

Explaining Low Redistributive Impact in Bolivia

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Abstract

This article analyzes the fiscal incidence of cash and in-kind transfers, taxes, and subsidies in Bolivia. Between 2007 and 2009, social spending as a share of gross domestic product rose by about three percentage points. In spite of this, fiscal policy in Bolivia has shown a low redistributive impact. The weak impact is mainly due to the presence of significant leakages in transfers to the nonpoor and to the small size of per beneficiary transfers. The impact of fiscal policy on poverty and income inequality could increase with better targeting to the poor, larger per capita benefits, and an increase in coverage and progressivity of the tax system.

Keywords

Bolivia, fiscal incidence, inequality, poverty, redistribution

How does fiscal policy affect inequality and poverty in Bolivia? This article applies standard incidence analysis to estimate these impacts. Within the region, Bolivia is regarded both as a high social spender and as a country

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where social expenditure has a relatively low redistributive impact. This article addresses the reasons for this by dissecting the fiscal incidence of cash and in-kind transfers as well as taxes and subsidies.

Three questions will be useful in this assessment: first, how much redistribution and poverty reduction can be attributed to social spending and taxation policies? Second, how progressive are revenue collection and social spending in Bolivia? Third, what can be done to further increase redistribution and improve redistributive effectiveness?

The Bolivian fiscal record shows an impressive surge in fiscal effort and social expenditures in recent years. Between 2007 and 2009, social spending¹ in Bolivia increased from 11.5 to 14.7 percent of gross domestic product (GDP), while primary spending in the general government² increased from 29.2 to 33.3 percent of GDP. General government revenues³ averaged about 32 percent of GDP and public enterprises revenues increased significantly from 17.7 to 24.8 percent of GDP. Approximately 79 percent of the primary spending increase with respect to GDP came from social spending. Contributory pensions accounted for about 4 percent of the primary spending increase, while nonsocial spending accounted for about 17 percent of the increase (see table 1). A smaller proportion of the increase in social spending can be explained by the introduction of new cash transfer programs such as *Bono Juancito Pinto*, *Bono Juana Azurduy*, and the expansion of Bolivia's existing noncontributory pension—renamed *Renta Dignidad*. Other programs, such as a program to eradicate malnutrition (*Desnutricion Cero or Zero Undernutrition*), a literacy program (*Yo si puedo or Yes I Can*), and employment and community transfers, among others, account for the remainder of the increase.

The article is organized into five sections. The second section describes social spending and taxation in terms of Commitment to Equity social spending and tax categories, and summarizes the most important characteristics of each, including the relative size of the budget redistributed and the relative size of collected revenues. The third section presents data sources and identifies the main assumptions used in the tax and benefit incidence analysis. The fourth section summarizes the main results. The fifth section presents conclusions and policy implications.

Social Spending and Taxes

Table 1 presents the composition of government spending and taxes for 2007 and 2009. This section summarizes the most important characteristics of social spending and taxation. Data and policy rules are for the year 2009.

Table I. Composition of Social Spending and Taxes in Bolivia.

	2007		2009		Change 2007–2009 (% points)	Share of the increase
	Million bolivianos	% GDP	Million bolivianos	% GDP		
GDP	103,009		121,727			
Total government spending general government ^a	31,406	30.5	42,405	34.8	4.3	
Primary government spending general government ^b	30,088	29.2	40,509	33.3	4.1	100
Social spending	11,864	11.5	17,927	14.7	3.2	79
Social spending in incidence analysis (benchmark) ^c	11,030	10.7	16,941	13.9	3.2	79
Total direct transfers	714	0.7	2,491	2.0	1.4	33
Direct transfers (excluding all pensions)	714	0.7	794	0.7	0.0	-1
Noncontributory pensions	0	0.0	1,697	1.4	1.4	34
Total in-kind transfers	10,316	10.0	14,450	11.9	1.9	46
Education (^g)	6,695	6.5	10,068	8.3	1.8	44
Tertiary education	2,977	2.9	4,446	3.7	0.8	19
Health	3,620	3.5	4,383	3.6	0.1	2
Contributory	1,735	1.7	2,100	1.7	0.0	1
Noncontributory	1,886	1.8	2,283	1.9	0.0	1
Other social spending not in the incidence analysis	834	0.8	986	0.8	0.0	0
Non-social spending (not in the incidence analysis) ^d	14,737	14.3	18,269	15.0	0.7	17
Indirect subsidies	499	0.5	769	0.6	0.1	4
Gas subsidy	n/a		117	0.1		
Gasoline subsidy	n/a		651	0.5		
Other non social spending	14,238	13.8	17,501	14.4	0.6	13.6
Contributory pensions	3,487	3.4	4,313	3.5	0.2	3.9
Debt servicing ^e	1,319	1.3	1,896	1.6	0.3	
Total revenues general government	33,739	32.8	38,471	31.6	-1.1	
Total tax revenues	28,659	27.8	32,799	26.9	-0.9	

(continued)

Table I. (continued)

	2007		2009		Change 2007–2009 (% points)	Share of the increase
	Million bolivianos	% GDP	Million bolivianos	% GDP		
Taxes in the incidence analysis (VAT, specific consumption tax [ICE], hydrocarbons tax [IEHD] and transactions Tax [IT])	12,822	12.4	13,508	11.1		
VAT	7,429	7.2	8,399	6.9		
Other taxes not in the incidence analysis ^f	15,837	15.4	19,291	15.8		
Non tax revenues	5,080	4.9	5,672	4.7		-0.3
Memo items:						
Total government spending NFFPS	43,144	41.9	56,584	46.5		4.6
Primary government spending NFFPS	41,798	40.6	54,605	44.9		4.3
Public enterprises spending	18,799	18.2	27,633	22.7		4.5
Total revenues NFFPS	44,950	43.6	56,693	46.6		2.9
Total revenues public enterprises	18,251	17.7	30,178	24.8		7.1
Deficit/superavit general government	2,333	2.3	-2,436	-2.0		
Deficit/superavit NFFPS	1,785	1.7	109	0.1		

Note: *Education spending in 2009 was estimated based on 2007–2008 growth rate, since no official data was available for this year.

Sources: Ministerio de Economía y Finanzas Públicas (2011), Autoridad de Pensiones y Seguros (2011), and UDAPE, <http://www.udape.gob.bo/>. Data for *Desayuno Escolar* and *Programa de Atención a la Niñez* are based on own calculations survey calculations since no information on these programs was available for 2009.

Note: GDP = gross domestic product; ICE = impuesto al consumo específico; IEHD = impuesto especial a los hidrocarburos y sus derivados; IT = impuesto a las transacciones; NFFPS = nonfinancial public sector; UDAPE = Unidad de Análisis de Políticas Sociales y Económicas; VAT = value-added tax.

^aTotal government spending includes all public sector operations (central and local governments and social security).

^bPrimary spending = total government spending—debt services (interests).

^cSocial spending benchmark = direct transfers + in-kind transfers (public education and public health).

^dEducation spending in 2009 was estimated based on 2007–2008 growth rate, since no official data were available for this year.

^eNon-social spending = primary spending—social spending benchmark.

^fDebt servicing only includes interests.

Spending and revenue figures are presented both in Bolivian pesos and in purchasing power parity (US\$PPP)/day.⁴

Social Spending

Social spending includes all government spending in health, education, and social assistance. Social spending includes both direct cash transfers and in-kind transfers in education and health. In the benchmark analysis, social spending does not include contributory pensions, while they are included for the sensitivity analysis. In 2009, total social spending, excluding pensions, accounted for 44.3 percent of total primary government spending and 14.7 percent of GDP. Education, health, and direct cash transfers in the benchmark scenario accounted for 59, 26, and 15 percent of social spending, respectively.

Direct Transfers. Direct Transfers include two flagship conditional cash transfer (CCT) programs (Bono Juancito Pinto and Bono Juana Azurduy), two smaller transfer programs (*Desayuno Escolar* and *Beneméritos del Chaco*), and a noncontributory pension program (Renta Dignidad). Spending on these transfers equals 2.0 percent of GDP.

Bono Juancito Pinto. Launched in 2006, this program was originally designed to promote school attendance during the first five years of primary school. In 2007, eligibility was expanded to the first six years of school, and since 2008, the program has benefited children up to their eighth year in school. All children between six and nineteen years of age attending public schools are eligible for the program. The transfer consists of a yearly payment equal to 200 bolivianos, approximately US\$0.18 PPP/day paid once a year, conditional on proven attendance during the school year. According to the program's roster, 1.7 million children benefited from the transfer in 2009, with public expenditures equaling 0.3 percent of GDP.

Bono Juana Azurduy. This program was created in 2009 with the purpose of promoting prenatal health, infant checkups, and an increase in the rate of hospital births. Beneficiaries are women, eligible from the beginning of their pregnancy and children up to two years old. Only mothers and children without access to health insurance are eligible. The program consists of a maximum transfer of 1,820 bolivianos over a maximum period of thirty-three months (equivalent to an average of US\$0.58 PPP/day) split into three payments⁵: (1) pregnant women who attend four prenatal controls receive 50 bolivianos per checkup, (2) women who give birth at a public hospital

or health center receive an additional 120 bolivianos, and (3) mothers who take their children for six checkups per year receive 125 bolivianos for each visit. According to the program registry, 776,045 women and children benefited from the program in 2009. Public expenditure on the program reached 0.02 percent of GDP.

Desayuno Escolar. This program provides breakfast to children between the ages of four and nineteen who attend school. It was initially financed by donor funds, then executed and implemented by the Bolivian central government since 2005. Today, it is administrated by local governments, at the departmental and municipal levels. The per capita average cost of the program is 9 bolivianos per month, about US\$0.1 PPP/day.⁶ In 2008, the program benefited 1,985,158 people (Federación de Asociaciones Municipales [FAM] 2008). Resources spent on the program reached 0.2 percent of GDP in 2009.

Beneméritos del Chaco. The war veteran's transfer program consists of an average monthly payment of 1,254 bolivianos per month, equivalent to US\$13.2 PPP/day, paid once a month to veterans of the Chaco War (1932–1935). In 2009, the payment benefited more than 1,000 veterans. Resources spent on the program amounted to 0.14 percent of GDP (Ministerio de Economía y Finanzas Públicas 2011).

Noncontributory pension: Renta universal de vejez-Renta Dignidad. Renta Dignidad, implemented since 2008, builds on an earlier transfer program created in 1994 (the Bono Solidario known as *Bonosol*). Beneficiaries are citizens aged sixty or older, receiving transfers under two alternative schemes. The first scheme benefits citizens who are not under any other publicly funded retirement program (*no rentistas*). The monthly payment is 200 bolivianos, equivalent to US\$2.1 PPP/day. The second scheme benefits citizens who do benefit from a publicly funded retirement program (*rentistas*) and receive 150 bolivianos per month (equivalent to US\$1.58 PPP/day). In 2009, the program benefited 778,054 elderly people, 84.4 percent *no rentistas* and 15.6 percent *rentistas*. About 90.4 percent of the elderly benefited from the transfer in 2009, according to the national household survey *Encuesta de Hogares* (2009)—hereafter EH (2009)—collected by the *Instituto Nacional de Estadística de Bolivia* (INE). The total amount spent in this program totaled 1.4 percent of GDP in 2009.

In-kind Transfers

Education. In-kind transfers in education⁷ include transfers at four levels (initial, primary, secondary, and university) as well as the second phase of a

post-literacy program *Yo si Puedo seguir*⁸ and a child care program called *Programa de Atención a la Niñez*. In 2009, tertiary education alone accounted for 44.2 percent of total education spending and primary education accounted for 41.2 percent of spending, while secondary and initial levels only accounted for 10.1 and 2.4 percent of educational expenditures, respectively. In 2009, the total enrollment rate in public schools was 69 percent, with huge differences between levels; the highest rate was registered for primary schools (87.1 percent), followed by secondary (53 percent) and 31 percent at the initial level. In 2009, public education spending was 8.0 percent of GDP.

Health. In-kind transfers in health include noncontributory health (targeted programs such as a maternity and child care program—*Seguro Universal Materno Infantil (SUMI)*, a health insurance program for elderly people—*Seguro de Salud para el Adulto Mayor*, immunization program—*Programa Ampliado de Inmunizaciones*, and health facilities provided by first, second, and third public health centers) as well as contributory health funds (*Cajas de salud*). Noncontributory health in 2009 accounted for 52.0 percent of total health spending. The Maternity and Child Insurance program (*SUMI*) accounted for 6 percent of total health spending. In-kind transfers in health accounted for 3.6 percent of GDP.

Contributory pensions. Public spending on contributory pensions equals 3.5 percent of GDP (Ministerio de Economía y Finanzas Públicas 2011). This program includes retirement and survivors' pensions for workers in specific sectors from the pay-as-you-go system (*Sistema de Reparto*). This system was in place until the pension reform of 1996. Despite the reform, there is still a residue of pensions paid under the pay-as-you-go scheme. The residual *Sistema de Reparto* is entirely financed by the government. According to the survey data, in 2009, the system benefited almost 85,000 pensioners or about 10 percent of the population sixty years old or above. Since 1996, the system has been organized under an individual capitalization fund scheme. In 2009, 533,000 people contributed to a private fund, about 10 percent of the working population. The average monthly pension in 2009 in the individual capitalization system reached 2,528 bolivianos (US\$26.6 PPP/day).

Taxes and Subsidies

In 2009, total tax revenues amounted to 26.9 percent of GDP (Ministerio de Economía y Finanzas Públicas 2011). In Bolivia, income tax (value-added

tax [VAT] complementary regime) represents a small share of total tax revenues (0.9 percent). This tax was not included in the analysis because the survey does not identify it. However, there are four indirect taxes applied to consumption: a VAT, a transaction tax, a special tax on hydrocarbons, and a specific consumption tax, all of which account for 41 percent of total tax revenues in 2009.

While a corporate utility tax accounted for 17 percent of tax revenues in 2009, almost 10 percent was raised by hydrocarbons taxes and royalties. Indirect subsidies include the subsidized fraction of liquid gas and the subsidized fraction of gasoline consumed by households.⁹ In 2009, subsidies were equivalent to 0.6 percent of GDP.

Data and Assumptions

Data

We use data from the EH (2009) survey collected by INE. The survey is representative of rural and urban areas. Information is collected with a cross-sectional sampling design including 4,034 households and 15,665 individuals. It includes detailed information on sociodemographic characteristics as well as labor market information, earned and unearned income, and imputed rent estimates. Moreover, the EH identifies the use of public education and health services by household. Income categories used in the incidence analysis are constructed following Lustig and Higgins (2013). Market income estimates includes all the usual sources of monetary income plus old-age pensions from the formal social security system and imputed rent.¹⁰ We do not include direct taxes on income since the only direct tax applied to individual income in Bolivia is the VAT supplementary regime; however, the survey does not identify it. In 2009, this tax represented 0.2 percent of GDP.

To generate disposable income, we add direct cash transfers. The EH identifies recipients and amounts for *Renta Dignidad* and *Beneméritos del Chaco*. Beneficiaries of the *Bono Juancito Pinto* benefits are calculated according to program rules, by imputing the annual payment, assuming all children between six and nineteen years of age attending public schools, benefited from the program. Simulation results are compatible with official data on both number of beneficiaries and total amount spent on the program.¹¹

While *Bono Juana Azurduy* beneficiaries are identified in the EH, no information is available on the exact benefit amount. In the case of *Bono*

Juana Azurduy, we can identify women who have benefited from an institutional childbirth transfer. With childbirth dates, we calculate the maximum number of checkups for the two remaining components (pre- and post-birth checkups) of the program. The imputed value corresponds to the benefits stipulated in the program.

Finally, benefits of *Desayuno Escolar* are calculated according to eligibility rules since no information on the program is available in the survey. We assume that all children and youth who report attending a public school in 2009, regardless of the level, received the benefit. The program's impact is simulated by imputing the per capita annualized cost, with imputed values varying by municipality size (FAM 2008).

In order to construct post-fiscal income, we estimate amounts paid on indirect taxes and subsidies. Indirect taxes are calculated with data from the consumption module of the household survey 2003–2004.¹² Available data in the survey include quantities, values, and purchase places for specific products.¹³ With these data, consumption expenditure subject to indirect taxes is identified. With nominal rates applied to each article, we estimate the respective rates for rural and urban areas, as well as by income decile. We assume that the tax structure stays the same in 2009.¹⁴ The main assumption made for indirect taxes effect calculations is that the burden of VAT is borne completely by the consumers.

We assume that gas subsidies represent a constant share of household expenditures since the price of final consumer is fixed by law. As the consumer price of each 10-kilogram container of liquid gas includes a fixed subsidy, the effective transfer is proportional to the units consumed by each household.

Gasoline subsidies are estimated with two calculations: reported household spending on gasoline, considering that the subsidy represents a share of household consumption, and reported household spending on urban transportation on the basis of the structure of transportation costs. We assume an average price of transportation based on different types of public transportation, as well as a subsidy size equal to the difference between international and domestic prices.

Final income is calculated by imputing a value to education and health benefits. Benefits of in-kind transfers in education are imputed based on cost per student by schooling level,¹⁵ while in-kind health benefits are imputed using the average cost of a basic health care package.¹⁶ For in-kind education benefits, we assigned a benefit equivalent to the ratio of spending/beneficiaries, calculated with administrative registers by the level of education. In-kind health benefits were assigned imputing the per capita cost of health care delivery.

Social Spending, Taxes, and Income Redistribution: Main Results

Results obtained from the tax and benefits incidence analysis show that inequality after direct transfers and indirect taxes is neutral: the Gini coefficient remains at 0.503. However, more inequality reduction occurs after in-kind education and health transfers: the Gini coefficient falls to 0.446 or by 11.3 percent (see table 2). Looking at extreme and moderate poverty head count ratios, for both international and national poverty lines, we observe that the net effect of transfers and indirect taxes increases poverty.

As argued by Lustig, Carola, and Scott (2014), what prevents Bolivia from achieving greater inequality and poverty reduction through cash transfers is not a lack of resources. In 2009, primary spending was 33.3 percent of GDP. Two findings highlighted by the earlier article may help understand the reasons for the low distributive effect. First, Bolivia spends a low share of GDP on cash transfers: a total of 2 percent of GDP, with the noncontributory pension *Renta Dignidad* accounting for 1.4 percent and the other direct transfers (*Bono Juancito Pinto*, *Bono Juana Azurduy*, *Beneméritos del Chaco*, and *Desayuno Escolar*) accounting for the remaining 0.7 percent.

Second, as can be observed in figure 1, while the flagship cash transfers such as *Juancito Pinto* and *Juana Azurduy* are progressive in absolute terms, the distribution of benefits of *Renta Dignidad* is neutral. In fact, the latter's distribution follows a U-shaped pattern as one can observe in table 3. Since this program captures the lion's share of transfers, total transfers are almost equiproportional.

The underlying explanation of this situation relies on two design characteristics of all of the transfer programs: too few resources are left for the poor since a large proportion of the transfers go to the nonpoor (62 percent), and none of them give beneficiaries enough cash to exit poverty status: going from (US\$0.18 PPP/day) in the case of *Bono Juancito Pinto* (US\$2.1 PPP/day) to *Renta Dignidad* beneficiaries. As a result of this "universal" design, 68 percent of the nonpoor benefit from the direct cash transfer programs (figure 2). However, the effects of direct transfers on poverty and inequality should be considered as an upper bound since actual benefits may be smaller than the obtained by simulating the rules of the programs.

What happens when we add the effect of indirect taxes and subsidies? When we compare the Gini coefficients for disposable income and post-fiscal income (table 2), we observe the unequalizing effect of net indirect taxes. Furthermore, as shown in table 2, when we compare disposable and

Table 2. Bolivia: Taxes, Transfers, Inequality, and Poverty Benchmark and Sensitivity Analysis.

Benchmark case: pensions as part of net market income						
	Market income	Net market income	Disposable income	Post-fiscal income	Final income*	Final income
Gini		0.503	0.493	0.503	0.441	0.446
Headcount index poverty line US\$2.5 PPP/day (%)		19.6	17.6	20.2		
Headcount index poverty line US\$4.0 PPP/day (%)		32.5	30.7	33.9		
Headcount index national extreme poverty line (%)		23.8	21.4	24.4		
Headcount index national moderate poverty line (%)		46.7	45.4	49.6		
Sensitivity analysis I: pensions are a government transfer						
	Market income	Net market income	Disposable income	Post-fiscal income	Final income*	Final income
Gini		0.503	0.493	0.503	0.441	0.446
Headcount index poverty line US\$2.5 PPP/day (%)		20.0	17.6	20.2		
Headcount index poverty line US\$4.0 PPP/day (%)		33.1	30.7	33.9		
Headcount index national extreme poverty line (%)		24.4	21.4	24.4		
Headcount index national moderate poverty line (%)		47.4	45.4	49.6		

Note: Final Income *: is defined as disposable income plus in-kind transfers minus co-payments and user fees. See Lustig and Higgins (2013).

Source: Authors' calculations based on Encuesta de Hogares 2009 and fiscal accounts.

Note: PPP = purchasing power parity.

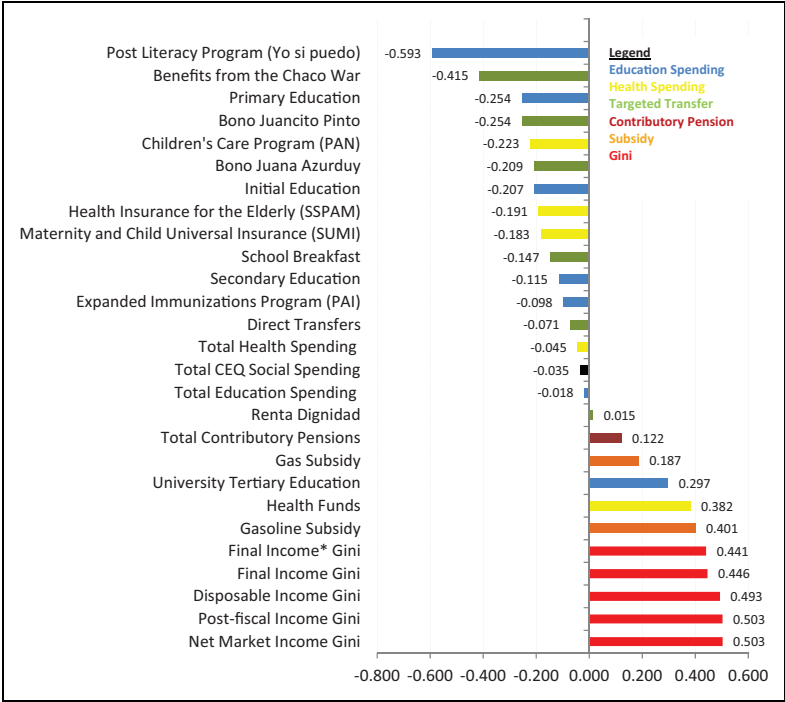


Figure 1. Bolivia: concentration coefficient by spending category and for total social spending.

Source: Author’s calculations based on Encuesta de Hogares 2009 and national fiscal accounts.
 Note: CEQ (from Commitment to Equity, the name of the multicountry project) social spending includes all cash transfers (except for contributory pensions) and other direct transfers plus public spending on education and health.

post-fiscal headcount ratios for extreme and total poverty (using both international and national poverty lines) we observe a substantial rise, confirming that the tax system in Bolivia does not exempt poor people from paying taxes on certain items. Moreover, households become net contributors to the fiscal system beginning in the third decile, meaning that only people from the two poorest deciles receive more than what they contribute in monetary terms, before including transfers in-kind (table 3). Indirect taxes are quite regressive and since there are no direct taxes on personal income, taxes are regressive overall. As expected, gas and gasoline subsidies are not progressive in absolute terms but they are in relative terms

Table 3. Incidence and Concentration Shares of Taxes and Transfers by Decile (Benchmark Case).

Net market income deciles	Net market income	Noncontributory pensions (%)	Flagship CCT (%)	Other direct transfers		All direct transfers (%)	Disposable income (%)	Indirect subsidies (%)	Indirect taxes (%)	Post-fiscal income (%)	In-kind education (%)	In-kind health (%)	Final income (%)
				(targeted or not, %)	not, %)								
Incidence of taxes and transfers by decile													
1		20.8	6.6	5.7	33.2	33.2	33.2	1.3	-24.3	10.2	102.6	66.1	178.9
2		10.4	2.3	3.1	15.8	15.8	15.8	1.2	-14.3	2.6	37.1	25.8	65.5
3		2.9	1.2	1.5	5.6	5.6	5.6	1.1	-11.4	-4.7	22.2	20.5	38.0
4		2.9	0.9	1.2	5.0	5.0	5.0	0.8	-10.4	-4.6	17.2	10.9	23.5
5		1.7	0.6	0.8	3.1	3.1	3.1	0.9	-9.5	-5.5	12.7	8.7	16.0
6		1.4	0.4	0.3	2.1	2.1	2.1	0.9	-8.5	-5.4	9.9	7.3	11.8
7		1.3	0.3	0.2	1.8	1.8	1.8	0.6	-8.5	-6.0	9.4	5.3	8.7
8		1.2	0.2	0.2	1.5	1.5	1.5	0.7	-8.2	-6.0	7.2	3.7	4.9
9		0.9	0.1	0.2	1.2	1.2	1.2	0.6	-7.6	-5.9	4.4	2.7	1.2
10		0.5	0.0	0.0	0.6	0.6	0.6	0.5	-5.7	-4.6	1.5	1.2	-1.9
Total		1.4	0.3	0.4	2.1	2.1	2.1	0.7	-7.8	-5.0	7.7	5.2	7.9
Concentration shares of taxes and transfers by decile													
1	0.7	10.8	15.8	11.8	11.8	11.8	1.0	1.5	2.3	0.9	10.0	9.6	2.0
2	2.1	14.9	14.8	17.9	15.4	15.4	2.3	3.7	3.8	2.2	9.9	10.3	3.2
3	3.5	7.0	13.7	14.2	9.3	9.3	3.6	5.8	5.1	3.5	10.1	13.8	4.5
4	4.7	9.5	13.6	15.6	11.2	11.2	4.9	6.0	6.4	4.7	10.6	10.0	5.5
5	6.1	7.2	11.0	13.2	8.8	8.8	6.1	8.5	7.4	6.0	10.0	10.2	6.6
6	7.6	7.6	9.8	6.3	7.7	7.7	7.6	10.3	8.3	7.6	9.9	10.7	7.9
7	9.5	8.5	8.3	5.9	8.0	8.0	9.4	9.2	10.3	9.4	11.6	9.7	9.6
8	11.9	9.8	6.2	5.0	8.4	8.4	11.8	12.6	12.6	11.8	11.1	8.6	11.7
9	16.7	10.5	4.5	8.1	9.2	9.2	16.5	14.6	16.4	16.5	9.5	8.6	15.7
10	37.2	14.1	2.3	1.9	10.2	10.2	36.7	27.7	27.3	37.4	7.4	8.5	33.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculations based on Encuesta de Hogares 2009 and fiscal accounts.

Note: CCT = conditional cash transfer.

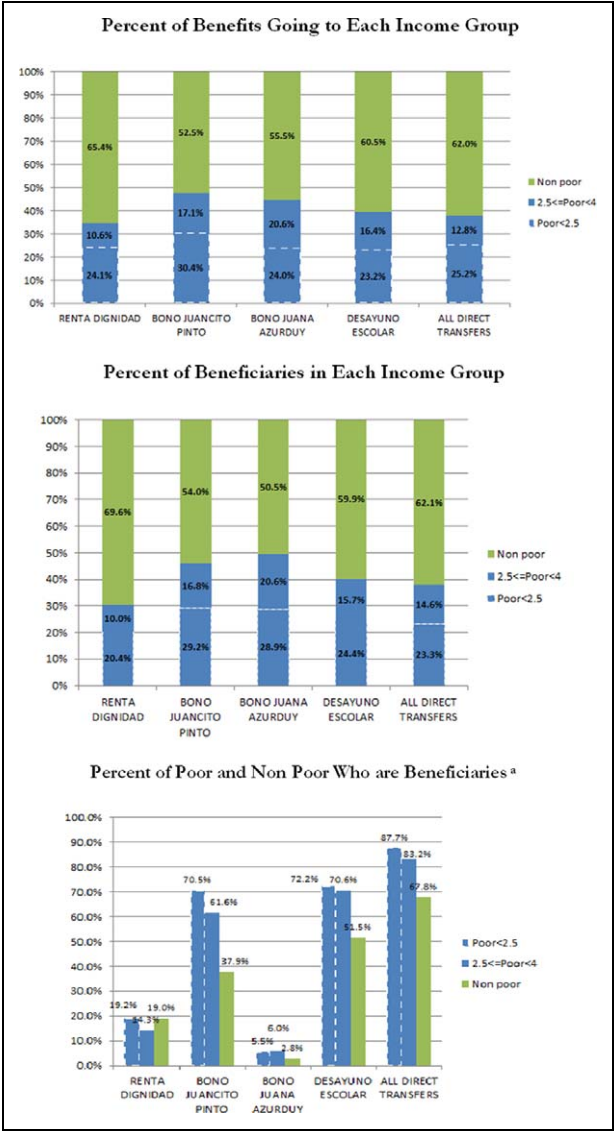


Figure 2. Leakages and coverage of direct transfers.
 Source: Author's calculations based on Encuesta de Hogares 2009 and fiscal accounts.
^aFor these calculations, a beneficiary was identified as such if he or she received at least one of the direct transfers included in the analysis.

Table 4. Reduction in Inequality and Poverty and Effectiveness.

	% change in disposable income wrt. net market income	% change in post-fiscal income wrt. net market income	% change in final income* wrt. net market income	% change in final income wrt. net market income
Gini	-2.0	0.0	-12.4	-11.3
Effectiveness indicator	0.97	-	1.07	-
Headcount index (%)				
US\$2.50 PPP/day	-10.4	3.3	-	-
Effectiveness indicator	5.06	-		

Note: Final Income *: is defined as disposable income plus in-kind transfers minus co-payments and user fees. See Lustig and Higgins (2013).

Source: Authors' calculations based on *Encuesta de Hogares 2009* and fiscal accounts.

(figure 1); that is, they are equalizing. Nevertheless, a shift of resources from these subsidies into targeted cash transfers would be beneficial for both inequality and poverty reduction.

Given the characteristics of direct transfers and the tax system, the redistributive and poverty reduction effects (before in-kind transfers) are neutral in the first case and increase poverty in the second case (see the Gini and headcount ratios for post-fiscal income in table 2). When we add transfers in-kind, the impact on the Gini coefficient is significant. All education and health transfers analyzed here are progressive in absolute terms, with the exception of tertiary education that is progressive in relative terms only; still, it amounts to equalizing public spending. Moreover, the lack of absolute progressivity in overall education spending is in part due to participation of tertiary education in total education spending.

It remains to be seen whether the disproportionate benefits to the poor from in-kind transfers is a result of demographics or the opting out from public services on the part of the middle classes and the rich.

Figure 2 displays the concentration coefficients for social spending by program. The coefficients range from the most progressive program in absolute terms, the post-literacy program *Yo si puedo* (-0.59) to the least progressive (in relative terms) *Tertiary Education* (0.30).

In between, there is a list of programs that are progressive in absolute terms, neutral or progressive in relative terms. Of the flagship CCTs, Bono Juancito Pinto was the most progressive in absolute terms (pro-poor) with a concentration coefficient of -0.25. Among the direct transfer programs,

Renta Dignidad was the least progressive, with a positive concentration coefficient of 0.01; this means that the program is only progressive in relative terms. Regressive transfers do not exist. In sum, 62.9 percent of social spending included in the analysis in 2009 was progressive in absolute terms the remaining 37.1 percent was progressive in relative terms.

Finally, the redistributive effect of direct transfers has an effectiveness indicator of only 0.97. Meanwhile, the effectiveness indicator of the transfers on extreme poverty was 5.1 and on total poverty 2.8 (see table 4).

Conclusions and Policy Implications

Incidence analysis reveals that fiscal policy in Bolivia has a surprisingly weak effect on inequality and poverty reduction. The small impact cannot be attributed to low tax burdens or to a lack of revenue. Cash transfer design and targeting help explain part of the findings. Transfers are mostly flat across deciles, with too few resources reaching the poor, and a large proportion of the transfers going to the nonpoor.

The overall effect of indirect taxes and subsidies is regressive. Households become net contributors beginning in the third decile. We observe a substantial rise when comparing disposable and post-fiscal headcount ratios for extreme and total poverty, independent of the headcount ratio definition used (based on national or international poverty lines). The tax system in Bolivia needs closer scrutiny in order to identify alternative policies that may prevent poor people from being net payers to the fisc. Gas and gasoline subsidies are not progressive in absolute terms but they are in relative terms.

The impact of transfers in-kind on the Gini coefficient is significant. All education and health transfers analyzed are progressive in absolute terms, with the exception of tertiary education that is progressive only in relative terms.

Evidence suggests that there is a significant scope to improve poverty and inequality reduction resulting from fiscal policy in Bolivia. A higher proportion devoted to social spending could be progressive in absolute terms by creating new programs targeted to the poor and the most vulnerable groups of the population, as well as by increasing the sizes of the transfers. However, additional future policy efforts must go beyond cash transfers, primarily by ensuring universality of in-kind education and health as well as by granting the quality provision of these transfers.

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Notes

1. Total social spending from national accounts includes in-kind health, in-kind education, housing, and cash transfers. In the incidence analysis, administrative costs of health and education were included. Housing programs were not included in the analysis due to the lack of information in household surveys. In the benchmark, contributory pensions were not included. In 2009, total social spending included in the incidence analysis reached 13.9 percent of gross domestic product (GDP). Social spending in the benchmark includes all direct transfers (*Bono Juancito Pinto*, *Bono Juana Azurduy*, *Desayuno Escolar*, and *Beneméritos de la Patria*), noncontributory pensions (*Renta Dignidad*), in-kind public education (initial, primary, secondary, tertiary, and literacy programs), and in-kind public health (public first and third levels, immunization programs, elderly health program—*Seguro de Salud para el Adulto Mayor*, mother and child health program—*Seguro Universal Materno Infantil*, and Contributory Health—*Cajas de Salud*).
2. Primary spending is calculated including all general government spending (central government, local governments, and social security) minus Debt Services. However, in 2009, the primary spending to GDP ratio, when we include all public sector operations (including public enterprises), increases from 33 to 45, showing the relevance of public enterprises.
3. Government revenues include operations of all general government, which does not include public enterprises.
4. In 2009, the conversion factor was 3.13, available at data.worldbank.org.
5. The maximum length of time that this program may last is thirty-three months, nine pregnancy months plus twenty-four months from childbirth up to the second birthday of the child.
6. Even though program coverage is not universal, it is not feasible to identify this situation with the data available in the survey. According to Federación de Asociaciones Municipales (FAM 2008), the program is cofinanced by the government, nongovernmental organizations, and international cooperation agencies. We have only imputed half of the total cost that is estimated to be paid by the government.
7. Since official accounts on social spending are not available for 2009, data on in-kind education transfers are based on our own estimations. We assume a similar structure of education expenditures as the one registered in 2007 and a sector

growth rate over the period 2008 to 2009 similar to the one registered between 2007 and 2008. Data come from Unidad de Análisis de Políticas Sociales y Económicas, <http://www.udape.gob.bo/>.

8. The program *Yo si puedo* was created in 2006 aimed at eradicating illiteracy in the country. In 2009, the post-literacy program *Yo si puedo seguir* was created with the objective of bringing primary education to the beneficiaries of *Yo si puedo* as well as to people older than fifteen years who have abandoned or have never attended school.
9. We only include intra-urban transport since no information was available for a more disaggregated transportation cost structure.
10. Net market income includes imputed rent for owner occupied households. It should be noted that other existing publications on poverty and income inequality do not include self-consumption either (Base de Datos Socioeconómicos para América Latina y El Caribe [SEDLAC] 2011).
11. The number of beneficiaries according to the simulation is 5 percent lower than the official data. However, part of this difference may be attributed to the fact that special education beneficiaries cannot be identified in the survey.
12. The 2003/2004 household survey had the objective to update consumption price index weights, household income, and expenditure structures.
13. Incidence of indirect taxes includes the aggregated effect of the four mentioned indirect taxes. With data provided by the household survey 2003/2004, places of purchase were distinguished between those that have a higher probability to pay taxes (specialized stores, supermarkets, professional services, and other formal establishments) and those that do not pay taxes or have a higher evasion rate (fairs, street markets, among others). Effective rates were calculated based on indirect taxes structured by area and income decile and applied to 2009 data assuming tax structure remains constant since 2004.
14. Between 2003 and 2009 rates on indirect taxes did not change, with the exception of the specific consumption tax.
15. Imputations based on cost per student by level, for those who report attending a public school: primary education: 2,223 bolivianos per student per year (US\$1.95 PPP/day), secondary education: 1,756 bolivianos per student per year (US\$1.54 PPP/day), and tertiary education: 9,372 bolivianos per student per year (US\$8.21 PPP/day).
16. For those who report to have attended a public health service during the last month for facilities other than childbirth and vaccinations. For normal childbirth attention, imputations are based on three different average costs: first-level health establishments (72 bolivianos per capita), second-level health establishments (97 bolivianos per capita), and professional.

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