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Fiscal policy, inequality, and the poor in the developing world

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Abstract: Using comparable fiscal incidence analysis, this paper examines the impact of fiscal policy on inequality and poverty in 25 countries for around 2010. Success in fiscal redistribution is driven primarily by redistributive effort (share of social spending to GDP in each country) and the extent to which transfers/subsidies are targeted at the poor and direct taxes targeted at the rich. While fiscal policy always reduces inequality, this is not the case with poverty. Fiscal policy increases poverty in 4 countries using a US\$1.25/day PPP poverty line, in 8 countries using a US\$2.50/day line, and in 15 countries using a US\$4/day line (over and above market income poverty). Net direct taxes are always equalizing and net indirect taxes are equalizing in 17 of the 25 countries. While spending on pre-school and primary school is pro-poor (i.e. the per capita transfer declines with income) in almost all countries, pro-poor secondary school spending is less prevalent, and tertiary education spending tends to be progressive only in relative terms (i.e. equalizing but not pro-poor). Health spending is always equalizing.

Keywords: fiscal incidence, social spending, inequality, poverty, developing countries

JEL classification: H22, H5, H50, D31, I3, I38

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1 Introduction

This paper analyses the impact of fiscal policy on inequality and poverty in 25 low- and middle-income countries for around 2010.¹ Using the World Bank classification, the group includes two *low-income* countries: Ethiopia and Tanzania; nine *lower-middle-income* countries: Armenia, Bolivia, El Salvador, Ghana, Guatemala, Honduras, Indonesia, Sri Lanka, and Tunisia; eleven *upper-middle-income* countries: Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, Georgia, Jordan, Mexico, Peru, Russia, and South Africa; two *high-income* countries: Chile and Uruguay; and one unclassified (upper-middle-income, most likely) country: Argentina.² The data utilized here are based on the country studies available in the Commitment to Equity Institute’s database on fiscal redistribution.³ The studies apply the fiscal incidence methodology described in detail in Lustig and Higgins (2013) and Lustig (forthcoming). With a long tradition in applied public finance, fiscal incidence analysis is designed to respond to the question of who benefits from government transfers and who ultimately bears the burden of taxes in the economy (Martinez-Vazquez 2008; Musgrave 1959; Pechman 1985). The fiscal policy instruments included here are: personal income and payroll taxes, direct transfers, consumption taxes, consumption subsidies, and transfers in-kind (in the form of education and healthcare services).

This paper makes three main contributions. First, because the fiscal incidence analysis is comprehensive, it enables estimation of both the overall impact of fiscal policy and the marginal contribution of each instrument. Second, the analysis includes the effects of fiscal policy not only on inequality but also on poverty. Third, because the studies apply a common methodology, the results are comparable across countries.

While fiscal policy unambiguously reduces income inequality, that is not always true for poverty. Using the lowest international poverty line (US\$1.25 2005 PPP per day), the headcount ratio after cash transfers, net direct taxes, and net indirect taxes is lower than the headcount ratio for market (pre-fiscal) income in 21 countries. In Ethiopia, Tanzania, Ghana, and Guatemala, however, the headcount ratio is higher after taxes and transfers than before. In Tanzania and Ghana, the percentage increase in the headcount ratio is 17.8 per cent and 13.3 per cent, respectively. When using the poverty lines of US\$2.50 and US\$4.00 (2005 PPP per day), the number of countries where poverty increases rises to 8 and 15, respectively. In addition, to varying degrees, in all

¹ Argentina (Rossignolo 2016a), Armenia (Younger and Khachatryan forthcoming), Bolivia (Paz-Arauco et al. 2014a), Brazil (Higgins and Pereira 2014), Chile (Martinez-Aguilar et al. forthcoming), Colombia (Harker et al. forthcoming), Costa Rica (Sauma and Trejos 2014a), Dominican Republic (Aristy-Escuder et al. forthcoming), Ecuador (Llerena Pinto et al. 2015), El Salvador (Beneke et al. 2015), Ethiopia (Hill et al. forthcoming), Georgia (Cancho and Bondarenko forthcoming), Ghana (Younger et al. 2015), Guatemala (Cabrera et al. 2015), Honduras (Castañeda and Espino 2015), Indonesia (Afkar et al. forthcoming), Jordan (Alam et al. forthcoming), Mexico (Scott 2014), Peru (Jaramillo 2014), Russia (Lopez-Calva et al. forthcoming), South Africa (Inchauste et al. forthcoming), Sri Lanka (Arunatilake et al. forthcoming), Tanzania (Younger et al. 2016a), Tunisia (Shimeles et al. 2016), and Uruguay (Bucheli et al. 2014).

² The World Bank classifies countries as follows. Low-income: US\$1,025 or less; lower-middle-income: US\$1,026–4,035; upper-middle-income: US\$4,036–12,475; and, high-income: US\$12,476 or more. The classification uses Gross National Income per capita calculated by the World Bank Atlas Method, September 2016: <http://data.worldbank.org/about/country-and-lending-groups>.

³ Launched initially as a project in 2008, the Commitment to Equity Institute (CEQI) at Tulane University was created in 2015 with the generous support of the Bill and Melinda Gates Foundation.

countries a portion of the poor are net payers into the fiscal system and are thus impoverished by the fiscal system (Higgins and Lustig 2016).

As for the impact of specific instruments on inequality, net direct taxes are always equalizing and net indirect taxes are equalizing in 17 of the 25 countries. Education and health spending are always equalizing. While by definition all taxes are poverty-increasing as long as the poor and near poor pay them, consumption taxes are the main culprits of fiscally induced impoverishment.

The paper is organized as follows: Section 2 includes a brief description of the fiscal incidence methodology. Section 3 presents spending allocation and revenue-raising patterns for the 25 countries. Sections 4 and 5 discuss the impact of fiscal policy on inequality and poverty, respectively. Section 6 examines the pro-poorness of government spending on education and health. Section 7 concludes.

2 Fiscal incidence analysis: methodological highlights⁴

Fiscal incidence analysis is used to assess the distributional impacts of a country's taxes and transfers. Essentially, fiscal incidence analysis consists of allocating taxes (personal income tax and consumption taxes, in particular) and public spending (social spending in particular) to households or individuals so that it is possible to compare incomes before taxes and transfers with incomes after taxes and transfers.⁵ Transfers include both cash transfers and benefits in kind such as free government services in education and health care. Transfers also include consumption subsidies such as food, electricity, and fuel subsidies.

Any fiscal incidence study should begin with a definition of the basic income concepts. Here there are four: market, disposable, consumable, and final income.⁶ These income concepts are described below and summarized in Diagram 1.

*Market income*⁷ is total current income before direct taxes, equal to the sum of gross (pre-tax) wages and salaries in the formal and informal sectors (also known as earned income), income from capital (dividends, interest, profits, rents, etc.) in the formal and informal sectors (excludes capital gains and gifts), consumption of own production,⁸ imputed rent for owner-occupied housing, and private transfers (remittances, pensions from private schemes, and other private transfers such as alimony). The welfare indicator used in the fiscal incidence analysis is income per capita,⁹ except for Ethiopia, Ghana, Indonesia, Jordan, Sri Lanka, and Tunisia, where the welfare indicator is consumption per capita.¹⁰ In these countries, disposable income was assumed to equal

⁴ This section is based on Lustig and Higgins (2013) and Lustig (forthcoming).

⁵ In addition to the studies cited here and other studies listed at www.commitmentoequity.org, see, for example, Förster and Whiteford (2009), Immervoll and Richardson (2011), and OECD (2011).

⁶ In the case of Indonesia, the surveys do not have income data, so the incidence analysis is based on the assumption that consumption equals disposable income.

⁷ Market income is sometimes called primary or original income.

⁸ Except for the cases of Bolivia, Ecuador, Costa Rica, Honduras, Sri Lanka, and South Africa, whose data on auto-consumption (also called own production or self-consumption) was not considered in the market income definition.

⁹ No adjustments were made for household composition or economies of scale. For Brazil, Higgins et al. (2016) analyse the impact of taxes and transfers using equivalized income.

¹⁰ In Indonesia, the fiscal incidence analysis was carried out with an adjustment for spatial price differences, because they are considered to be very large.

consumption and market income was generated ‘backwards’ by applying a ‘net to gross’ conversion.¹¹

Disposable income is defined as market income minus direct personal income taxes on all income sources (included in market income) that are subject to taxation, plus direct government transfers (mainly cash transfers but can include near cash transfers such as food transfers, free textbooks, and school uniforms).¹²

Consumable income is defined as disposable income plus indirect subsidies (e.g. food and energy price subsidies) minus indirect taxes (value added taxes, excise taxes, sales taxes, etc.).

Final income is defined as consumable income plus government transfers in the form of free or subsidized services in education and health valued at average cost of provision¹³ (minus co-payments or user fees, when they exist).

One question on which there is no consensus is how pensions from a pay-as-you-go contributory system should be treated. Arguments exist both in favour of treating contributory pensions as deferred income¹⁴ and in favour of treating them as a government transfer, especially in systems with a large subsidized component.¹⁵ Since this is an unresolved issue, the studies analysed here present results for both scenarios with the exception of the few countries described below. One scenario treats social insurance contributory pensions (here called contributory pensions) as deferred income (which in practice means that they are added to market income to generate the pre-fiscal income). The other scenario treats these pensions as a cash transfer from the government, like any other.¹⁶ For consistency, when pensions are treated as deferred income, the contributions by individuals are included under savings (they are mandatory savings); when they are treated as government transfers, the contributions are considered a direct tax.

It is important to note that the treatment of contributory pensions affects not only the amount of redistributive spending and how it is redistributed, but also the ranking of households by original income or pre-fiscal income. For example, in the scenario in which contributory pensions are considered a government transfer, households whose main (or sole) source of income is pensions will have close to (or just) zero income before taxes and transfers and hence will be ranked at the bottom of the income scale. When contributory pensions are treated as deferred income, in contrast, households that receive contributory pensions will be placed at a (sometimes considerably) higher position in the income scale. Thus, the treatment of contributory pensions in the incidence exercise could have significant implications for the order of magnitude of the pre-fiscal and post-fiscal inequality and poverty indicators.

¹¹ See Lustig and Higgins (2013) and Lustig (forthcoming) for details. This method was suggested by Immervoll and O’Donoghue (2001).

¹² The Indonesian survey does not include individuals with income levels above the threshold at which direct taxes begin to apply (see Afkar et al. (forthcoming)), so there is no calculation for the incidence of personal income taxes. In the data for South Africa, free basic services are considered as direct transfers. These free basic services are delivered by municipal governments sometimes at zero cost and sometimes at a subsidized price. Given the difficulty in determining which case applies to households included in the survey, the analysis was carried out in both ways. Results in which the free basic services are considered a subsidy are available upon request.

¹³ See, for example, Sahn and Younger (2000).

¹⁴ Breceda et al. (2008); Immervoll et al. (2009).

¹⁵ Goñi et al. (2011); Immervoll et al. (2009); Lindert et al. (2006).

¹⁶ Immervoll et al. (2009) do the analysis under these two scenarios as well.

The only contributory pensions in South Africa are for public servants, who must belong to the Government Employees Pension Fund (GEPF). Since the government made no transfers to the GEPF in 2010/11, there is no scenario in which contributory pensions are treated as a transfer. The same occurs in the cases of Ethiopia, Ghana, and Tanzania. The only contributory pensions in Sri Lanka are for public servants and income from pensions has been considered as part of public employees' labour contract, rather than a transfer, in spite of the fact that the funding comes from general revenues. In other words, for Ethiopia, Ghana, South Africa, Sri Lanka, and Tanzania, there is no scenario in which contributory pensions are considered a transfer. Georgia has a non-contributory public pension scheme only and, therefore, pensions are treated as a transfer.

In the construction of final income, the method for calculating education spending consists of imputing a value to the benefit accrued to an individual of going to a state school that is equal to the per-beneficiary input costs obtained from administrative data: for example, the average government expenditure per primary school student obtained from administrative data is allocated to the households based on how many children are reported as attending state school at the primary level. In the case of health, the approach was analogous: the benefit of receiving health care in a public facility is equal to the average cost to the government of delivering healthcare services to the beneficiaries. In the case of Colombia, however, the method used was to impute the insurance value to beneficiary households rather than base the valuation on the utilization of healthcare services.

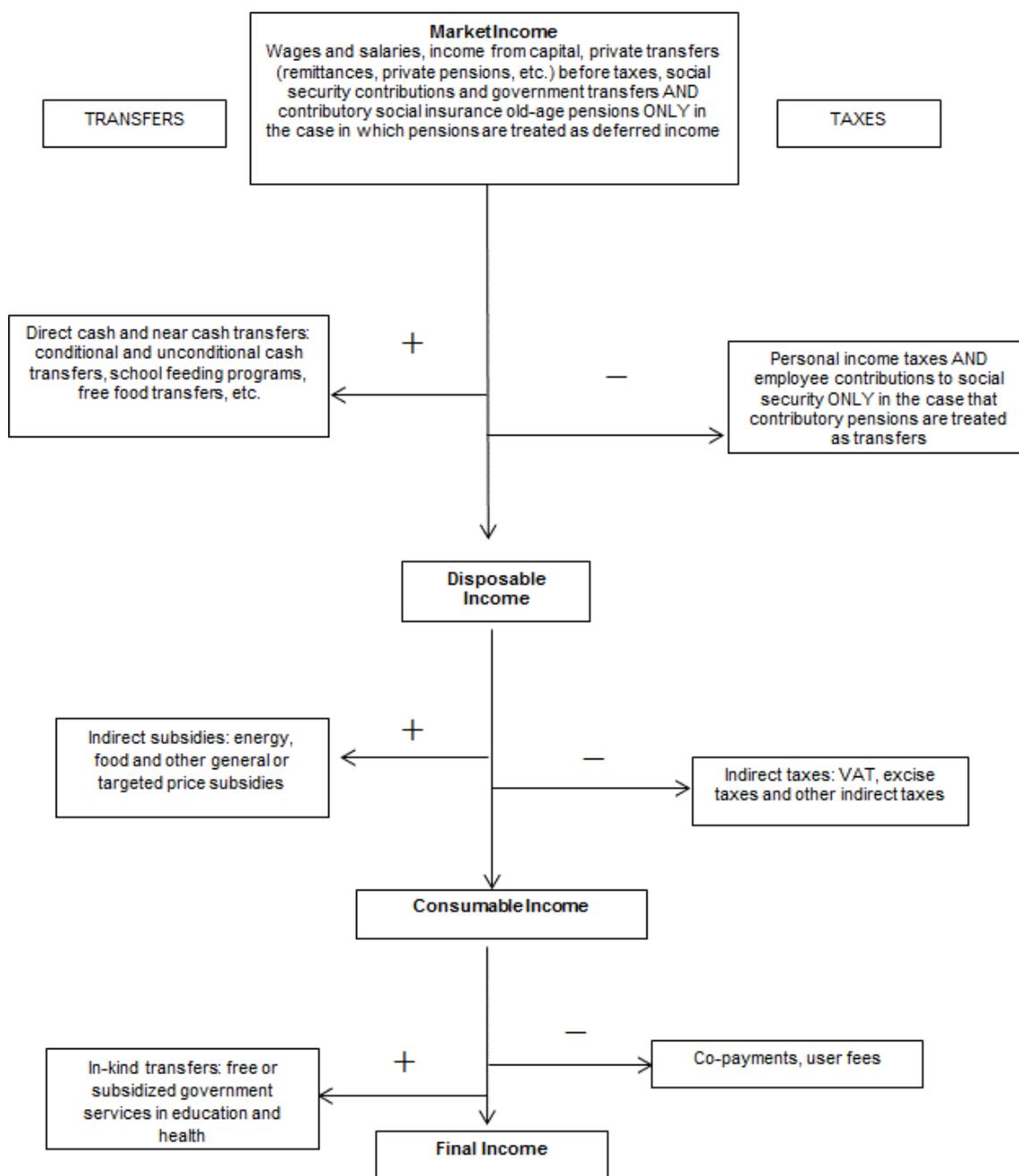
This approach to valuing education and healthcare services amounts to asking the following question: how much would the income of a household have to be increased if it had to pay for the free or subsidized public service (or the insurance value in the cases in which this applies to healthcare benefits) at the full cost to the government? Such an approach ignores the fact that consumers may not value services in terms of their cost. Given the limitations of the data, however, the cost-of-provision method is the best available.¹⁷ For readers who think that attaching a value to education and healthcare services based on government costs is not accurate, it should be noted that the method applied here is equivalent to using a simple binary indicator of whether or not the individual uses the government service.^{18, 19}

¹⁷ By using averages, it also ignores differences across income groups and regions: e.g. governments may spend less (or more) per pupil or patient in poorer areas of a country. Some studies in the CEQ project adjusted for regional differences. For example, Brazil's health spending was based on regional specific averages.

¹⁸ This is, of course, true only within a level of education. A concentration coefficient for total non-tertiary education, for example, where the latter is calculated as the sum of the different spending amounts by level, is not equivalent to the binary indicator method.

¹⁹ In order to avoid exaggerating the effect of government services on inequality, the totals for education and health spending in the studies reported here were scaled down so that their proportions to disposable income in the national accounts are the same as those observed using data from the household surveys.

Diagram 1: Basic income concepts



Source: Lustig and Higgins (forthcoming).

The fiscal incidence analysis used here is point-in-time and does not incorporate behavioural or general equilibrium effects. That is, no claim is made that the original or market income equals the true counter-factual income in the absence of taxes and transfers. It is a first-order approximation that measures the average incidence of fiscal interventions. However, the analysis is not a mechanically applied accounting exercise. The incidence of taxes is the economic rather than statutory incidence. It is assumed that individual income taxes and contributions by both employees and employers, for instance, are borne by labour in the formal sector. Individuals who are not contributing to social security are assumed to pay neither direct taxes nor contributions. Consumption taxes are fully shifted forward to consumers. In the case of consumption taxes, the analyses take into account the lower incidence associated with own-consumption, rural markets, and informality.

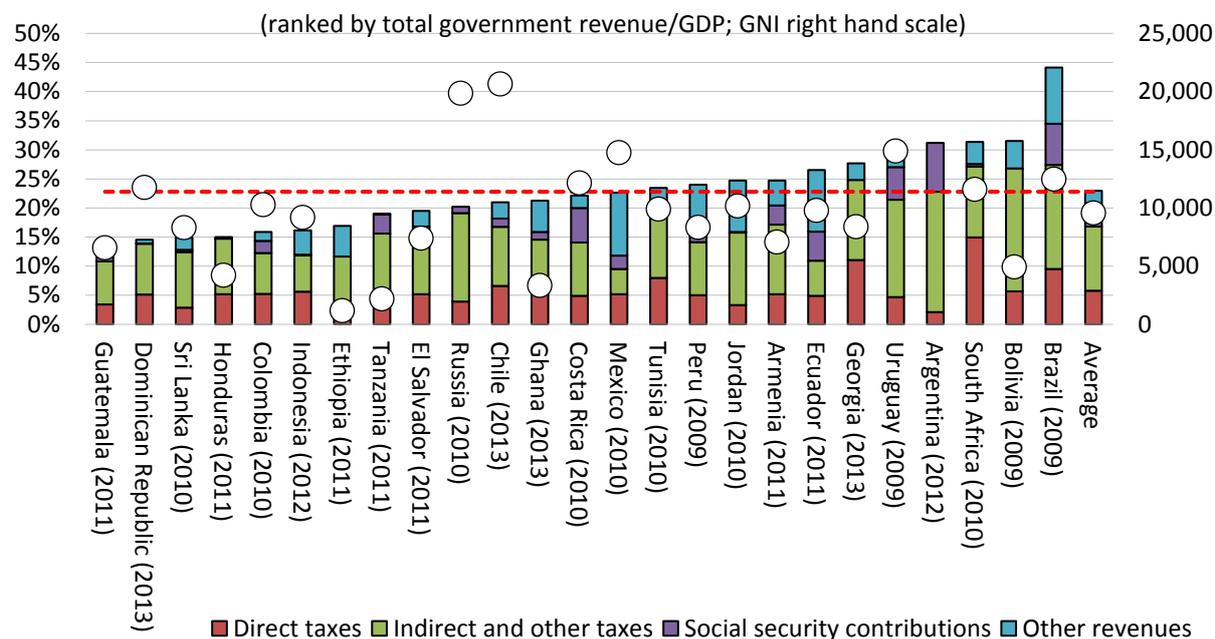
The household surveys used in the country studies are the following (the I and C indicates whether the studies were income- or consumption-based, respectively; see Lustig and Higgins (2013) for details: Argentina (I): Encuesta Nacional de Gasto de los Hogares, 2012–2013; Armenia (I): Integrated Living Conditions Survey, 2011; Bolivia (I): Encuesta de Hogares, 2009; Brazil (I): Pesquisa de Orçamentos Familiares, 2008–2009; Chile (I): Encuesta de Caracterización Social (CASEN), 2013; Colombia (I): Encuesta de Calidad de Vida, 2010; Costa Rica (I): Encuesta Nacional de Hogares, 2010; Dominican Republic (I): Encuesta Nacional de Ingresos y Gastos de los Hogares, 2006–2007; Ecuador (I): Encuesta Nacional de Ingresos y Gastos de los Hogares Urbano y Rural, 2011–2012; El Salvador (I): Encuesta de Hogares de Propósitos Múltiples, 2011; Ethiopia (C): Household Consumption Expenditure Survey, 2010–2011, and Welfare Monitoring Survey, 2011; Georgia (I): Integrated Household Survey, 2013; Ghana (C): Living Standards Survey, 2012–2013; Guatemala (I): Encuesta Nacional de Ingresos y Gastos Familiares, 2009–2010, and Encuesta Nacional de Condiciones de Vida, 2011; Honduras (I): Encuesta Permanente de Hogares de Propósitos Múltiples, 2011; Indonesia (C): Survei Sosial-Ekonomi Nasional, 2012; Jordan (C): Household Expenditure and Income Survey, 2010–2011; Mexico (I): Encuesta Nacional de Ingreso y Gasto de los Hogares, 2010; Peru (I): Encuesta Nacional de Hogares, 2009; Russia (I): Russian Longitudinal Monitoring Survey of Higher School of Economics, 2010; South Africa (I): Income and Expenditure Survey, 2010–2011; Sri Lanka (C): Household Income and Expenditure Survey, 2009–2010; Tanzania (C): Household Budget Survey, 2011–2012; Tunisia (C): National Survey of Consumption and Household Living Standards, 2010; Uruguay (I): Encuesta Continua de Hogares, 2009.²⁰

3 Taxes and public spending: levels and composition

The redistributive potential of a country is determined first and foremost by the size and composition of its budget and how government spending is financed. Figure 1 shows government revenues as a share of GDP for around 2010. The revenue collection patterns are heterogeneous. Mexico relies heavily on non-tax revenues (from the state-owned oil company), followed by Ecuador, Brazil, Jordan, and Peru. In general, indirect taxes are the largest component of government revenue (as a share of GDP), except for Mexico and Ecuador (where non-tax revenue from oil-producing companies is the largest) and South Africa (direct taxes is the largest).

²⁰ Note that, empirically, the starting point is often something other than market income. In many income-based surveys, reported income corresponds to (or is assumed to be) market income net of direct taxes. In consumption-based surveys, there is often no reported income at all. In those cases, the incidence analysis assumes that consumption is equivalent to disposable income.

Figure 1: Size and composition of government revenues (as a % of GDP; circa 2010)



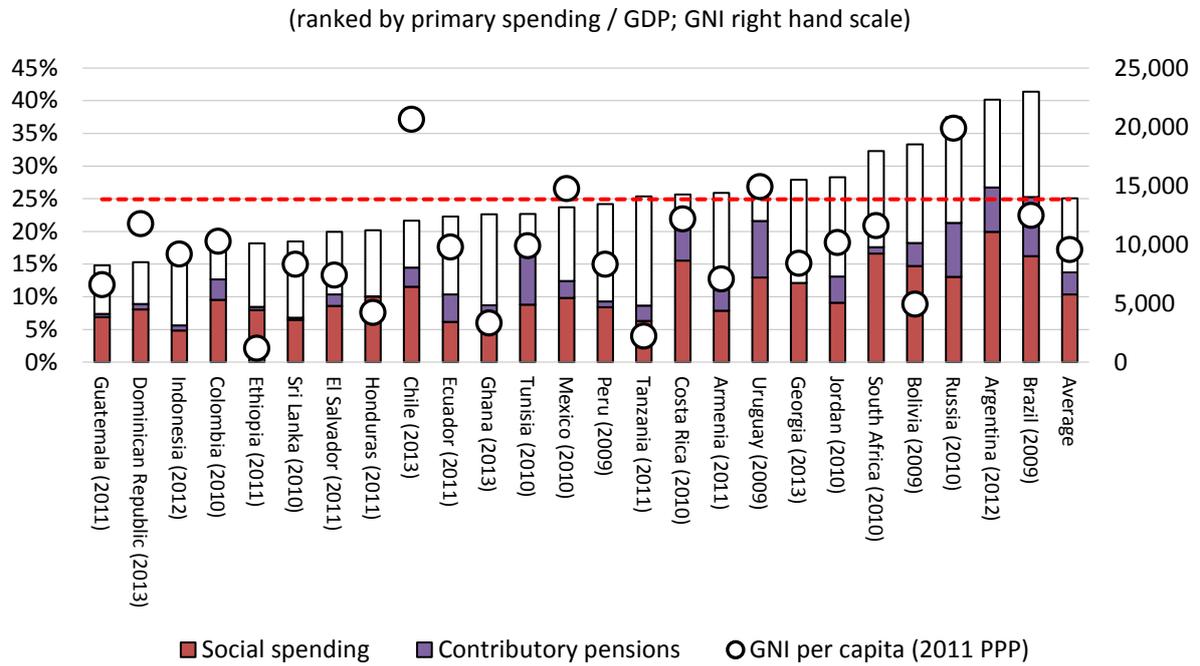
Notes: Year of household survey in parentheses. Data shown here are administrative data reported by the studies cited above and the numbers do not necessarily coincide with those of multilateral organizations. Gross National Income per capita on the right axis is in 2011 PPP from World Development Indicators, 29 August 2016: <http://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD>.

Sources: CEQ Institute's Data Center on Fiscal Redistribution. Based on the following Master Workbooks of Results. Argentina: Rossignolo (2016b); Armenia: Younger and Khachatryan (2014); Bolivia: Paz-Arauco et al. (2014b); Brazil: Higgins and Pereira (2016); Chile: Martinez-Aguilar and Ortiz-Juarez (forthcoming); Colombia: Melendez and Martinez (2015); Costa Rica: Sauma and Trejos (2014b); Dominican Republic: Aristy-Escuder (2016); Ecuador: Llerena et al. (2014); El Salvador: Beneke et al. (2014); Ethiopia: Hill et al. (2014); Georgia: Cancho and Bondarenko (2015); Ghana: Younger et al. (2016b); Guatemala: Cabrera and Moran (2015); Honduras: Castañeda and Espino (2015); Indonesia: Jellema et al. (2015); Jordan: Abdel-Halim et al. (2016); Mexico: Scott (2013); Peru: Jaramillo (2015); Russia: Malytsin and Popova (2016); South Africa: Inchauste et al. (2016); Sri Lanka: Arunatilake et al. (2016); Tanzania: Younger et al. (2016c); Tunisia: Shimeles et al. (2015); Uruguay: Bucheli et al. (2014).

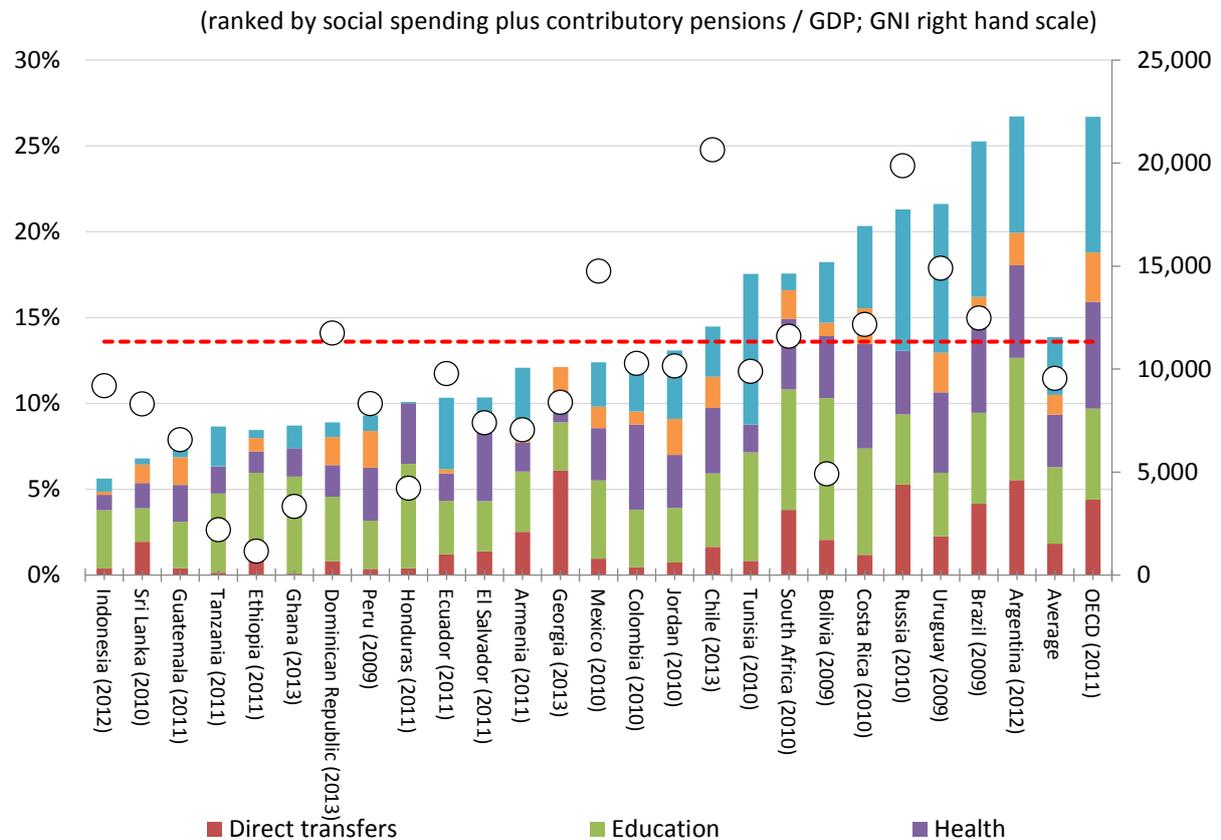
Figure 2 shows the level and composition of primary and social spending plus contributory pensions (panel A), and the composition of social spending around 2010 for the following categories: direct transfers, education, health, and other social spending (panel B). On average, the 25 low-income and middle-income countries analysed here allocate 10.4 per cent of GDP to social spending, while the advanced countries in the OECD group allocate 18.8 per cent of GDP, i.e. almost twice as much. The 25 countries on average spend 1.8 per cent of GDP on direct transfers, 4.5 per cent on education, and 3.0 per cent on health. In comparison, the OECD countries, on average, spend 4.4 per cent of GDP on direct transfers, 5.3 per cent on education, and 6.2 per cent on health. The largest difference between the OECD group and our sample occurs in direct transfers. Regarding pensions (including contributory pensions only and not special social pensions, which are part of direct transfers), the 25 low-income and middle-income countries spend 3.4 per cent of their GDP while OECD countries spend 7.9 per cent.

Figure 2: Size and composition of primary and social spending plus contributory pensions (as a % of GDP; circa 2010)

Panel A: Primary and social spending plus contributory pensions as a % of GDP



Panel B: Composition of social spending plus contributory pensions as a % of GDP



Notes: Year of household survey in parentheses. Data shown here are administrative data reported by the studies cited above and the numbers do not necessarily coincide with those of multilateral organizations. Gross National Income per capita on the right axis is in 2011 PPP from World Development Indicators, 29 August 2016: <http://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD>.

The scenario for South Africa assumes that free basic services are direct transfers. For Tanzania, the fiscal year runs from July 2011 to June 2012. The figure for OECD average (includes only advanced countries) was provided directly by the statistical office of the organization.

Sources: As Figure 1.

Argentina, Brazil, Uruguay, Russia, Costa Rica, Bolivia, and South Africa (from highest to lowest) have the largest amount of resources at their disposal to engage in fiscal redistribution, given the size of social spending relative to GDP. At the other end of the spectrum are Indonesia, Sri Lanka, and Guatemala. Whether the first group achieve their higher redistributive potential, however, depends on how the burden of taxation and the benefits of social spending are distributed. This will be discussed in Sections 5 and 6. First, however, the next section presents a brief description of the fiscal incidence methodology utilized in the 25 studies.

4 The redistributive effect of fiscal policy

A typical indicator of the redistributive effect of fiscal policy is the difference between the market income Gini and the Gini for income after taxes and transfers.²¹ If the redistributive effect is positive (negative), fiscal policy is equalizing (unequalizing).

Figure 3 presents the Gini coefficient for market income and the other three income concepts shown in Diagram 1: disposable, consumable, and final income.²² In broad terms, *disposable income* measures how much income individuals may spend on goods and services (and save, including mandatory savings such as contributions to a public pension system that is actuarially fair). *Consumable income* measures how much individuals are actually able to consume. For example, a given level of disposable income—even if consumed in full—could mean different levels of actual consumption depending on the size of indirect taxes and subsidies. *Final income* includes the value of public services in education and health if individuals had had to pay for those services at the average cost to the government. Based on the fact that contributory pensions can be treated as deferred income or as a direct transfer, all the calculations here are presented for two scenarios: one with contributory pensions included in market income and the other with them as government transfers. For consistency, it should be remembered that in the first scenario contributions to the system are treated as mandatory savings and in the second as a tax.

²¹ All the theoretical derivations that link changes in inequality to the progressivity of fiscal interventions have been derived from the so-called family of S-Gini indicators, of which the Gini coefficient is one case. See, for example, Duclos and Araar (2006). While it is possible (and desirable) to calculate the impact of fiscal policy on inequality using other indicators, it is not possible to link them to the progressivity of the interventions.

²² Other measures of inequality, such as the Theil index or the 90/10 ratio, are used in the individual studies. Requests should be addressed directly to the authors.

For Brazil, the results of the analysis presented here differ from the results published in Higgins and Pereira (2014), because the latter include taxes on services (ISS) and on goods and services to finance pensions (CONFINS) and to finance social workers (PIS), while the results presented here do not include them. After publishing their paper, Higgins and Pereira concluded that the source of these taxes was not reliable.

Gini coefficients for Chile are estimated here using total income and thus differ from official figures of inequality, which are estimated using monetary income (i.e. official figures exclude owner-occupied imputed rent).

For South Africa, the results presented here assume that free basic services are a direct transfer.

For Armenia, Costa Rica, Peru, South Africa, and Uruguay, there are no indirect subsidies.

For Dominican Republic, the study analyses the effects of fiscal policy in 2013, but the household income and expenditure survey dates back to 2006–2007.

For Indonesia, the fiscal incidence analysis was adjusted for spatial price differences. Personal income taxes are assumed to be zero because the vast majority of households have implied market incomes below the tax threshold.

The only contributory pensions in South Africa are for public servants, who must belong to the Government Employees Pension Fund (GEPF). Since the government made no transfers to the GEPF in 2010/11, there is no scenario with contributory pensions as a transfer. The same applies to Ethiopia, Ghana, and Tanzania. The only contributory pensions in Sri Lanka are for public servants, and income from pensions has been considered as part of public employees' labour contract, rather than as a transfer, in spite of the fact that the funding comes from general revenue. In other words, for Ethiopia, Ghana, South Africa, Sri Lanka, and Tanzania, there is no scenario in which contributory pensions are considered as a transfer. Georgia has a non-contributory public pension scheme only; therefore, they are treated only as a transfer. In all these cases, the scenario is the same in both panels.

Sources: As Figure 1.

As can be observed, in Honduras, Guatemala, and Indonesia, fiscal income redistribution is quite limited, while in Argentina, Georgia, South Africa, and Brazil, it is of a relevant magnitude. Colombia is between these two groups. One can observe that Argentina is the country that redistributes the most. It is interesting to note that, although Brazil and Colombia start out with similar market income inequality, Brazil reduces inequality considerably, while Colombia does not. Similarly, Mexico, Costa Rica, and Guatemala start out with similar levels of market income inequality but Mexico and Costa Rica reduce inequality by more. Ethiopia is the least unequal of all 25 countries, and fiscal redistribution is also the smallest in order of magnitude. In almost all cases, the largest change in inequality occurs between consumable and final income. This is not surprising, given the fact that governments spend more on education and health than on direct transfers and pensions. However, one should not draw sweeping conclusions from this result, because, as discussed above, in-kind transfers are valued at average government cost, which is not really a measure of the 'true' value of these services to the individuals who use them.

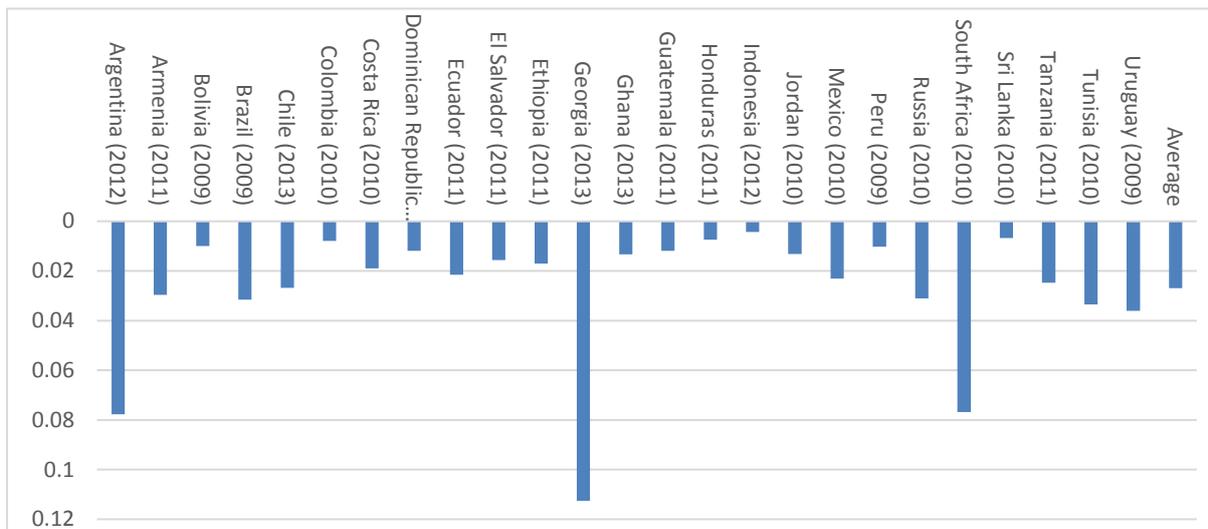
Panels A and B in Figure 3 show that the patterns of inequality decline are similar whether one looks at the scenario in which contributory pensions are considered as deferred income (and thus part of market income) or with pensions as transfers. In Argentina, Armenia, Russia, and Uruguay, the redistributive effect is considerably larger when contributory pensions are treated as a transfer. These are countries with higher coverage and an older population. In Chile, Costa Rica, Ecuador, and Jordan, the effect is larger but very slightly. Interestingly, in Bolivia, Brazil, Colombia, Dominican Republic, El Salvador, Honduras, Mexico, and Tunisia, the redistributive effect is smaller when contributory pensions are considered as a government transfer versus deferred income.

4.1 Measuring the marginal contribution of taxes and transfers

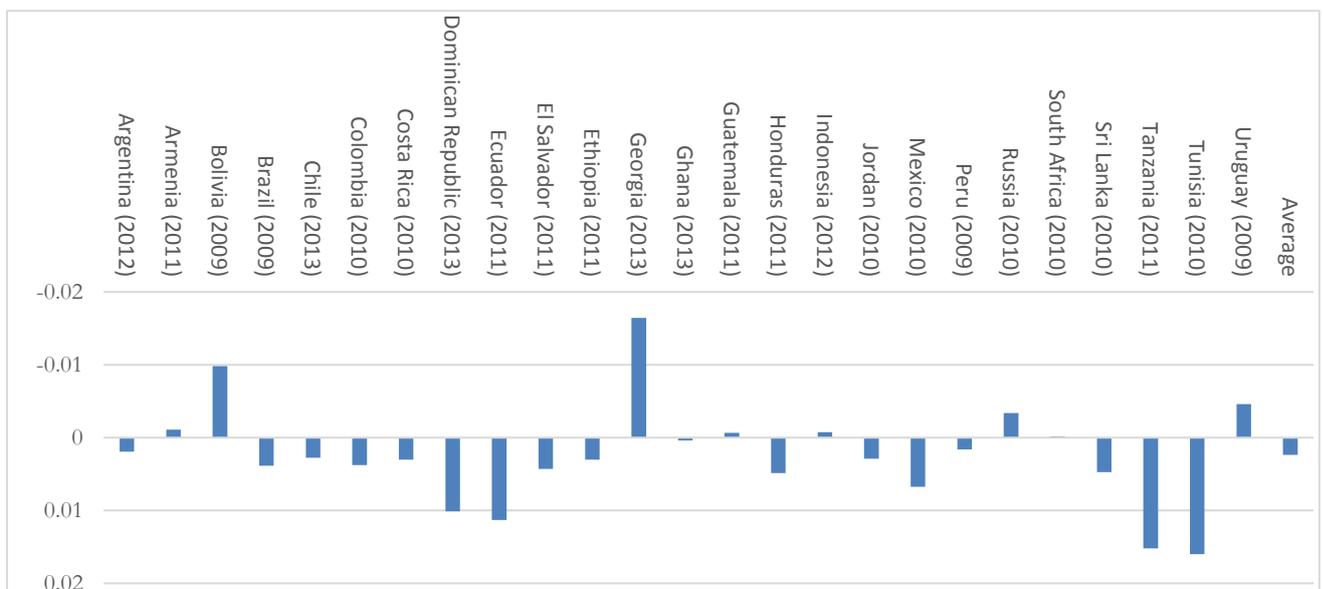
The CEQ methodology measures the impact of a tax or a transfer by relying on the marginal contribution, which is equal to the difference between the Gini (or other inequality measure) for a post-fiscal income concept without the fiscal intervention of interest (e.g. a particular tax or transfer) and the post-fiscal income including all the interventions. While many of the existing fiscal redistribution studies stop at direct taxes and direct transfers, Figure 4 shows the marginal contribution of net direct taxes (direct taxes net of direct transfers), net indirect taxes (indirect taxes net of subsidies), and spending on education and health. Note that an equalizing (unequalizing) effect is presented with a positive (negative) sign but with downward point bars.

Figure 4: Marginal contribution of taxes and transfers (circa 2010)

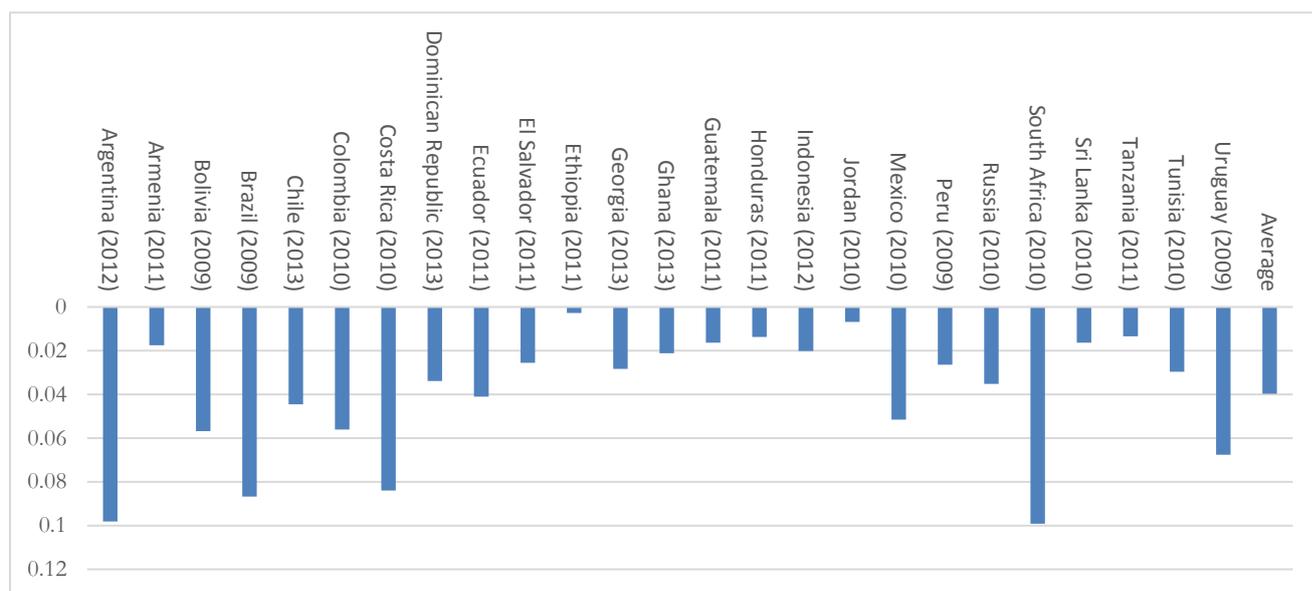
Panel A: Marginal contributions of net direct taxes (contributory pensions as deferred income)



Panel B: Marginal contributions of net indirect taxes (contributory pensions as deferred income)



Panel C: Marginal contributions of in-kind transfers in education and health (contributory pensions as deferred income)



Notes: The marginal contribution of net direct taxes is calculated as the difference between the Gini of market income plus contributory pensions and disposable income (panel A). The marginal contribution of net indirect taxes is calculated as the difference between the Gini of disposable income and consumable income (panel B). The marginal contribution of in-kind transfers is calculated as the difference between the Gini of consumable income and final income (panel C).

Sources: As Figure 1.

The first result to note is that net direct taxes are, as expected, always equalizing. The second is that net indirect taxes are equalizing in 17 of the 25 countries. The marginal contribution of government spending on education and health is always equalizing.

Country-specific results indicate that, contrary to expectations, indirect taxes, indirect subsidies, and spending on tertiary education are more frequently equalizing than unequalizing. The results also show the presence of Lambert's (2001) conundrum in the case of Chile, where indirect taxes are regressive—the Kakwani (1977) coefficient for indirect taxes is negative—and yet equalizing.²³

4.2 Redistributive effect: a comparison with advanced countries

How do these 25 countries compare with advanced countries in terms of fiscal redistribution? One obvious comparator is the analysis produced by EUROMOD for the 28 countries in the European Union, although the methodology is somewhat different.²⁴ Given that EUROMOD covers only direct taxes, contributions to social security, and direct transfers, the comparison can be done for the redistributive effect from market to disposable income. A comparison is also made with the United States.²⁵

²³ These results are available upon request.

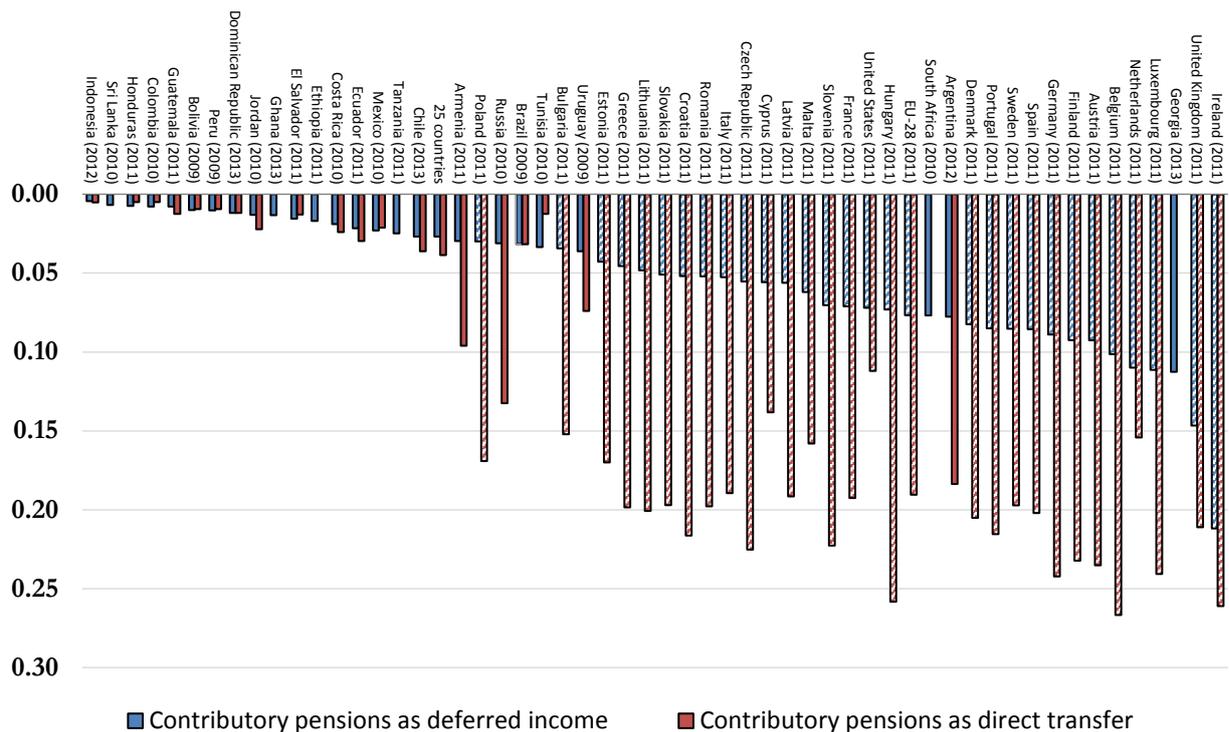
²⁴ The data for EU-28 is from EUROMOD statistics on Distribution and Decomposition of Disposable Income, accessible at <http://www.iser.essex.ac.uk/euromod/statistics/> using EUROMOD version no. G3.0.

²⁵ Higgins et al. (2016).

There are three important differences between these advanced countries and the 25 analysed here. First, market income inequality tends to be somewhat higher for the 25 countries.²⁶ However, the difference is most striking when pensions are treated as transfers. The average market Gini coefficient for the 25 countries for the scenario in which pensions are treated as deferred income and the scenario in which they are considered as transfers is 47.6 and 49.3 per cent, respectively. In contrast, in the EU, the corresponding values are 35.6 and 46.3 per cent, respectively; and in the US, they are 44.8 and 48.4, respectively. One important aspect to note, however, is that in the EU, pensions include both contributory and non-contributory social pensions, while in the 25 countries and the US, the category of pensions includes only contributory pensions. In the scenario where we consider the pre-fisc income market income plus contributory pensions, the Gini for the pre-fisc income would be lower.

Second, as expected and shown in Figure 5, the redistributive effect is larger in the EU countries and, to a lesser extent, in the United States if pensions are considered as a government transfer. In the 25 countries, whether pensions are treated as deferred income or as a transfer makes a relatively small difference. This is not the case in the EU countries, where the difference is huge. In the EU, the redistributive effect with contributory pensions as deferred income and contributory pensions as a transfer is 7.7 and 19.0 Gini points, respectively. In the United States, the numbers are less dramatically different: 7.2 and 11.2, respectively. In the 25 countries, the numbers are 2.7 and 3.9 Gini points, respectively. Clearly, the decision made about how to treat incomes from pensions, again, makes a big difference.

Figure 5: Redistributive effect: Comparing developing and advanced countries (change in Gini points; circa 2010)



²⁶ South Africa pulls the average up but Indonesia pulls it down.

Notes: Year of household survey in parentheses. For definition of income concepts see Section 2 in the text. Redistributive effect is defined as the difference between the Gini of market income plus contributory pensions and disposable income with contributory pensions treated as deferred income and the difference between the Gini of market income and disposable income with contributory pensions treated as transfers. The graph is ranked from the smallest to the largest by redistributive effect with contributory pensions treated as deferred income.

Sources: For the 25 countries considered in this study: as Figure 1. For the European Union countries: EUROMOD statistics on Distribution and Decomposition of Disposable Income, accessible at <http://www.iser.essex.ac.uk/euromod/statistics/> using EUROMOD version no. G3.0.

The number of countries in the scenario in which contributory pensions are treated as a transfer is smaller because it does not include the countries for which—for different reasons—there is no scenario in which contributory pensions are considered as a transfer, namely: Ethiopia, Georgia, Ghana, South Africa, Sri Lanka, and Tanzania.

While, as seen in the previous section, in low- and middle-income countries pensions can sometimes be equalizing and sometimes unequalizing, in no European country nor in the United States are contributory pensions ever unequalizing. On the contrary, vis-à-vis market income without pensions, they exert a large equalizing force in the EU and less so in the US. Using data for 2011, for example, the difference between the market income Gini and the market income Gini plus contributory pensions is 10.7 percentage points in the EU and 3.6 in the United States.

5 Fiscal policy and the poor

The above discussion has concentrated on the impact of fiscal policy on inequality. As important is the impact of fiscal policy on poverty—particularly because the results do not necessarily go in the same direction: i.e. an inequality-reducing fiscal system could be poverty-increasing. The effect of fiscal policy on poverty can be measured using typical indicators such as the headcount ratio for market income and income after taxes and transfers. Another measure that can be used to assess the impact of fiscal policy on the poor is the extent to which market income poor end up being net payers to the fiscal system in cash terms (leaving out in-kind services). A third measure is that of fiscal impoverishment (Higgins and Lustig 2016): i.e. the extent to which fiscal policy makes the poor (non-poor) poorer (poor).

When analysing the impact of fiscal interventions on poverty, it is useful to distinguish between the net benefits in cash and the benefits received in the form of free government services in education and health. The cash component of fiscal policy impact is measured by comparing the indicators for consumable income with the same indicators using market income. The level of consumable income will show whether the government has enabled an individual to be able to purchase private goods and services above his or her original market income. As shown in Figure 6 (panel A), using the US\$2.50 (PPP 2005 a day) poverty line,²⁷ fiscal policy reduces the headcount ratio for consumable income in most countries.²⁸ However, there is a startling result. In the scenario in which pensions are considered as deferred income, the consumable income headcount ratio for Armenia, Bolivia, Ethiopia, Ghana, Guatemala, Honduras, Sri Lanka, and Tanzania is *higher* than the headcount ratio for market income. This is a worrying result. Poverty should not

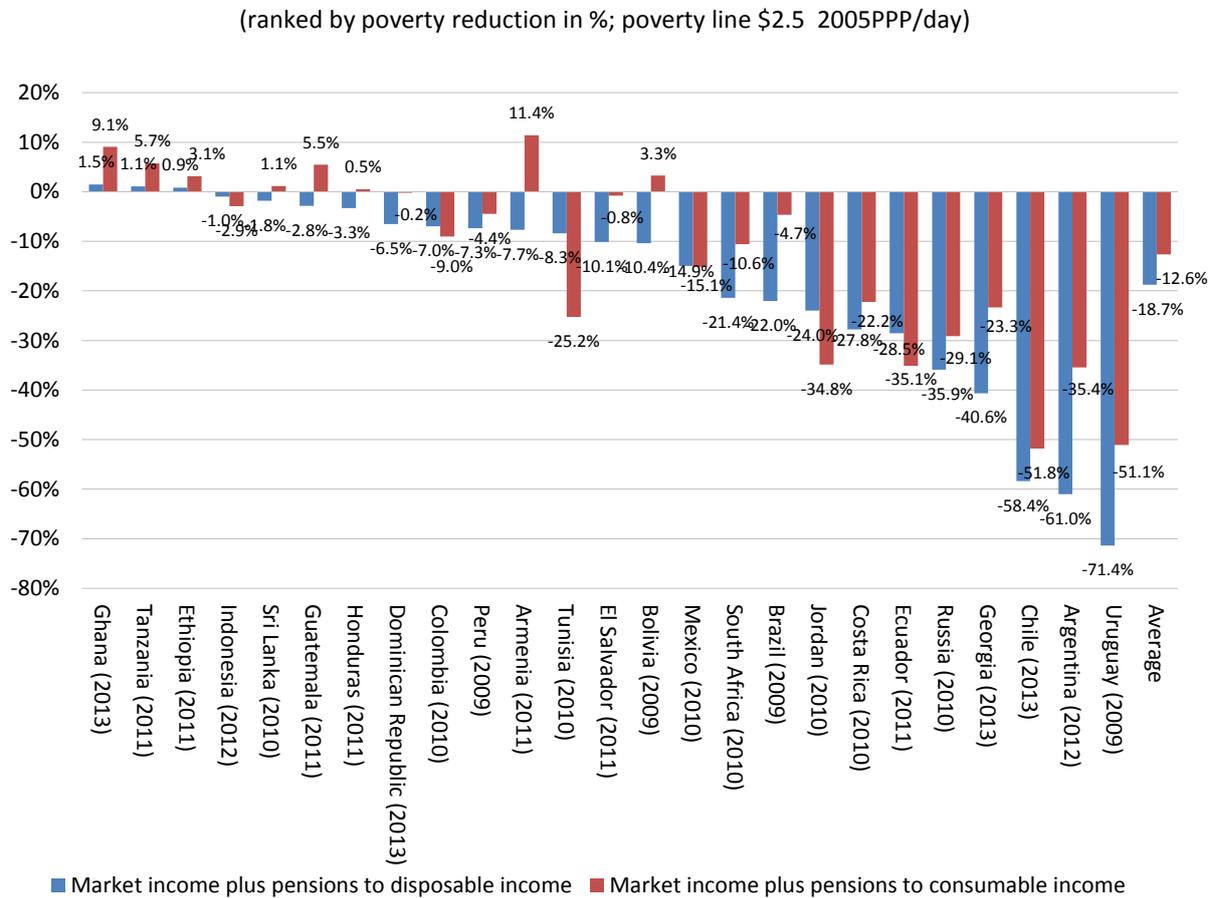
²⁷The \$2.50 a day poverty line is considered to be a reasonable international extreme poverty line for middle-income countries: for example, in the case of Latin America, this poverty line is close to the average of the local extreme poverty lines.

²⁸Chile's result is particularly high because market income poverty is lower in Chile than in the other countries. Thus, a similar change in percentage points represents a large change when measured in percentage change, as in Figure 6.

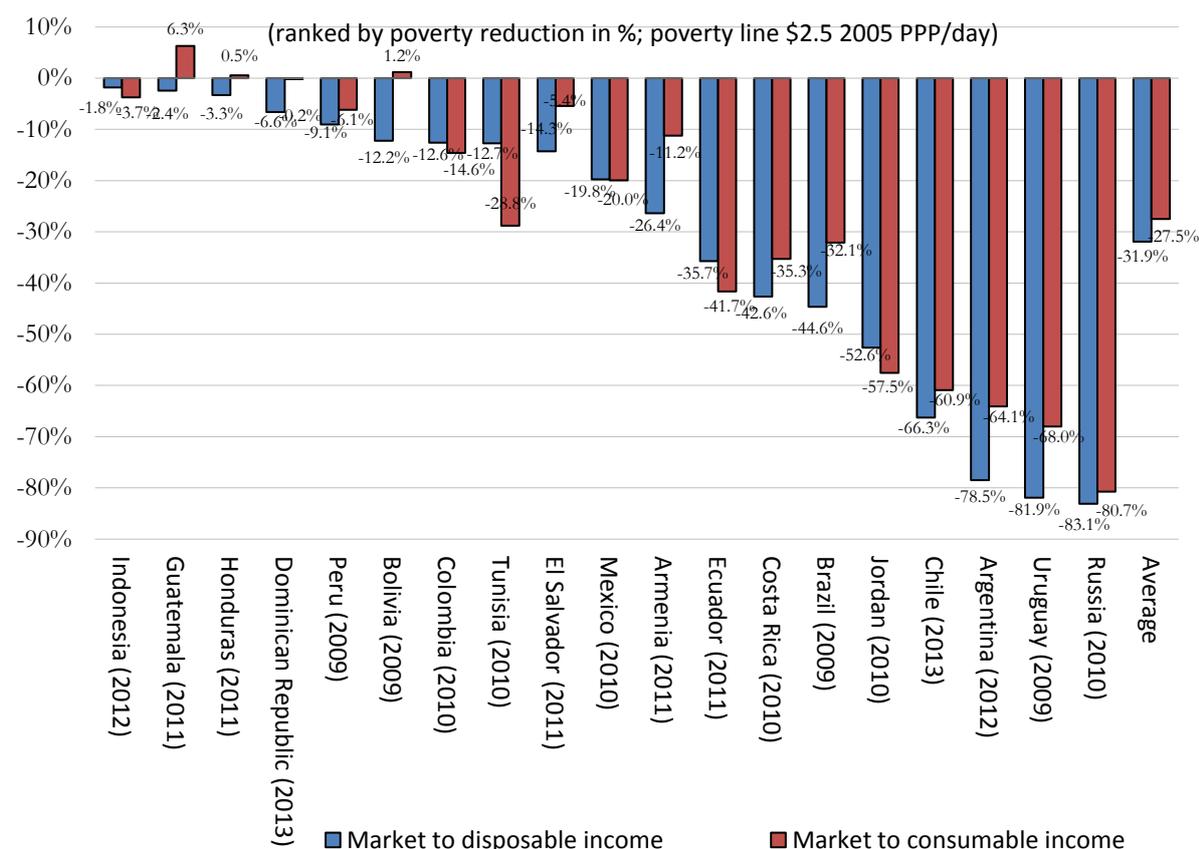
increase as a result of fiscal policy. Note that this result occurs despite the fact that the net fiscal system (even without including in-kind transfers) reduces inequality. This emphasizes the fact that the impact of fiscal interventions on inequality and poverty should be studied separately.

Figure 6: Fiscal policy and poverty reduction (circa 2010): change in headcount ratio from market to disposable and consumable income; in %

Panel A: Contributory pensions as deferred income



Panel B: Contributory pensions as transfers



Notes: The percentage of poverty reduction is defined as the percentage change in headcount ratio from market income (or market income plus contributory pensions) to consumable income.

The number of countries in panel B is smaller because it does not include the countries for which—for different reasons—there is no scenario in which contributory pensions are considered as a transfer: namely, Ethiopia, Georgia, Ghana, South Africa, Sri Lanka, and Tanzania.

Sources: As Figure 1.

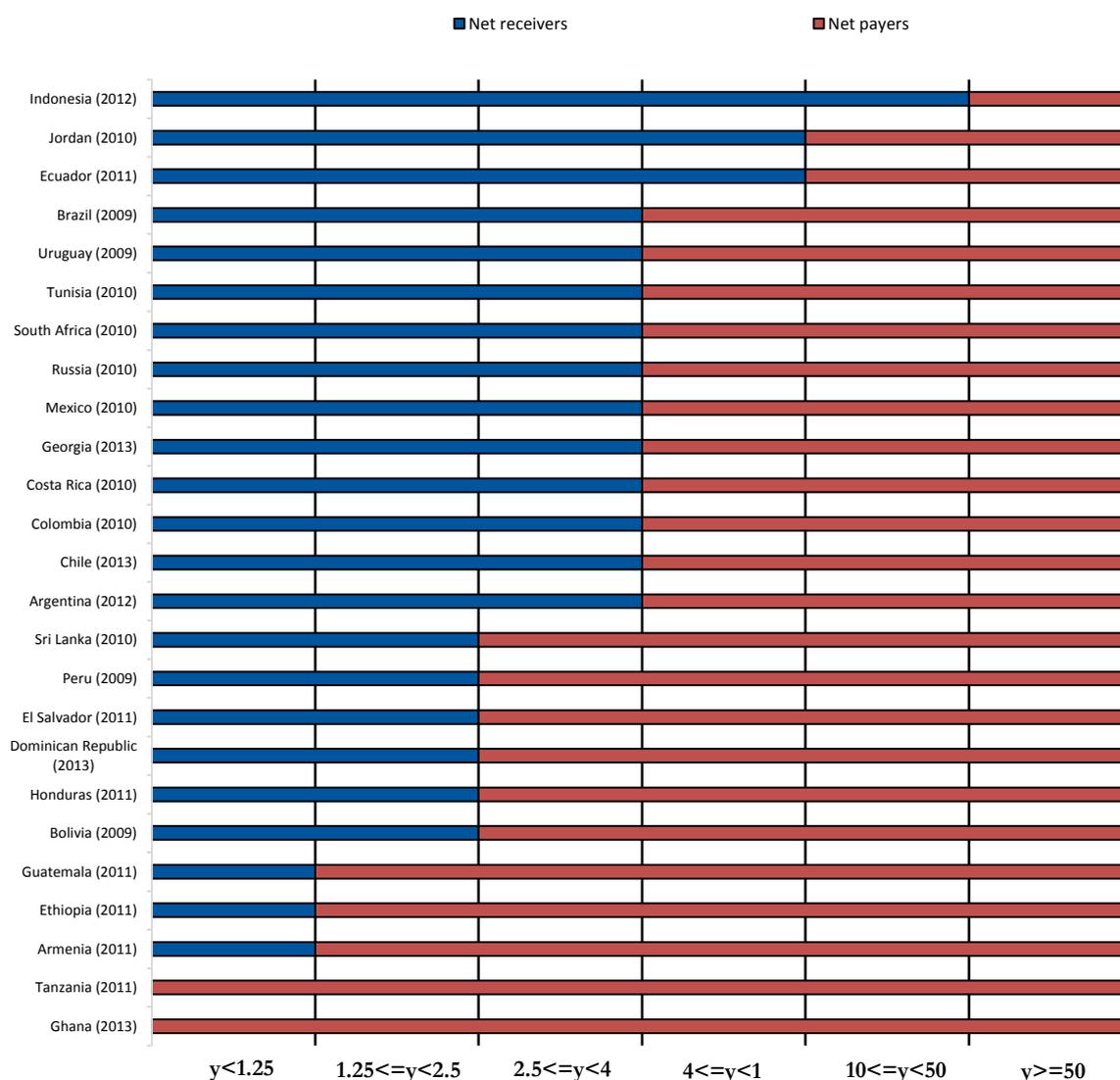
In principle, it is desirable for the poor—especially the extreme poor—to be net receivers of fiscal resources in cash, so that poor individuals can buy/consume the amounts of food and other essential goods embedded in the selected poverty line. Figure 7 shows the market income category in which individuals—on average—become net payers to the fiscal system (again, this calculation takes into account only direct transfers in cash or near cash such as food).²⁹ In Ghana and Tanzania, individuals begin to be net payers to the fiscal system in the income category US\$0–1.25/day PPP (these are known as the ‘ultra poor’). In Guatemala, Ethiopia, and Armenia, net payment begins in the income group US\$1.25–2.50/day (‘extreme poor’). In Sri Lanka, Peru, El Salvador, Dominican Republic, Honduras, and Bolivia it begins in the income category US\$2.50–4/day (‘moderately poor’). In 11 countries, individuals start being net payers in the group known as ‘vulnerable’. In Indonesia, only the ‘rich’ are net payers to the fiscal system (on average).³⁰ If contributory pensions are considered as a government transfer (not shown), individuals start to be

²⁹ Note that this graph presents a non-anonymous result: it looks at the extent to which the market income poor become net payers to the fiscal system on average. This information cannot be extrapolated from the typical poverty measures, where winners and losers are not tracked.

³⁰ These income categories are based on Lopez-Calva and Ortiz-Juarez (2014) and Ferreira et al. (2012).

net payers to the fiscal system in the extreme poor income group in Guatemala and the moderately poor group in Peru, Honduras, El Salvador, Dominican Republic, Bolivia, and Armenia.

Figure 7: Net payers to the fiscal system by income groups (contributory pensions as deferred income)



Sources: As Figure 1.

As can be seen in Table 1, the proportion of poor (non-poor) people who were made poorer (poor) by fiscal policy as a share of the total population and, in particular, the consumable income poor is nontrivial. Moreover, this is so even though, in the majority of countries included in the table, the fiscal system is inequality- and poverty-reducing, as revealed by the change in the headcount ratio and Gini coefficient.

Table 1: Fiscal impoverishment (circa 2010): contributory pensions as deferred income; in %

Country (survey year)	Market income plus contributory pensions; Poverty headcount (%)	Change in poverty headcount (p.p.)	Market income plus contributory pensions inequality (Gini)	Reynolds-Smolensky	Change in inequality (▲Gini)	Fiscally impoverished as % of population	Fiscally Impoverished as % of consumable income poor
<i>Panel A: Upper-middle-income countries, using a poverty line of \$2.5 2005 PPP per day</i>							
Brazil (2009)	16.8	-0.8	57.5	4.6	-3.5	5.6	34.9
Chile (2013)	2.8	-1.4	49.4	3.2	-3.0	0.3	19.2
Ecuador (2011)	10.8	-3.8	47.8	3.5	-3.3	0.2	3.2
Mexico (2012)	13.3	-1.2	54.4	3.8	-2.5	4.0	32.7
Peru (2011)	13.8	-0.2	45.9	0.9	-0.8	3.2	23.8
Russia (2010)	4.3	-1.3	39.7	3.9	-2.6	1.1	34.4
South Africa (2010)	49.3	-5.2	77.1	8.3	-7.7	5.9	13.3
Tunisia (2010)	7.8	-0.1	44.7	8.0	-6.9	3.0	38.5
<i>Panel B: Lower-middle-income countries, using a poverty line of \$1.25 2005 PPP per day</i>							
Armenia (2011)	21.4	-9.6	47.4	12.9	-9.3	6.2	52.3
Bolivia (2009)	10.9	-0.5	50.3	0.6	-0.3	6.6	63.2
Dominican Republic (2013)	6.8	-0.9	50.2	2.2	-2.2	1.0	16.3
El Salvador (2011)	4.3	-0.7	44.0	2.2	-2.1	1.0	27.0
Ethiopia (2011)	31.9	2.3	32.2	2.3	-2.0	28.5	83.2
Ghana (2013)	6.0	0.7	43.7	1.6	-1.4	5.1	76.6
Guatemala (2010)	12.0	-0.8	49.0	1.4	-1.2	7.0	62.2
Indonesia (2012)	12.0	-1.5	39.8	1.1	-0.8	4.1	39.2
Sri Lanka (2010)							
Tanzania (2011)	5.0	-0.7	37.1	1.3	-1.1	1.6	36.4

Source: Higgins and Lustig (2016).

6 Education and health spending³¹

To what extent are the poor benefitting from government spending on education and health? The pro-pooriness of public spending on education and health is measured here using concentration coefficients (also called quasi-Ginis).³² In keeping with conventions, spending is defined as regressive whenever the concentration coefficient is higher than the Gini for market income. When this occurs, it means that the benefits from that spending as a share of market income *tend to rise* with market income.³³ Spending is progressive whenever the concentration coefficient is lower than the Gini for market income. This means that the benefits from that spending as a share of market income *tend to fall* with market income. Within progressive spending, spending is neutral in absolute terms—spending per capita is *the same* across the income distribution—whenever the

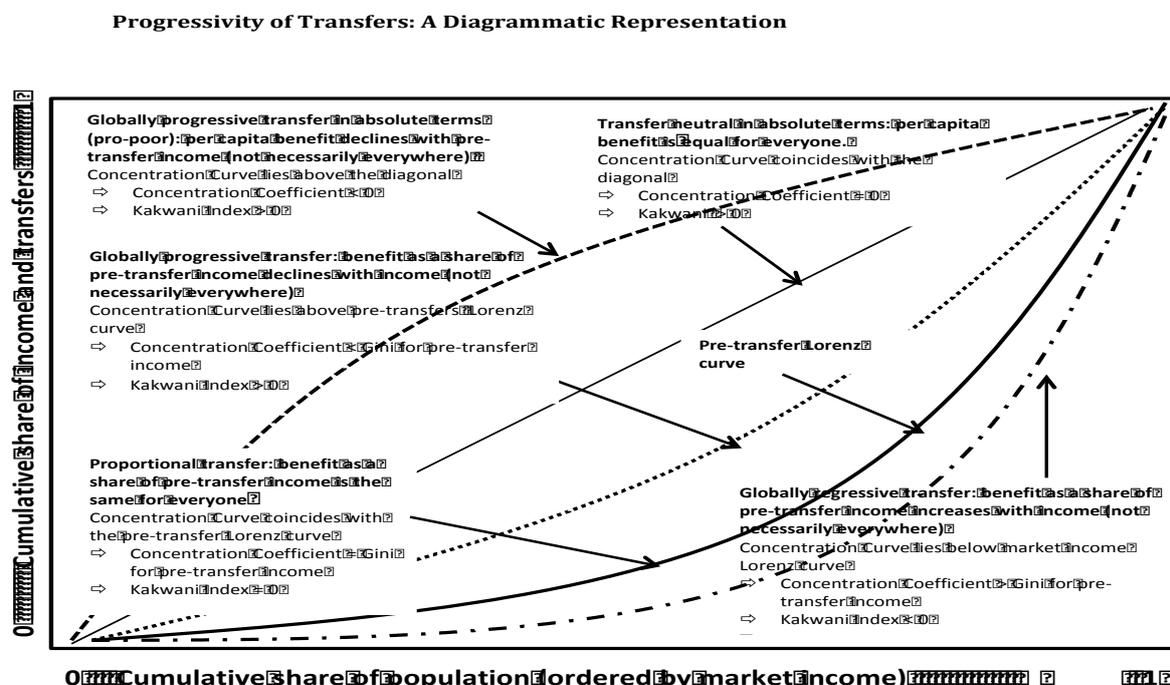
³¹ Section based on Lustig (2015).

³² A concentration coefficient is calculated in a similar way to the Gini coefficient. Let p be the cumulative proportion of the total population when individuals are ordered in increasing income values using market income, and let $C(p)$ be the concentration curve, i.e. the cumulative proportion of total programme benefits (of a particular programme or aggregate category) received by the poorest p per cent of the population. Then, the concentration coefficient of that programme or category is defined as $2 \int_0^1 (p - C(p)) dp$.

³³ I say ‘tend’ because for global regressivity/progressivity to occur it is not a necessary condition for the share of the benefit to rise/fall at each and every income level. When the latter occurs, the benefit is regressive/progressive *everywhere*. Whenever a benefit is *everywhere* regressive/progressive, it will be *globally* regressive/progressive, but the converse is not true.

concentration coefficient is equal to zero. Spending is defined as *pro-poor* whenever not only is the concentration coefficient lower than the Gini but also its value is negative. Pro-poor spending implies that the per capita government spending on the transfer *tends to fall* with market income.³⁴ Whenever spending is pro-poor or neutral in absolute terms, by definition it is progressive. The converse, of course, is not true.³⁵ The taxonomy of transfers is synthesized in Diagram 2.

Diagram 2: Progressivity of transfers



Source: Lustig and Higgins (forthcoming).

A clarification is in order. In the analysis presented here, households are ranked by per capita market income, and no adjustments are made to their size for differences in their composition by age and gender. In some analyses, the pro-poorness of education spending, for example, is determined using children—rather than all members of the household—as the unit of analysis. Because poorer families have, on average, a larger number of children, the observation that concentration curves are pro-poor is a reflection of this fact. It does not mean that poorer families receive more resources per child.

Table 2 summarizes the results of the analysis of the pro-poorness of government spending on education (total and by level) and health. Total spending on education is pro-poor (that is, per capita spending declines with income) in upper-middle-income and high-income countries except for South Africa and Tunisia, where it is (approximately) neutral in absolute terms. Total per capita spending on education tends to be the same (neutral in absolute terms) across different income groups in low-income and lower-middle-income countries, except for Armenia and El Salvador, where it is pro-poor, and Ethiopia, where it is progressive only in relative terms. Pre-school spending tends to be pro-poor in all countries for which there are data except Georgia. Primary

³⁴ This case is also sometimes called progressive in absolute terms.

³⁵ As mentioned above, care must be taken not to infer that any spending that is progressive (regressive) will automatically be equalizing (unequalizing).

school spending is pro-poor in all countries other than Ethiopia. Secondary school spending is pro-poor in all upper-middle-income and high-income countries for which there are data except Ecuador, where it is (approximately) neutral in absolute terms. Secondary school spending is neutral in low-income and lower-middle-income countries other than Bolivia (pro-poor) and Ethiopia (progressive only in relative terms). Government spending on tertiary education is regressive in Ethiopia, Tanzania, Ghana, and Guatemala and progressive only in relative terms (to various degrees) in the rest.

Health spending is pro-poor (that is, per capita spending declines with income) in Georgia, Brazil, Dominican Republic, Ecuador, South Africa, and all high-income economies other than Russia. In Armenia, Bolivia, Ghana, Honduras, Sri Lanka, Mexico, and Tunisia, the per capita benefit is roughly the same across the income scale. In Ethiopia, Tanzania, El Salvador, Guatemala, Indonesia, Peru, and Jordan, health spending per person is progressive in only relative terms.

While the results regarding the pro-poorness of spending on education and health are quite encouraging, a caveat is in order. Guaranteeing access to and facilitating the usage of public education and health services by the poor is not enough. As long as the quality of schooling and health care provided by the government is low, distortive patterns (e.g. mostly the middle classes and the rich benefiting from free tertiary education),³⁶ such as those observed in Brazil and South Africa, will be a major obstacle to the equalization of opportunities. However, with the existing information, it is not possible to ascertain the extent to which the progressivity or pro-poorness of education and health spending is a result of differences in family composition (i.e. the poor have more children and, therefore, poor households receive higher benefits in the form of basic education transfers) or frequency of illness (i.e. the poor have worse health than the non-poor) versus the ‘opting-out’ of the middle classes and the rich.

³⁶ Among the reasons for this outcome is the fact that more children from poor households tend to drop out of high school and rich children, who receive quality (often private) education, are better equipped to pass the entrance examination.

Table 2: Progressivity and pro-poorness of education and health spending. summary of results

	Education total			Pre-school			Primary			Secondary			Tertiary			Health					
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	D	A	B	C		
Argentina (2012)	+			+			--			--						+			+		
Armenia (2011)	+			+			+									+				+	
Bolivia (2009)		+		+			+			+						+				+	
Brazil (2009)	+			+			+			+						+			+		
Chile (2013)	+			+			+			+						+			+		
Colombia (2010)	--			+			+			+						+			--		
Costa Rica (2010)	--			+			+			+						+			--		
Dominican Republic (2013)	+			+			+									+			+		
Ecuador (2011)	+			--			+						+	--					+		
El Salvador (2011)	+			+			+				+					+					+
Ethiopia (2011)			+	--				+				+					+				+
Georgia (2013)		+			+		--			--						+			+		
Ghana (2013)	--			+			+				+						+			+	
Guatemala (2011)		+		+			+				+						+				+
Honduras (2011)		+		+			+				+					+				+	
Indonesia (2012)		+					+				+					+					+
Jordan (2010)	+			+			+			+						+					+
Mexico (2010)	+			+			+			+						+				+	
Peru (2009)	+			+			+			+						+					+
Russia (2010)	--			--			--			--				--					--		
South Africa (2010)		+		+			+			+						+			+		
Sri Lanka (2010)		+		--				--			--					+				+	
Tanzania (2011)	--			+			+				+						+				+
Tunisia (2010)		+		--			--			--						+				+	
Uruguay (2009)	+			+			+			+						+			+		

Notes: A = pro-poor; concentration coefficient is negative. B = same per capita for all; concentration coefficient equals zero. C = progressive; concentration coefficient positive but lower than market income plus contributory pensions Gini. D = regressive; concentration coefficient positive and higher than market income plus contributory pensions Gini. -- not available

If the concentration coefficient is higher than or equal to -0.5 but not higher than 0.5, it is considered equal to 0.

The scenario for South Africa assumes that free basic services are direct transfers.

Sources: As Figure 1.

7 Conclusions

In this paper, I examine the redistributive impact of fiscal policy in 25 low-income and middle-income countries. In particular, I address the following questions: What is the impact of fiscal policy on inequality and poverty? What is the contribution of direct taxes and transfers, indirect taxes and subsidies, and spending on education and health to the overall reduction in inequality? How pro-poor is spending on education and health?

In order to analyse the impact of fiscal policy on income inequality, it is useful to separate the ‘cash’ portion of the system (direct and indirect taxes, direct transfers, and indirect subsidies) from the ‘in-kind’ portion (the monetized value of the use of government education and health services). The results show that the reduction in inequality induced by the cash portion of the fiscal system is quite heterogeneous, with Argentina redistributing the most and Ethiopia the least. Redistributive success is broadly determined primarily by the amount of resources and their combined progressivity. Using the marginal contribution as the indicator, net direct taxes are always equalizing and net indirect taxes are equalizing in 17 of the 25 countries. In the rest, net indirect taxes are neutral or unequalizing.

While the cash portion of the net fiscal system is always equalizing, the same cannot be said for poverty. In Armenia, Bolivia, Ethiopia, Ghana, Guatemala, Honduras, Tanzania, and Sri Lanka, the headcount ratio measured with the international ‘extreme poverty’ line of US\$2.50 (PPP 2005 per day) is higher for consumable income than for market income. In these countries, fiscal policy *increases* poverty, meaning that a significant number of the market income poor (non-poor) are made poorer (poor) by taxes and transfers (Higgins and Lustig 2016). This startling result is primarily the consequence of high consumption taxes on basic goods.

Turning now to the in-kind portion of the fiscal system, the marginal contribution of spending on education and health is equalizing and rather large. This result is not surprising, given that the use of government services is monetized at a value equal to average government cost. While the results concerning the distribution of the benefits of in-kind services in education and health are encouraging from the equity point of view, it is important to note that they may be due to factors one would prefer to avoid. The more intensive use of services in education and health on the part of the poorer portions of the population, for example, may be caused by the fact that, in their quest for quality, the middle classes (and, of course, the rich) choose to use private providers. This situation leaves the poor with access to second-rate services. In addition, if the middle classes opt out of public services, they may be much more reluctant to pay the taxes needed to improve both the coverage and quality of services than they would be if services were used universally.

A few lessons emerge from the analysis. To start with those pertaining to the diagnostic of fiscal redistribution: first, the fact that specific fiscal interventions can have countervailing effects underscores the importance of taking a coordinated view of both taxation and spending rather than pursuing a piecemeal analysis. Efficient regressive taxes (such as VAT), when combined with generous and well targeted transfers, can result in a net fiscal system that is equalizing. Moreover, because a net fiscal system with a regressive tax could be more equalizing than one without (Lambert’s conundrum), policy recommendations—such as eliminating the regressive tax—based on a piecemeal analysis could be flatly wrong. Second, to assess the impact of the fiscal system on people’s standard of living, it is crucial to measure the effect of taxation and spending not only on inequality but also on poverty: the net fiscal system can be equalizing but poverty-increasing.

Regarding policy prescriptions, one fundamental lesson emerges: governments should design their tax and transfer system so that the incomes (or consumption) after taxes and transfers of the poor are not lower than their incomes (or consumption) before fiscal interventions. Leaving out in-kind transfers, the so-called cash portion of the fiscal system should not impoverish the poor (or make the non-poor poor). The results indicate that the ultra-poor in Ghana and Tanzania, the extreme poor in Armenia, Ethiopia, and Guatemala, and the moderate poor in Sri Lanka, Peru, El Salvador, Dominican Republic, Honduras, and Bolivia are net payers into the fiscal system. In the case of Brazil, the cause is the high consumption taxes paid on staple goods. In the case of Peru, cash transfers are too small to compensate for what the poor pay in taxes. Furthermore, as shown in Higgins and Lustig (2016), fiscal impoverishment can be pervasive and, in low-income countries, larger in magnitude than fiscal gains by the poor.

The current policy discussion (and the literature) focuses on the power of fiscal policy to reduce inequality and pays much less attention (often none at all) to the impact of fiscal policy on the standard of living of the poor. If the policy community is seriously committed to eradicating income poverty, governments will need to explore ways to redesign taxation and transfers so that the poor do not end up as net payers. This could become an overriding principle in the design of fiscal systems that could be explicitly added to the frameworks proposed by Atkinson (2015) and Stiglitz (2012) to build more equitable societies.

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