, and value added taxes are outright unequalizing. The most equalizing tax is personal income tax. All taxes by definition are poverty increasing, but the value added tax has the highest marginal contribution and by a nontrivial difference from the next in line. The value added tax is significantly poverty increasing for poverty measured by low or higher poverty lines, as shown in the Table 6.

[24] The marginal contribution of a tax (transfer) is calculated by taking the difference between inequality (or poverty) indicator *without* the tax (transfer) and *with* it.
[25] Incidence of these programs is broken down by deciles in Figures A3 through A5 in the Appendix A.3. Although incidence as a percentage of pre-fiscal income declines with income for all three programs, incidence in dollars per capita only falls monotonically with income for the *AUH* and remains constant after the first decile for the *PNC* and *Moratoria.*
[26] See figures A6 through A11 in the Appendix A.3.

Regarding payroll taxes, there are concerns about its progressivity. Despite being less so than personal income tax, they are progressive and equalizing, unlike indirect taxes. Figure A.12 in the Appendix A.3 shows that the higher deciles are the ones who pay most of these taxes.

We consider pro-poor those spending categories that have negative concentration coefficients – per person spending declining with income. The more a program is targeted to the poor, the more negative the concentration coefficient will be. In Table 6 we see that the pro-poor spending categories are (in decreasing order) the *AUH*, *Moratoria*, bottled gas subsidy, *Capacitación y Empleo*, *JMyMT* (youth program), scholarships, *PNC*, unemployment insurance, community kitchens, and bus subsidies.

Table 6. Marginal Contributions by program

				Redistribution	Poverty reduction		
Budget item	**Size (% of market income + pensions)**	**Concentration coefficient**	**Kakwani index**	**Marginal Contribution (MC)**	**MC $3.2**	**MC $5.5**	**MC national**
Disposable income	105.2%						
Direct transfers	11.0%	-0.261	0.738	0.051	0.056	0.065	0.082
Moratoria	5.4%	-0.338	0.815	0.021	0.023	0.026	0.035
PNC	2.5%	-0.222	0.699	0.013	0.017	0.019	0.021
AAFF	1.5%	0.076	0.401	0.005	0.000	0.001	0.010
AUH	1.1%	-0.533	1.010	0.011	0.019	0.021	0.012
Progresar	0.2%	0.053	0.424	0.001	0.001	0.001	0.001
Community kitchens	0.2%	-0.002	0.479	0.001	0.001	0.000	0.002
UI	0.1%	-0.046	0.523	0.000	0.001	0.001	0.001
Scholarships	0.0%	-0.221	0.698	0.000	0.000	0.001	0.001
JMyMT	0.0%	-0.248	0.725	0.000	0.000	0.000	0.000
Capacitación y Empleo	0.0%	-0.287	0.764	0.000	0.000	0.000	0.000
Direct taxes	5.8%	0.609	0.132	0.008	-0.000	-0.002	-0.010
Personal income tax	2.1%	0.762	0.285	0.006	0.000	0.000	-0.001
Health contributions	2.6%	0.524	0.047	0.001	-0.000	-0.001	-0.007
Payroll taxes	1.1%	0.524	0.047	0.000	-0.000	-0.000	-0.003
Consumable income	96.7%						
Subsidies	4.6%	0.125	0.352	0.015	0.023	0.018	0.027
Electricity subsidy	2.5%	0.177	0.300	0.007	0.007	0.007	0.015
Gas subsidy	0.9%	0.214	0.263	0.002	0.002	0.002	0.005
Bus subsidy	0.8%	-0.016	0.493	0.004	0.004	0.005	0.007
Bottled gas subsidy	0.2%	-0.317	0.794	0.002	0.003	0.003	0.004
Train subsidy	0.2%	0.139	0.338	0.007	0.001	0.000	0.001
Indirect taxes	13.1%	0.389	-0.088	-0.014	-0.015	-0.032	-0.063
Value added tax	8.7%	0.382	-0.095	-0.009	-0.008	-0.0194	-0.041
Fuel taxes	0.7%	0.279	-0.198	-0.001	-0.001	-0.002	-0.004
Excise taxes	1.1%	0.307	-0.170	-0.002	-0.001	-0.002	-0.007
IIBB tax	2.5%	0.477	-0.000	-0.000	-0.001	-0.0023	-0.009
Final income	122.4%						
In-kind transfers	25.3%	-0.072	0.549	0.106	Not app.	Not app.	Not app.
Initial education	1.0%	-0.230	0.708	0.007	Not app.	Not app.	Not app.
Primary education	3.5%	-0.264	0.741	0.023	Not app.	Not app.	Not app.
Secondary education	4.1%	-0.195	0.672	0.024	Not app.	Not app.	Not app.
Tertiary education	1.9%	0.160	0.317	0.005	Not app.	Not app.	Not app.
PAMI	2.0%	0.033	0.444	0.008	Not app.	Not app.	Not app.
Social security health insurance	6.7%	0.106	0.372	0.023	Not app.	Not app.	Not app.
Public health care	6.0%	-0.155	0.632	0.035	Not app.	Not app.	Not app.

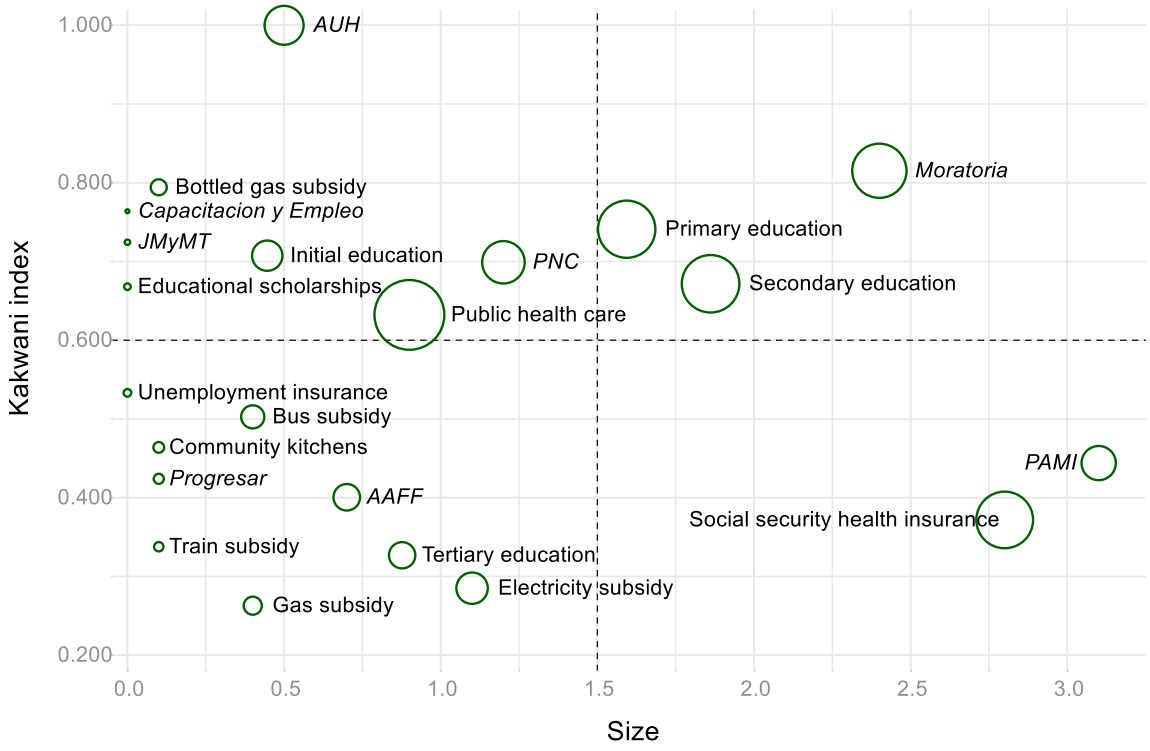
Source: authors' own calculations.
Note: see Tables 1 and 2.

While the concentration coefficient gives us a summary measure of pro-poorness, it does not allow us to see the extent to which resources are allocated to the non-poor. In Table 7 we show the concentration shares by income category – the ultra, extreme, and moderate poor, the vulnerable

to poverty, the middle class, and the rich. While the ultra-poor receive a large portion of direct transfers, especially when compared to their population share, the middle class and the rich receive almost 54% of what is spent on direct transfers. Thus, there is a considerable amount of "leakage" to the non-poor. Subsidies stand out with their pro-rich spending patterns.[27] The poor and the vulnerable comprise 30% of the population and receive only 23.7% of subsidies. The middle class is 61% of the population and receives 60% of subsidies. The rich are 10% of the population but receive 16.4% of subsidies!

From a public policy point of view, one may wonder how effectively government resources are spent. Figure 7 highlights some features that may help answer the question. The circles indicate the size and progressivity for each spending item. The horizontal axis shows the amount of spending as a share of GDP. The vertical axis shows the Kakwani index of progressivity. The size of the circles reflects the magnitude of the marginal contribution: larger marginal contributions are represented by larger circles.[28]

Figure 7. Size, progressivity and marginal contribution



Source: authors' own calculations.
Note: circles' size corresponds to marginal contribution.

Figure 7 raises some important questions regarding the allocation of government resources. Larger programs tend to be more equalizing (larger circles), even if the programs (such as social security health insurance or *PAMI*) are less progressive. On the other end, there are a number of relatively

[27] See for instance electricity subsidies in Figure A13.
[28] Recall that a positive marginal contribution means that the item is equalizing. In this case, all items that are progressive according to the Kakwani index are also equalizing. As discussed in Lustig (2018), chapter 1, this is not necessarily always the case.

Table 7. Concentration shares of taxes and transfers by market income + pensions group

Market income + pensions group	Market income + pensions	Direct transfers	Direct taxes	Disposable income	Indirect taxes	Subsidies	Consumable income	Health	Education	Final income	Population by group
Income < $1.9	0,1%	21,8%	0,0%	2,3%	2,5%	7,6%	2,6%	5,5%	4,7%	3,1%	5%
$1.9 ≤ Income < $3.2	0,2%	2,4%	0,0%	0,5%	0,5%	1,5%	0,5%	2,5%	3,8%	1,0%	2%
$3.2 ≤ Income < $5.5	0,7%	4,3%	0,1%	1,1%	1,1%	2,7%	1,2%	4,7%	7,0%	2,1%	5%
$5.5 ≤ Income < $10	5,3%	18,1%	2,0%	6,8%	6,8%	11,9%	7,1%	17,2%	22,7%	9,7%	17%
$10 ≤ Income < $50	59,9%	48,7%	53,5%	59,0%	59,1%	60,0%	59,1%	60,4%	57,3%	59,1%	61%
$50 ≤ Income	33,8%	4,8%	44,3%	30,2%	30,0%	16,4%	29,6%	9,7%	4,5%	24,9%	10%
Total population	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: authors' own calculations.

small (labor and education) programs that are not particularly equalizing —despite being quite progressive – because of their small size. Various utility subsidies (gas, electricity) and tertiary education stand out as the least progressive in spite of being slightly equalizing. AUH, while relatively small, is an outlier in terms of progressivity and manages to be among the most equalizing programs.

6. Conclusions

Argentina is an outlier in how much inequality and poverty are reduced through fiscal redistribution. The fiscal system overall reduces the Gini coefficient by 16.9 points and poverty by 5 or 6 percentage points, depending on the line used. Direct cash transfers are the main driver of this result.

The large redistributive impact in Argentina is mainly the result of its size and not its overall progressivity. The state in Argentina is the largest in Latin America and similar to that observed in some advanced countries with large welfare states. However, some of the spending components exhibit a poor performance in terms of progressivity and spend nontrivial resources on the non-poor: the middle class and the rich receive almost 54% of what is spent on direct transfers and as much as 76.4% of subsidies. Furthermore, such high levels of spending have large costs in terms of macroeconomic stability, efficiency, and growth, which in turn feed back into higher poverty, making some of this distributive effort self-defeating.

The spending programs with the highest contributions to reducing inequality and poverty are the *Moratoria*, *PNC*, and *AUH*. There is an interesting contrast between the *AUH* and *PNC*. Both reduce inequality in 1 Gini point. However, while the *AUH* represents 0.5% of GDP, spending on the *PNC* is more than twice as much (1.1% of GDP). Their impact on inequality is similar because the *AUH* compensates its lower spending with a higher progressivity.

Regarding in-kind transfers, the most equalizing are public health care and primary and secondary education, in that order. The least equalizing is spending on tertiary education.

Subsidies go disproportionally to the rich. Despite being (marginally) equalizing and progressive, they are concentrated in the higher deciles of the income distribution. This pattern mainly stems from electricity subsidies, which represent over half of the spending on subsidies. An exception is bottled gas subsidy, which is the third most progressive spending item.

Some small programs as scholarships, youth and training programs are well targeted and hence progressive, but given their trivial size, they are barely equalizing.

Unlike in the comparator countries, taxes are regressive overall, due to indirect taxes. Excise taxes, fuel taxes, and value added taxes are outright unequalizing. Personal income taxes, on the contrary, are progressive. Payroll taxes, usually identified as a burden on the lower deciles, are actually progressive and equalizing, since they are paid by formal workers who aren't typically in the low end of the income distribution. For the same reason, spending program associated with formality as health care programs have low progressivity and take up lots of resources.

In conclusion, Argentina has a large redistributive state with many leakages and inefficiencies that pose a threat to macroeconomic stability, growth, and the very sustainability of the redistributive effort. Thus, it is of upmost importance to think how should taxes, transfers, and subsidies be reformed to reduce those costs, while at the same time protecting the poor and keeping the system

as equalizing as possible. To answer this is beyond the scope of this paper. Nevertheless, on first approximation, it would seem that promising candidates for reform are the subsidies that disproportionately benefit the rich, as well as large programs that are not too effectively redistributive.

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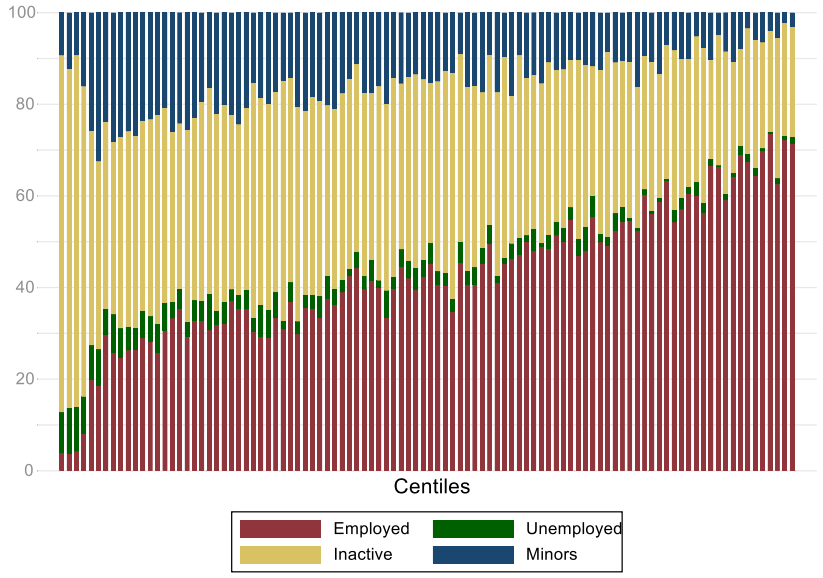
A.1 Appendix – Zero income

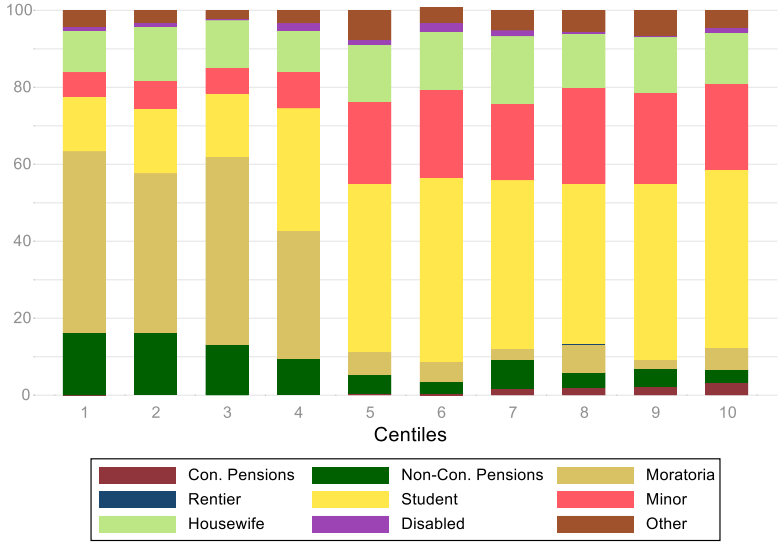
Over the whole sample, 3.5% of the pre-fiscal incomes are zero. To understand this peculiar feature of Argentina's microdata, we consider employment status in Figure A.1. It seems that these zero incomes in the first 4 centiles come from inactive individuals. The share of inactives in the first four centiles is 78.7%, whereas the share for the other 96 centiles is 39.4%. Zooming into the first ten centiles and turning to inactivity status in Figure A.2 one can see that the lion's share of inactive individuals comes from the *Moratoria* and non-contributory pension receivers, who represent 60.3% of the first four centiles and 10.3% of the other 96 centiles.

Figure A.1. Distribution of employment status (%) by centile of pre-fiscal income



Source: authors' own calculations.

Figure A.2. Distribution of inactives (%) by centile of pre-fiscal income



Source: authors' own calculations.

Given its characteristics, we treat the *Moratoria* as a direct transfer. Nevertheless, is an important part of the pensions system and therefore represents the main source of income for a big part of the population. That is why there is a large share of the first decile with zero pre-fiscal income, making incidence of taxes and expenditures huge. This drives some our results.

Take the regressivity of Argentina's taxes as an example. As explained above, zero incomes make incidence's denominator quite low. Furthermore, people spend and therefore pay indirect taxes once they have received direct transfers (particularly, the *Moratoria)*, that is, with their disposable income, what makes the numerator quite high. Hence, indirect taxes' first decile incidence explodes, leading to the large regressivity of indirect taxes that, combined with direct taxes' low progressivity, make all taxes regressive.

We conducted two sensitivity analyses on our results: one in which we considered the *Moratoria* as part of the pre-fiscal income; and one in which we excluded the households with individuals that both perceive the *Moratoria* and have zero income. In both cases, for instance, the regressivity of taxes —which was a seemingly odd feature— faded out (0.010 and 0.001 Kakwani indexes, respectively). Nonetheless, Argentina keeps having the most regressive taxes and the main results as Argentina's large inequality reduction hold (14.3 and 15.4 Gini points, respectively).

A.2. Appendix – Methodology

A.2.1. Direct taxes

In Argentina, there are two broad categories of independent workers. The first is *monotributistas,* who pay a unique monthly contribution that includes social insurance contributions. For them, we take the reported income in the *EPH* and simulate the gross income by means of the contribution and tax rules. The other type of independent workers are "*autónomos"*. They are typically owners or members of companies. These workers also pay a fixed monthly amount that includes social insurance contributions. For *autónomos*, as well as for salaried workers and pensioners, we create a synthetic database for each combination of number of children (0-9) and marital status {1,0}. We create 20 synthetic data bases per working condition (salaried workers, *autónomos*, and pensioners), each of which have a simulated gross and net monthly income and the corresponding burden of contributions and personal income tax. We simulate these burdens using the rules for each contribution and tax. Then, for each working condition and the corresponiding number of children and marital status, we (near) merge the synthetic datasets back to the *EPH* and the corresponding using net income as merging variable, since it is assumed that reported income is equal to labor income net of contributions and personal income tax.

Tax avoidance and informal employment are pervasive in Argentina. Therefore, we estimated effective rate per percentile of the income distribution from administrative data. These effective rates are different depending on whether the contribution corresponds to the employee or the employer. Moreover, for the first eight deciles, we apply the average of the percentiles per decile. For the 9th and 10th deciles, since there is a higher dispersion of income, we keep the effective rates at the percentile level. Hence, we have 28 estimated effective rates.[29]

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

A.2.2. Pensions

The first step for calculating pensions is to identify those who receive any kind of pension in the *EPH*. Second, we use the *ENAPROSS*'s questions to identify those who receive each type of pension and calculate the ratio of non-contributory pension beneficiaries to contributory pension beneficiaries per decile of per capita household income. Finally, to match this ratio back to the main survey, for pensioners in each decile in the *EPH*, we draw a number from a Bernoulli distribution with probability of success equal to the ratio estimated in the *ENAPROSS*. The 1s are considered the beneficiaries of the *Moratoria*. Non-contributory pensions can be received under five regimes: mother of seven children or more, old-age, disability, special laws, and Ex-gratia granted by Congress. Each regime receives a different amount of pension. Hence, we need to distinguish which kind of non-contributory pension each pensioner receives. To do so, we estimate the distribution of pensioners between the five categories by randomly assigning, per decile, individuals to each category.

For those at least 70 years' old who are identified as receiving a non-contributory pension, we consider the regime to be the old-age pension. In the remaining cases, for each decile of the per capita household income in the *EPH* and for each pensioner not previously identified with some category, we draw a number from a Bernoulli distribution with 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 are classified, we impute the amounts according to the law.

A.2.3. Direct transfers

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

Regarding *Asignaciones Familiares*, we simulate the program's impact by using its rules to identify eligible individuals in the survey. To correct for errors of inclusion or exclusion, we calculate the ratio between the number of the *AAFF* beneficiaries reported in the administrative data and the number estimated in the survey. For each eligible individual of each program, we draw a number from a Bernoulli distribution with probability of success equal to that ratio. The 1s are considered beneficiaries. We impute the amount received by beneficiaries using the program's rules. The analogous procedure is used to simulate the impact of the *Progresar*, *Capacitación y Empleo*, and *JMyMT*.

As for educational scholarships, it is possible to directly identify the beneficiaries in the *EPH*, but given substantial differences in administrative data, we decided to impute the amount received using administrative data.

Finally, regarding economic aid by community kitchens, we resort to the *ENAPROSS* to directly identify the proportion of beneficiaries per decile. Then, for each individual in each decile of the *EPH*, we draw a number from a Bernoulli with probability of success equal to the proportion estimated in *ENAPROSS*. The 1s are identified as beneficiaries. We assume that only individuals

from the first three deciles attend community kitchens. Hence, we re-scale the number of beneficiaries per decile and make it consistent with administrative data. Once the corrected distribution of beneficiaries per decile is estimated, we calculate the proportion of beneficiaries per decile. For everyone in each decile, we repeat the Bernoulli procedure. The amount received is estimated based on administrative expenditure data for feeding programs and the expenditure of the provinces toward the Program of Feeding Security.

A.2.4. Indirect subsidies

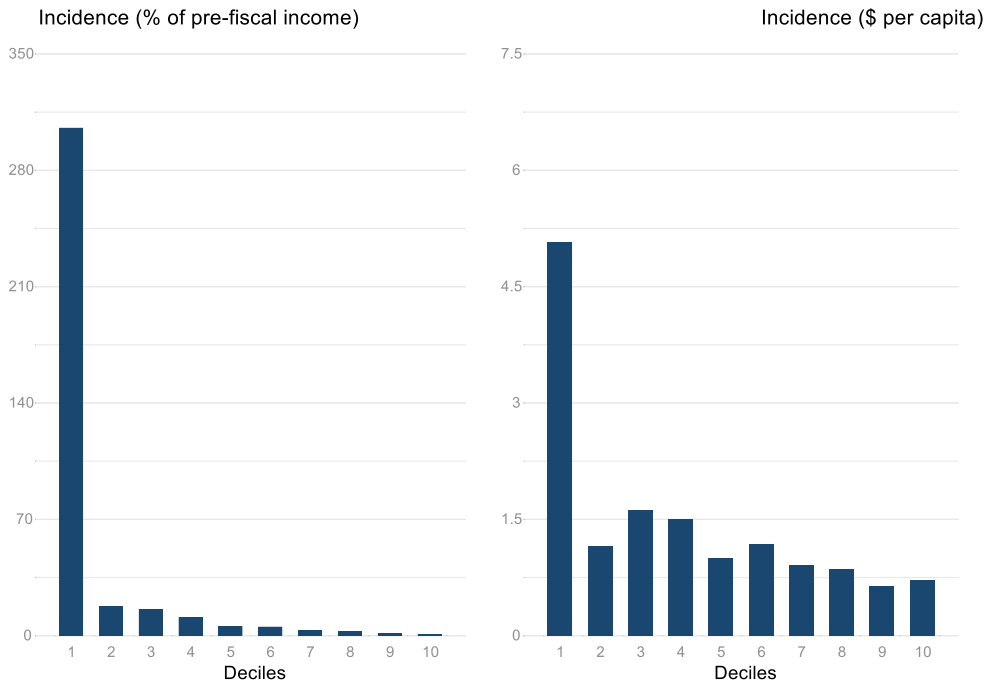
Bottled gas subsidy is targeted to families who do not have access to the gas network. In the *EPH*, it is possible to identify if a household has access to the gas network, and if it buys bottled gas, but not the amount bought. Hence, we simulate potential beneficiaries of the program following the program's rules and assume each household receives the maximum amount of bottled gas, as determined by law, according to region and number of children. The subsidy is calculated as the product of this quantity and the amount subsidized per bottle of gas according to the law.

Direct identification of train subsidies is not possible since transportation data is not available in neither the *EPH* nor the *ENGHo*. Hence, we resort to the 2010 Home Mobility Survey (*ENMODO*) for the Metropolitan Area of Buenos Aires. There we calculate the proportion of people that travel by train in each quintile of income per capita. This proportion is matched back to the *EPH* by quintile. The amount of the subsidy is calculated using administrative data on the total expenditure on the transportation subsidy and the number of train passengers.

There is one general bus subsidy that applies only to beneficiaries of the *Tarifa Social*. Expenditure data on bus transportation at the household level is available in the *ENGHo*. We use the *ENGHo* to identify the expenditure on bus transportation and the number of household members who travel by bus to estimate per capita spending per household. We also estimate the average per capita expenditure per region and income decile. Then, we estimate the proportion of households with more than one member and the proportion of households that use the bus, per region and decile. To match this proportion back to the *EPH* we use the Bernoulli procedure for household heads and for households with at least two people who travel by bus, by region and income decile. For those now identified in the *EPH* to travel by bus, we impute their average expenditure on bus transportation calculated according to their region and decile. Then, we calculate the ventiles of the per capita expenditure on bus transportation and the average expenditure by region. Using SUBE – the public transport card – data, we estimate the number of bus trips made on average by individuals in each region. We combine this with the *ENGHo* data to calculate the average number of trips by individual per region and ventile rescaling to match SUBE data. Similarly, this dataset allows us to identify the proportion of individuals who travel by bus and are beneficiaries of the *Tarifa Social* by region. 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 country. The subsidy is imputed using the legal rules.

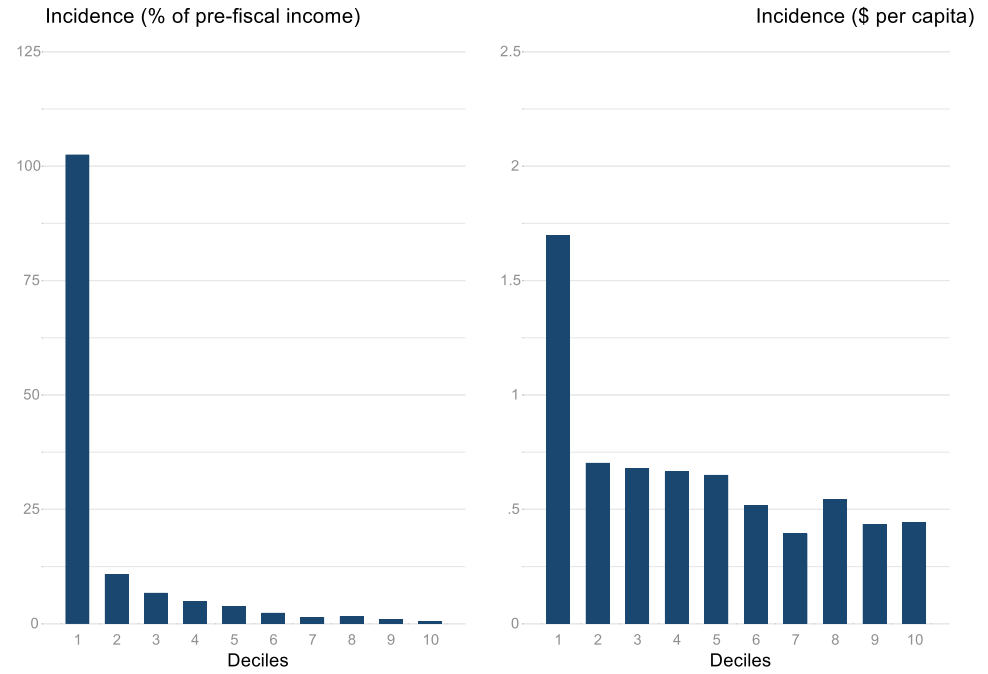
A.3. Appendix – Incidence

Figure A.3. *Moratoria*



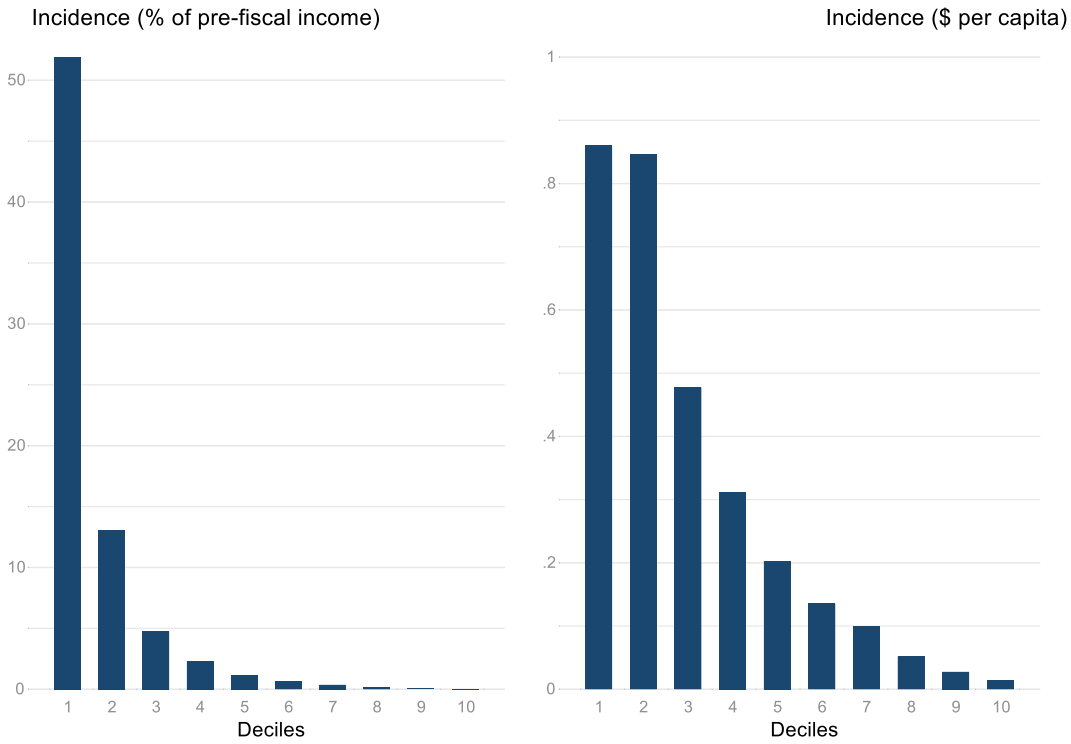
Source: authors' own calculations.

Figure A.4. *Pensiones No Contributivas*



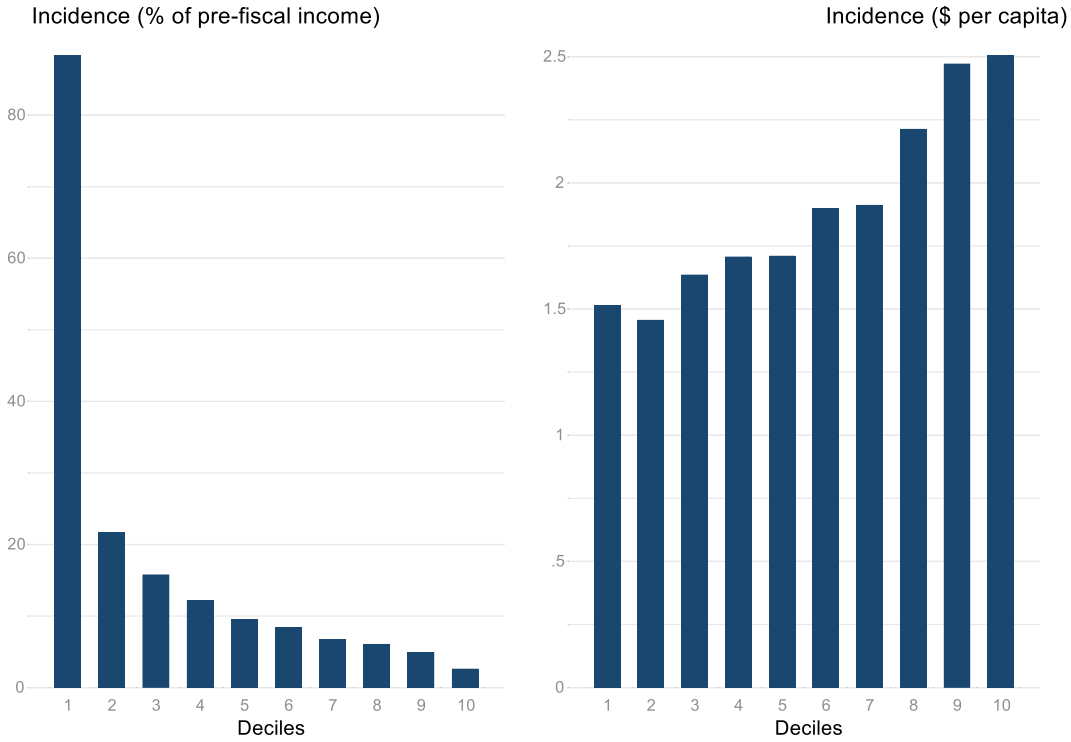
Source: authors' own calculations.

Figure A.5. *Asignación Universal por Hijo*



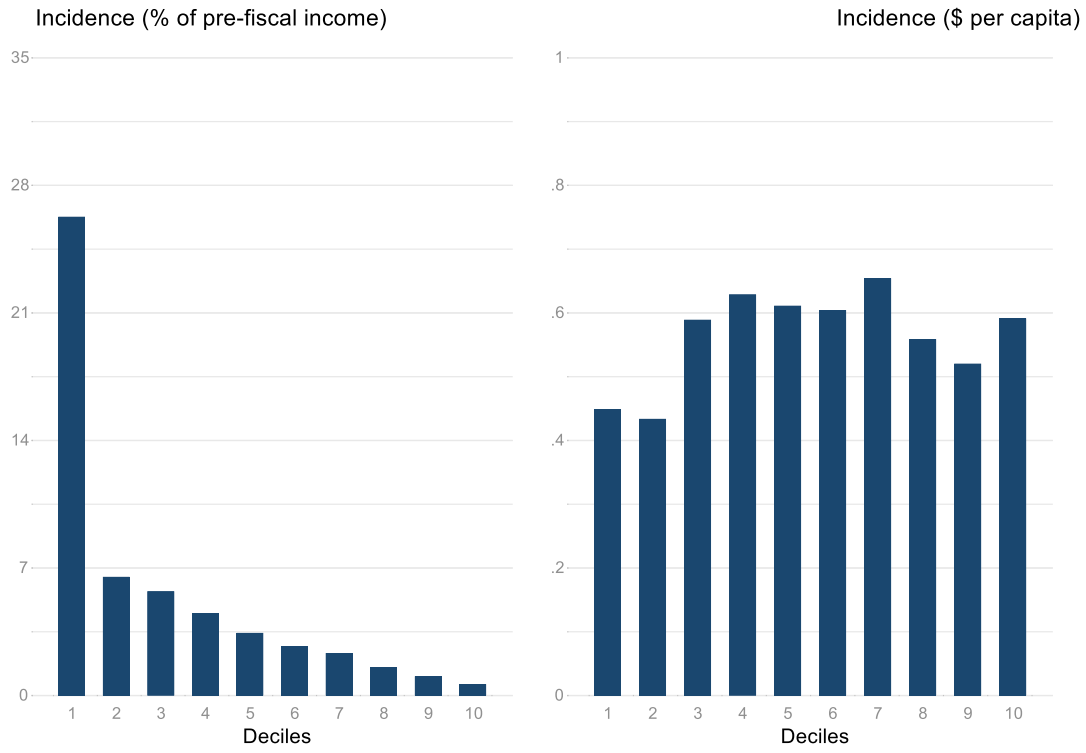
Source: authors' own calculations.

Figure A.6. Social security health insurance



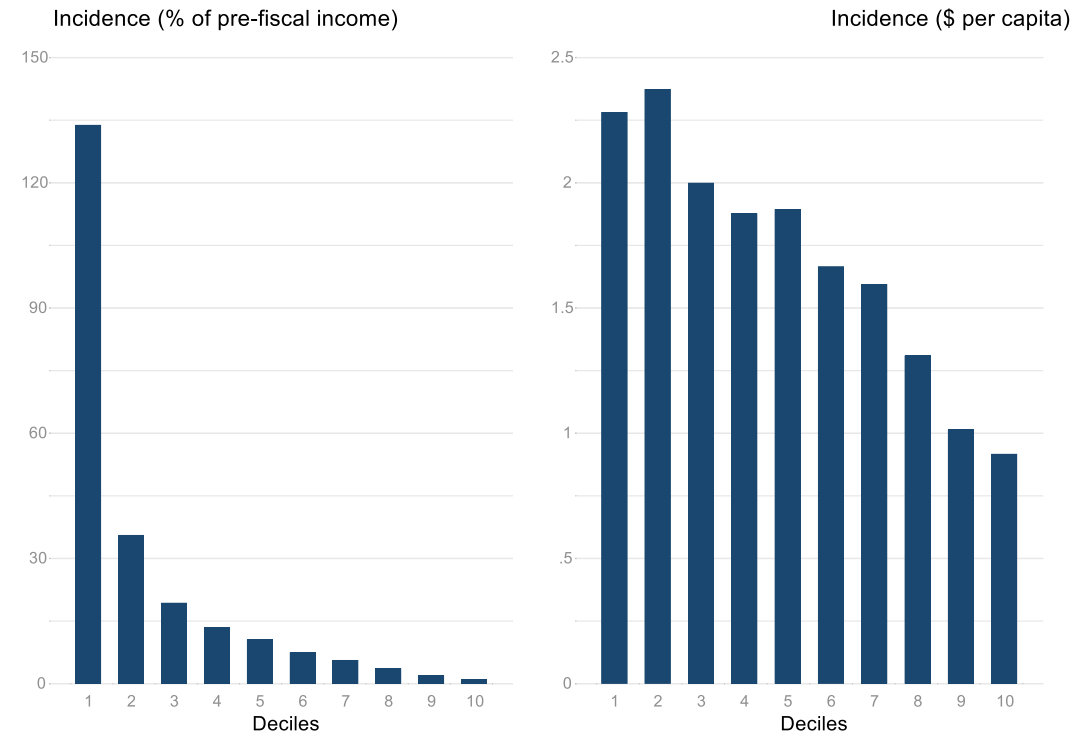
Source: authors' own calculations.

Figure A.7. *PAMI*



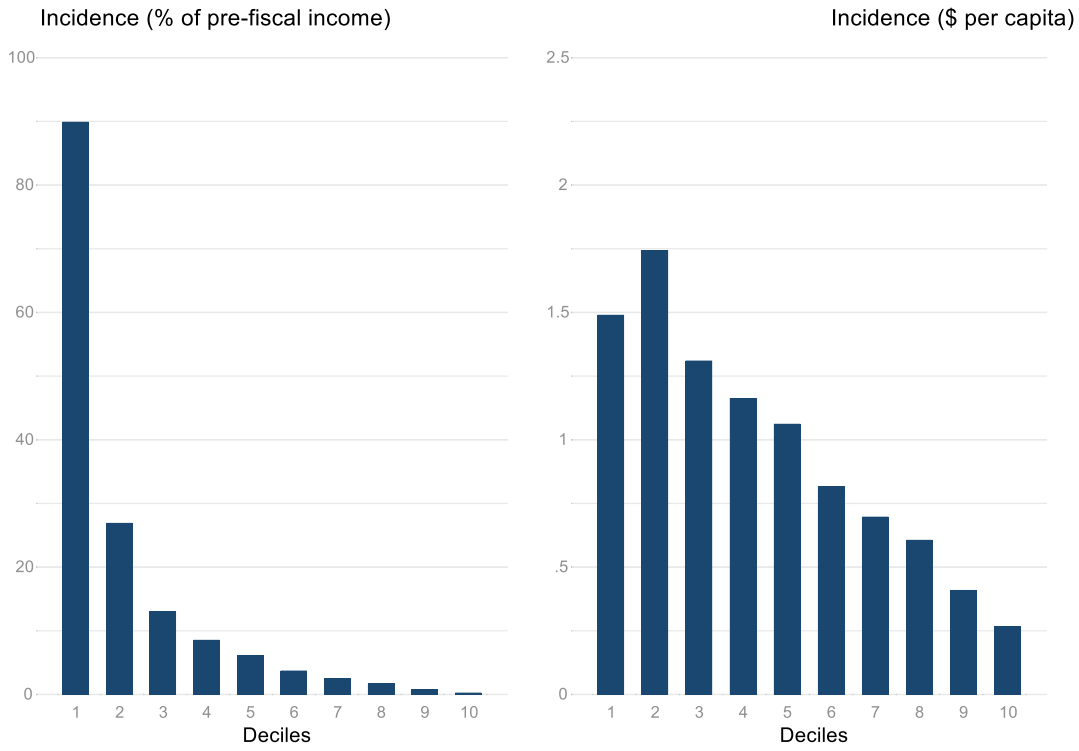
Source: authors' own calculations.

Figure A.8. Public health care



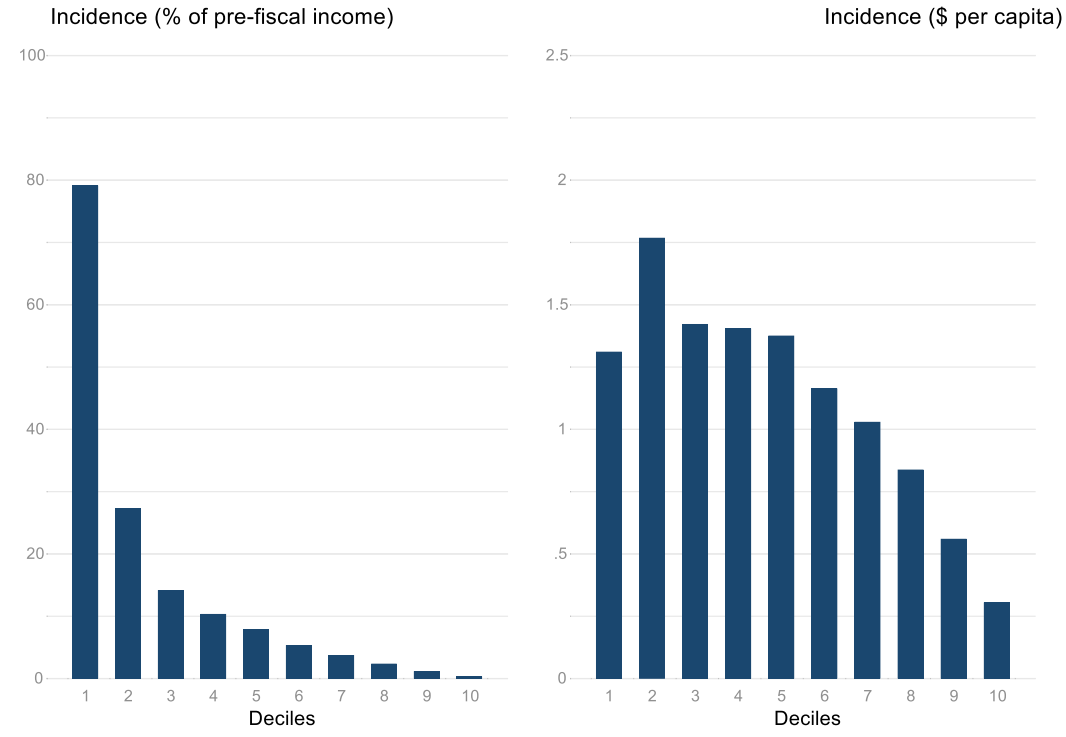
Source: authors' own calculations.

Figure A.9. Primary education



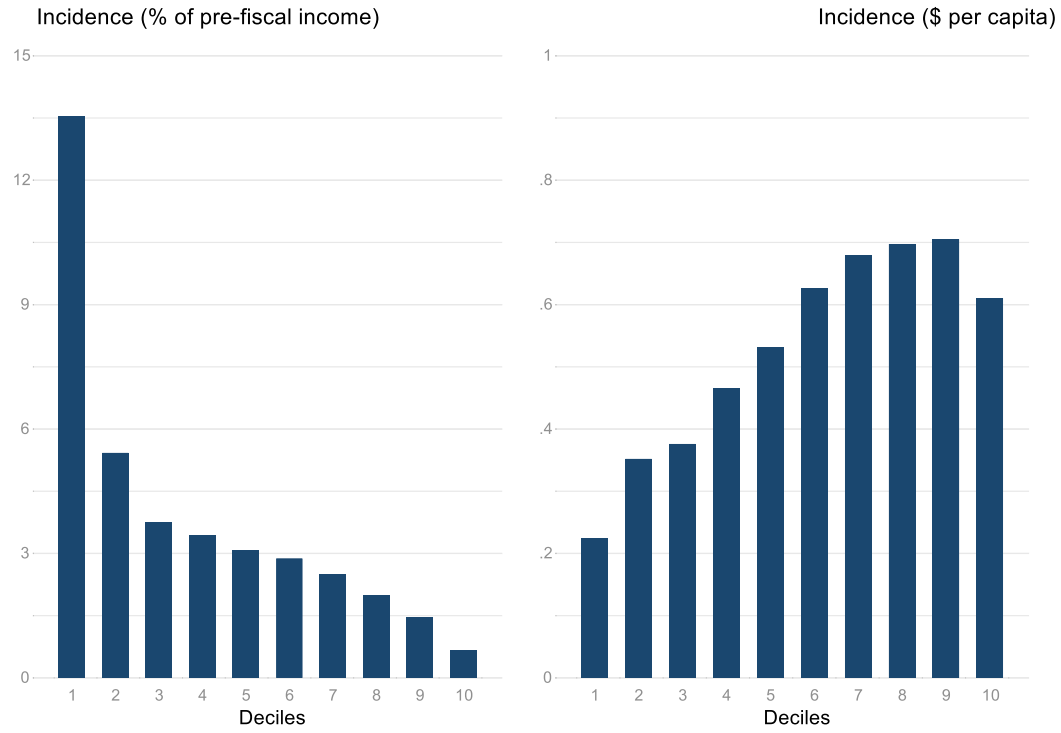
Source: authors' own calculations.

Figure A.10. Secondary education



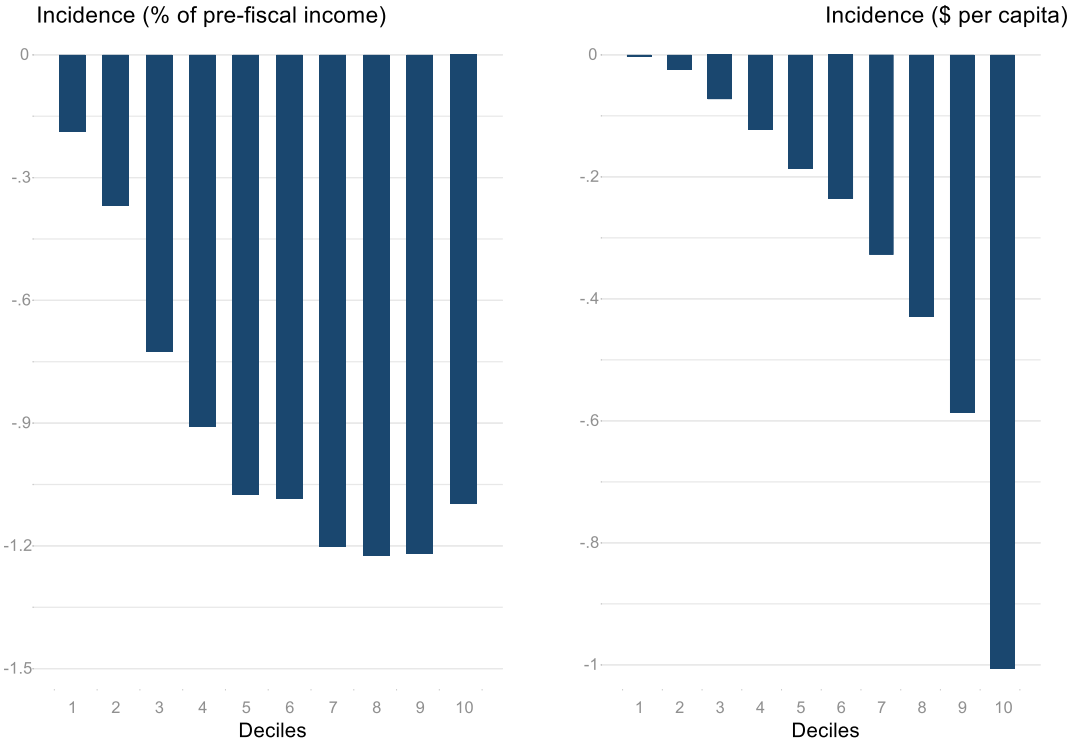
Source: authors' own calculations.

Figure A.11. Tertiary education



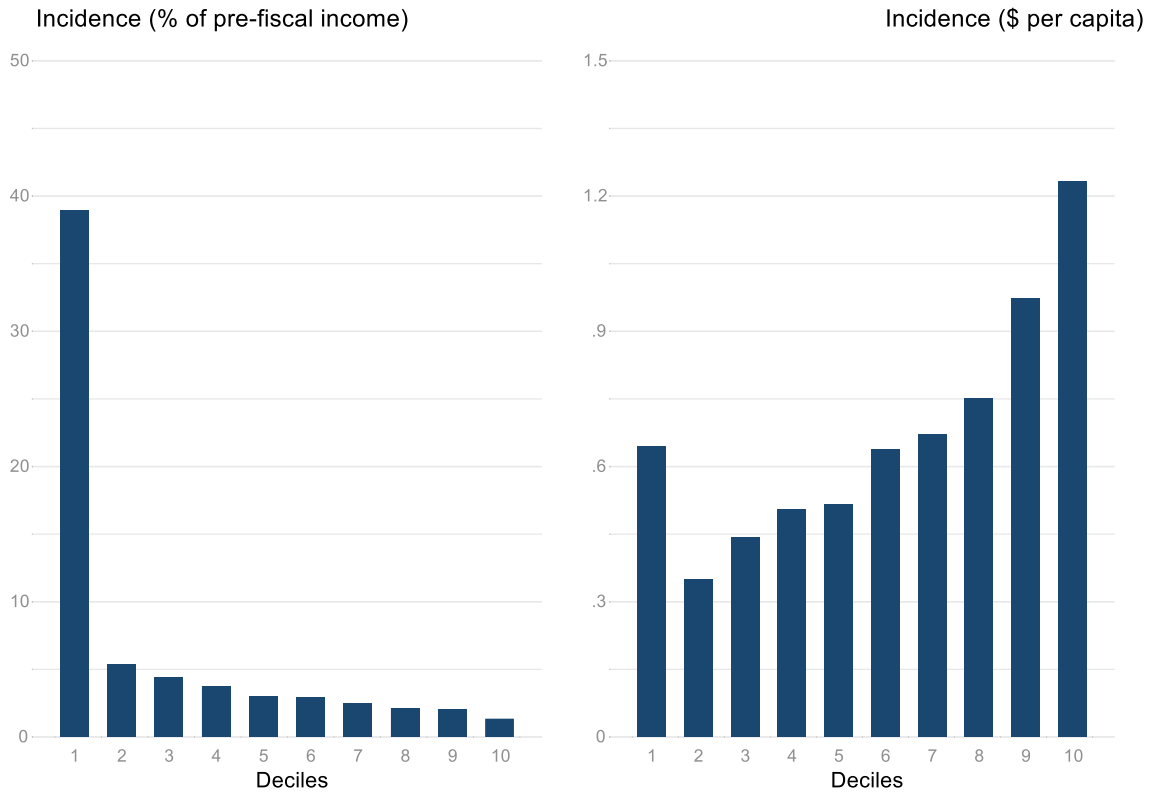
Source: authors' own calculations.

Figure A.12. Payroll taxes



Source: authors' own calculations.

Figure A.13. Electricity subsidies



Source: authors' own calculations.