



EXPLAINING LOW REDISTRIBUTIVE IMPACT IN BOLIVIA

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COMMITMENT TO EQUITY



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ABSTRACT

Despite an increase of social spending of about 3 percentage points with respect to GDP between 2007 and 2009, fiscal policy in Bolivia had a low redistributive impact. This paper analyzes the fiscal incidence of monetary and in-kind transfers, taxes and subsidies. The obstacles to further redistributive impact are significant leakages to the non-poor and the small size of the transfers. Fiscal incidence on poverty and income inequality could increase with better targeting to the poor, by increasing the size of the transfers and/or by making the existing tax system more progressive.

Keywords: Bolivia, fiscal incidence, inequality, poverty, redistribution.

JEL Codes: I3, H2, H5

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1. INTRODUCTION

Between 2007 and 2009 social spending¹ in Bolivia increased from 11.9 to 15.1 percent of GDP, while primary spending of all general government² operations increased from 29.2 to 33.3 percent of GDP. In the same period, general government revenues³ maintained a rate of around 32 percent of GDP and public enterprises revenues increased significantly from 17.7 to 24.8 percent of GDP.

During the period analyzed, 77 percent of the primary spending increase with respect to GDP came from social spending. In addition contributory pensions accounted for about 4 percent of the primary spending increase, while non-social spending accounted for about 19 percent of the increase (see table 1). From the revenues side, 85 percent of total government revenues came from tax revenues, while the remaining 15 percent came from other current and capital revenues.

The social spending increase between 2007 and 2009 is in part explained by a new wave of cash transfer programs: *Bono Juancito Pinto*, *Bono Juana Azurduy* and the non-contributory pension *Renta Dignidad*, as well as other social programs, such as an undernourishing program (*desnutrición cero*), a literacy program (*Yo sí puedo*), and employment and community transfers, among others. The key question for the Bolivian case is to account for the relatively meager impact of existing social policies.

The paper applies standard incidence analysis to estimate the impact of fiscal policy on inequality and poverty. Three questions are addressed: First, how much redistribution and poverty reduction are accomplished through social spending and taxes? Second, how progressive are revenue collection and social spending in Bolivia? And third, what could be done to further increase redistribution and improve redistributional effectiveness? In order to answer these questions the paper is organized into five sections. Section 2 describes social spending and tax structures in terms of CEQ social spending and taxes categories, and summarizes the most important characteristics of each, including the relative size of the budget redistributed and the relative size of collected revenues. Section 3 presents data sources, and identifies the main assumptions used in the tax and benefit incidence analysis. Section 4 summarizes the main results. Section 5 presents conclusions and policy implications.

2. SOCIAL SPENDING AND TAXES

This section summarizes the most important characteristics of social spending and taxation. Data and policy rules are for the year 2009. Monetary values are expressed in bolivianos and terms of \$PPP/day. In 2009, the conversion factor was 3.13.

¹Total social spending includes social spending used in the benchmark, does not include contributory pensions, plus housing, water and sanitation, and administrative costs of in-kind health; in 2009 it reached approximately 15.1 percent of GDP. Social spending in the incidence analysis (benchmark) includes: all direct transfers (*Bono Juancito Pinto*, *Bono Juana Azurduy*, *Desayuno Escolar*, *Beneméritos de la Patria*), non-contributory pensions (*Renta Dignidad*), in-kind public education (initial, primary, secondary, tertiary, literacy programs), and in-kind public health (public first and third levels, immunization programs, elderly health program (*SSPAM*), and mother and child health program (*SUMI*)).

² Primary spending is calculated including all General Government Spending (Central Government, Local Governments and Social Security) minus Debt services. However, in 2009, the ratio primary spending to GDP when we include all public sector operations (*Sector Público no Financiero*, including Public Enterprises) increases from 33 to 45, showing the relevance of public enterprises in government revenue and spending.

³ Total Government Revenues include operations of all General Government, which do not include consolidated operations of Public Enterprises.

i. Social Spending

Social spending includes government spending at all levels on health, education and social assistance. Social spending includes direct transfers and in-kind transfers. In the benchmark analysis, social spending does not include contributory pensions, while in the sensitivity scenario pensions are included. In 2009, total social spending, excluding pensions, accounted for 56 percent of total tax revenues and 15.1 percent of GDP. In-kind transfers in education alone accounted for 58.5 percent of social spending included in the benchmark analysis, followed by in-kind transfers in health (26.4 percent), and direct transfers (15.0 percent).

Direct Transfers

Direct Transfers include two flagship conditional cash transfer programs (*Bono Juancito Pinto* and *Bono Juana Azurduy*) and two additional direct transfers (*Desayuno escolar* and *Beneméritos del Chaco*) and the non-contributory pension (*Renta Dignidad*). All together they account for 2.0 percent of GDP.

Bono Juancito Pinto

This program created in 2006 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. 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 \$0.18 PPP/day paid once a year, conditional on proven attendance during the school year. According to the program information, in 2009 1.7 million children benefited from the program with a public expenditure equal to 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 (equivalent to an average of \$0.58 PPP/day during thirty-three months) split into three components.⁴ (1) Pregnant women must attend four prenatal controls in order to receive 50 bolivianos per check-up; (2) women have to give birth at a public hospital or health center in order to receive 120 additional bolivianos; (3) children must attend six checkups per year (the mother receives 125 bolivianos each time). In 2009 776,045 women and children benefited from the program. Public expenditure on the program reached 0.02 percent of GDP.

Other direct transfers (targeted or not)

Desayuno Escolar

This food program consists of an in-kind transfer benefiting school-age children between the ages of four and nineteen. The program gives breakfast to beneficiaries who attend school. It was initially financed by international cooperation agencies, then executed and implemented by the Bolivian central government beginning in 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 \$ 0.1 PPP/day. In 2008, the program benefited 1,985,158 people. 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 \$13.2 PPP/day, paid once a month to veterans of the Chaco War, which occurred between

⁴ The maximum length of time that this program may last is thirty-three months, nine pregnancy months plus twenty-four months from child birth up to the second birthday of the child.

1932 and 1935. In 2009 the payment benefited more than one thousand veterans. Resources spent on the program reached 0.14 percent of GDP.

Non-Contributory pension: Renta universal de vejez-Renta Dignidad

Renta Dignidad, implemented in 2008, builds on an earlier transfer created in 1994 (Bono Solidario, *Bonosol*). Beneficiaries are citizens aged sixty or older, under two alternative schemes. The first scheme benefits citizens who are not under any other public retirement program (*no rentistas*). The monthly payment is 200 bolivianos, equivalent to \$2.1 PPP/day. The second scheme benefits citizens who do benefit from a public retirement program (*rentistas*) who receive 150 bolivianos per month (equivalent to \$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 survey. The total amount spent in this program reached 1.4 percent of GDP.

In-kind transfers in Education

In-kind transfers in education⁵ include four levels (initial, primary, secondary and university) as well as the second phase of the post-literacy program *Yo si Puedo seguir*,⁶ and the childcare program *Programa de Atención a la Niñez* (PAN). In 2009, tertiary education alone accounted for 45.8 percent of total education spending and primary education accounted for 39.9 percent of total education spending, while secondary and initial levels only participated with 9.7 and 2.3 percent of total educational expenditures, respectively. Public education has a large share of total enrollment rates; it accounts for 92 percent of net primary enrollment rate and 87 percent of net secondary enrollment rate. In 2009, the total enrollment rate in public school was 69 percent, with huge differences between levels; the highest rate was registered for primary school (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.

In-kind Transfers in Health

In-kind transfers in health exist at different levels and include targeted programs such as maternity and child care (*SUMI*), health insurance for elderly people (*JSPAM*), an immunization program (*PAI*), and health contributory funds (*Cajas de salud*). Health service provision in 2009 accounted for 44.5 percent of total health spending. This category includes health care other than child birth and vaccinations at first and secondary tier hospitals. Maternity and Child Insurance (SUMI) accounted for 6 percent of total health spending. Public health spending accounted for 3.6 percent of GDP.

Contributory Pensions

Public spending on contributory pensions equals 3.5 percent of GDP. The program includes retirement and survivors' pension 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, in 2009 the system benefited almost 85 thousand retired people, or about 10 percent of the population sixty-years-old or above. Since the year of the reform the system has been organized under an Individual Capitalization Fund scheme. In 2009, 533 thousand people contributed to a

⁵ 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 2008-2009 similar to the one registered between 2007 and 2008. Data comes from *Dossier de Estadísticas Sociales y Económicas*, UDAPE. <http://www.udape.gob.bo/>.

⁶ The program *Yo si puedo* was created in 2006 under a bilateral agreement between the Plurinational State of Bolivia and the Republic of Cuba. This program was aimed at eradicating illiteracy in the country. In 2009 the post Literacy program *Yo, Si Puedo Seguir*, corresponds to the second phase of the above mentioned program and was created with the objective of bringing primary education to the recently literate beneficiaries as well as to people older than fifteen years who have abandoned or have never attended school.

private fund, about 10 percent of the working population. The average monthly pension in 2009 in the individual capitalization system reached 2,528 bolivianos (\$26.6 PPP/day).

ii. Taxes and subsidies

In 2009, total tax revenues amounted to 26.9 percent of GDP. Personal income in Bolivia is not taxable. However, there are four indirect taxes applied to consumption: *Impuesto al Valor Agregado (IVA)*, *Impuesto a las Transacciones (IT)*, *Impuesto Especial a los Hidrocarburos y sus derivados (IEHD)*, *Impuesto al Consumo Específico (ICE)*, all of which account for 41 percent of total tax revenues in 2009. While a corporate utility tax (IUE) accounted for 17 percent of tax revenues, almost 10 percent was raised by hydrocarbons taxes and royalties.

TABLE 1. COMPOSITION OF SOCIAL SPENDING AND TAXES IN BOLIVIA

	2007		2009		Change 2007-2009 (% pts)	Share of the increase
	million bolivianos	% GDP	million bolivianos	% GDP		
GDP	103,009		121,727			
Gross Nat Inc/capita (PPP US\$)						
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	12,302	11.9%	18,366	15.1%	3.1%	77%
Social Spending in Incidence analysis (Benchmark)^c	10,860	10.5%	16,574	13.6%	3.1%	76%
TOTAL DIRECT TRANSFERS	790	0.8%	2,491	2.0%	1.3%	31%
DIRECT TRANSFERS (excluding all pensions)	790	0.8%	794	0.7%	-0.1%	-3%
NON Contributory pensions	0	0.0%	1,697	1.4%	1.4%	34%
TOTAL IN KIND TRANSFERS	10,070	9.8%	14,083	11.6%	1.8%	44%
Education ^d	6,449	6.3%	9,700	8.0%	1.7%	42%
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%	2,084	1.7%	0.0%	1%
Non-contributory	1,886	1.8%	2,299	1.9%	0.1%	1%
Other Social Spending not in the Incidence Analysis	1,443	1.4%	1,792	1.5%	0.1%	2%
Non social spending^e	14,298	13.9%	17,830	14.6%	0.8%	19%
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	13,799	13.4%	17,062	14.0%	0.6%	15.2%
CONTRIBUTORY PENSIONS	3,487	3.4%	4,313	3.5%	0.2%	3.9%
DEBT SERVICING^f	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%	
Taxes (benchmark)			4,446	3.7%		
VAT, Specific Consumption Tax (ICE), Hydrocarbons tax(IEHD) and Transactions Tax (IT)			4,446	3.7%		
Other taxes not in the Benchmark^g			28,354	23.3%		
Non tax Revenues	5,080	4.9%	5,672	4.7%	-0.3%	
Memo Items:						
Total Government Spending SPNF	43,144	41.9%	56,584	46.5%	4.6%	
Primary Government Spending SPNF	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 SPNF	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 SPNF	1,785	1.7%	109	0.1%		

Sources: *Ministerio de Economía y Finanzas Públicas (2011)*, *Autoridad de Pensiones y Seguros (2011)*, UDAPE.

<http://www.udape.gob.bo/>. Data for *Desayuno Escolar* and *PAN* are based on own calculations survey calculations since no information on these programs was available for 2009.

Notes:

a. Total Government Spending includes all Public Sector operations (Central and local governments, and social security).

b. Primary Spending = Total Government Spending – Debt services (interests).

c. Social Spending Benchmark = Direct Transfers + In-Kind Transfers (Public Education and Public Health).

d. Education spending in 2009 was estimated based on 2007-2008 growth rate, since no official data was available for this year.

e. Non social spending = Primary spending - Social Spending Benchmark.

f. Debt Servicing only includes interests.

g. Other taxes not in the benchmark include taxes from which 6,7% of GDP corresponds to direct hydrocarbons tax (IDH), 3% to hydrocarbons royalties, and other taxes applied to enterprises and private sector entities. IDH is a direct tax applied to hydrocarbons production to be distributed to regions.

Indirect subsidies include the subsidized fraction of liquid gas and the subsidized fraction of gasoline consumed by households. As the consumer price of each 10kg container of liquid gas includes a fixed subsidy, the effective transfer is proportional to the units consumed by each household. In the case of gasoline, the subsidy includes both direct expenses made by each vehicle owner and expenses made in urban transport, assuming a constant share of gasoline in their cost structure.⁷

3. DATA AND ASSUMPTIONS

i. Data

This study is based on data from the 2009 National Household Survey (*Encuesta de Hogares*– EH). 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.

The survey includes detailed information on socio-demographic characteristics as well as labor market information, earned and unearned income, and imputed rent.⁸ Moreover, the EH identifies the use of public education and health services. Benefits of in-kind transfers in education are imputed based on cost per student by schooling level,⁹ while in-kind health benefits are imputed based on average cost of a basic health package.¹⁰

Indirect taxes were calculated with data from the consumption module of the household survey 2003-2004. Available data in the survey include quantities, values and purchase places for specific products.¹¹ With this data, consumption expenditure subject to indirect taxes, such as IVA, IT, ICE and IEDH, was identified. With the nominal rates applied to each article we estimated the respective rates for rural and urban areas, as well as by income decile. We assume that the tax structure does not vary up to 2009.¹² The EH identifies recipients and amounts for *Renta Dignidad* and *Beneméritos del Chaco*. Since beneficiaries of the *Bono Juancito Pinto* transfer are identified with a one period lag, benefits are calculated according to regulation by assigning the annual payment to each eligible beneficiary. While *Bono Juana Azurduy* beneficiaries are identified in the EH, no information is available on the exact benefit amount. Finally, benefits of *Desayuno Escolar* are

⁷ We only include intra-urban transport since no information was available for a more disaggregated transportation cost structure.

⁸ Net market income includes imputed rent for owner occupied households; however, we do not include self consumption since regional comparative publications on poverty and income inequality do not consider it for Bolivia. Moreover the disposable income Gini and poverty headcount ratios are very sensitive to self consumption. For example, the Gini decreases from 0.477 to 0.468, while extreme poverty (\$2.5 PPP/day) falls from 15.1 to 13.5 percent when including self-consumption. This result can be explained by the fact that rural households and households from the poorest deciles are more likely to consume what they produce compared to their urban counterparts.

⁹ 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 (\$1.95 PPP/day); Secondary Education: 1,756 bolivianos per student per year (\$1.54 PPP/day), Tertiary education: 9,372 bolivianos per student per year (\$8.21 PPP/day).

¹⁰ For those who report to have attended a public health service during the last month for facilities other than child birth and vaccinations. For normal child birth 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 attention in private house (34 bolivianos per capita).

¹¹ The 2003/2004 household survey had the objective to update Consumption Price Index weights, and household income and expenditure structures.

¹² Between 2003 and 2009 rates on indirect taxes did not change, with the exception of the ICE tax. Differentiated taxes are applied to some tobacco and alcoholic beverages.

calculated according to eligibility rules since no information on the program is available in the survey. The underlying assumptions for each of these calculations are described in the next sub-section.

ii. Scope of Simulations and Underlying Assumptions

Since information on cash, in-kind, direct or indirect transfers and information on indirect taxes cannot always be obtained from the EH survey, some methodological assumptions have been made for cases in which direct identification was not feasible. The most important are described in this section.

To account for beneficiaries of the program *Desayuno Escolar*, we use the program target group. We assume that all people reporting having attended a public school in 2009, regardless of the level, received a transfer. The program's impact was simulated by imputing the per capita annualized cost, with imputed value varying by municipality size (FAM 2008).¹³ The beneficiaries of *Bono Juancito Pinto* are identified according to program rules as well. Children between six and nineteen years of age reporting having attended primary school are assumed to receive the benefit. We also assume that all of these children achieve an 85 percent attendance rate which provides the conditionality rule for the transfer. Simulation results are compatible with official data on both number of beneficiaries and total amount spent on the program.¹⁴

In the case of *Bono Juana Azurduy* we can identify women who have benefited from an institutional child birth transfer. We additionally assume, given the child birthdate, that the two remaining components (pre- and post-birth checkups) have occurred during the same year.

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.

4. SOCIAL SPENDING, TAXES, AND INCOME REDISTRIBUTION: MAIN RESULTS

Results obtained from the tax and benefits incidence analysis show that inequality reduction is small after direct transfers and indirect taxes. The Gini coefficient declines by almost 2 percent from 0.503 for net market income to 0.493 for disposable income. However, more inequality reduction occurs after in-kind education and health transfers. The Gini falls to 0.448 after fiscal policy, a decline by 11 percent (see table 2).

¹³ Even though program coverage is not universal since a small proportion of public schools do not offer this benefit, it is not feasible to identify this situation with the data available in the survey. Since the program is co-financed by the government, NGOs and international cooperation agencies, we have only imputed half of the total cost which is estimated to be paid by the government.

¹⁴ The number of beneficiaries according to the simulation is 5 percent lower than the official data. However part of this difference may be attributed by the fact that especial education beneficiaries cannot be identified in the survey.

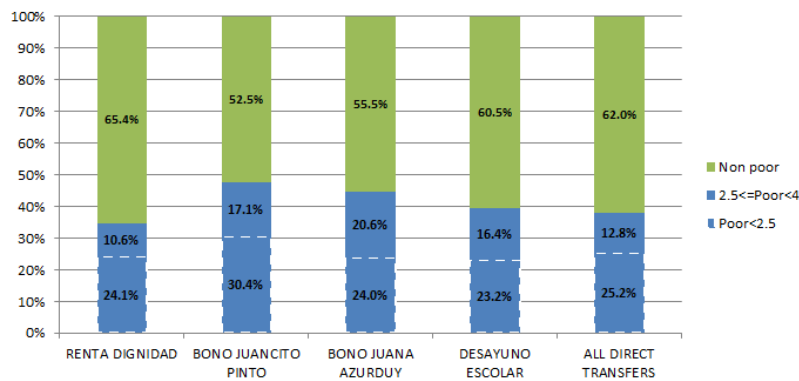
TABLE 2. BOLIVIA: TAXES, TRANSFERS, INEQUALITY AND POVERTY. BENCHMARK AND SENSITIVITY ANALYSIS.

Benchmark Case: pensions as part of Net Market Income						
<i>Country Name</i>	Market Income	Net Market Income	Disposable Income	Post-fiscal Income	Final Income *	Final Income
Gini		0.503	0.493	0.501	0.442	0.448
Headcount index Poverty line \$2.5 PPP/day		19.6%	17.6%	19.4%		
Headcount index Poverty line \$4.0 PPP/day		32.5%	30.7%	32.9%		
Headcount index National Extreme Poverty Line		23.8%	21.4%	23.4%		
Headcount index National Moderate Poverty Line		46.7%	45.4%	47.6%		
Sensitivity Analysis 1: pensions are a government transfer						
<i>Country Name</i>	Market Income	Net Market Income	Disposable Income	Post-fiscal Income	Final Income *	Final Income
Gini		0.503	0.493	0.501	0.442	0.448
Headcount index Poverty line \$2.5 PPP/day		20.0%	17.6%	19.4%		
Headcount index Poverty line \$4.0 PPP/day		33.1%	30.7%	32.9%		
Headcount index National Extreme Poverty Line		24.4%	21.4%	23.4%		
Headcount index National Moderate Poverty Line		47.4%	45.4%	47.6%		

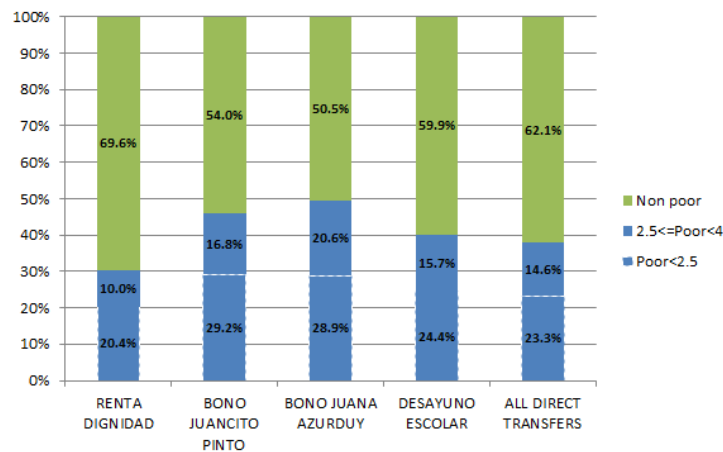
Source: Author's calculations based on *Encuesta de Hogares 2009* and Fiscal accounts.

As argued by Lustig et al. (2012), what prevents Bolivia from achieving greater inequality 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 paper may help to 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 non-contributory 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, transfers are similar across deciles, as one can observe in table 3. The underlying explanation of this situation relies on two design characteristics of all of the transfer programs: none of them are targeted to the poor since eligibility is never conditional on being poor, and none of them give beneficiaries enough cash to leave the poverty status: going from (\$0.18 PPP/day) in the case of *Bono Juancito Pinto* to (\$2.1 PPP/day) to *Renta Dignidad* beneficiaries. As a result of this “universal” design, 68 of the non-poor are included in these programs, 14.1 percent of the moderate poor and 12.3 percent of the extreme poor are excluded (see figure 1).

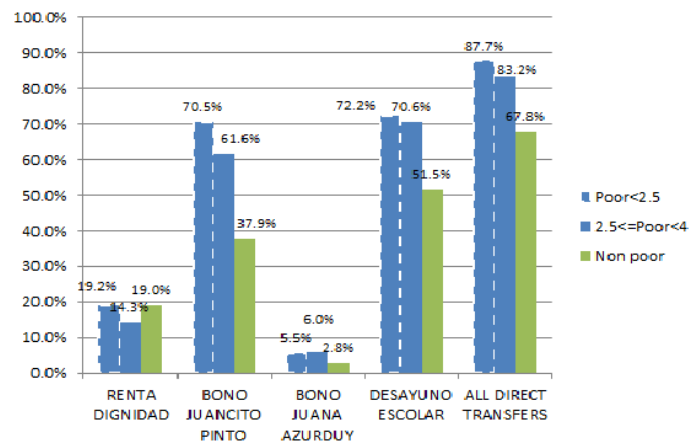
FIGURE 1. LEAKAGES AND COVERAGE OF DIRECT TRANSFERS.
Percent of Benefits Going to Each Income Group



Percent of Beneficiaries in Each Income Group



Percent of Poor and Non Poor Who are Beneficiaries ^a



Source: Author's calculations based on *Encuesta de Hogares 2009* and Fiscal Accounts ^a. For these calculations a beneficiary was identified as such if it received at least one of the direct transfers in the coverage table.

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 we observe the unequalizing effect of net indirect

taxes. Households become net contributors beginning in the third decile, meaning that only people from the two poorest deciles receive more than what they contribute (see table 3). Moreover, as shown in table 2, when we compare disposable and 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.

The second panel of table 3 presents concentration shares for each income definition, as well as each transfer and tax category. As we can see, the flagship CCT program and other direct transfers increase the concentration share of net market income for the poorest decile by only 0.3 percentage points (comparing the shares of net market income and disposable income), while the concentration share of income in the richest decile decreases by only 0.5 percentage points. However, the disposable income distribution results are less unequal than the net market income distribution. Indirect taxes are concentrated in the richest deciles, meaning that poor people pay fewer taxes compared to rich people, in relative terms (with respect to household income). The aggregated effect of transfers and net taxes is almost neutral in terms of the effect on concentration shares of income by decile (comparing net market and post fiscal income). However, when in-kind transfers in education and health are added we observe an increase in the concentration shares of income for the poorest deciles and a reduction in the shares for the richest deciles.

TABLE 3. INCIDENCE AND CONCENTRATION SHARES OF TAXES AND TRANSFERS BY DECILE (BENCHMARK CASE)

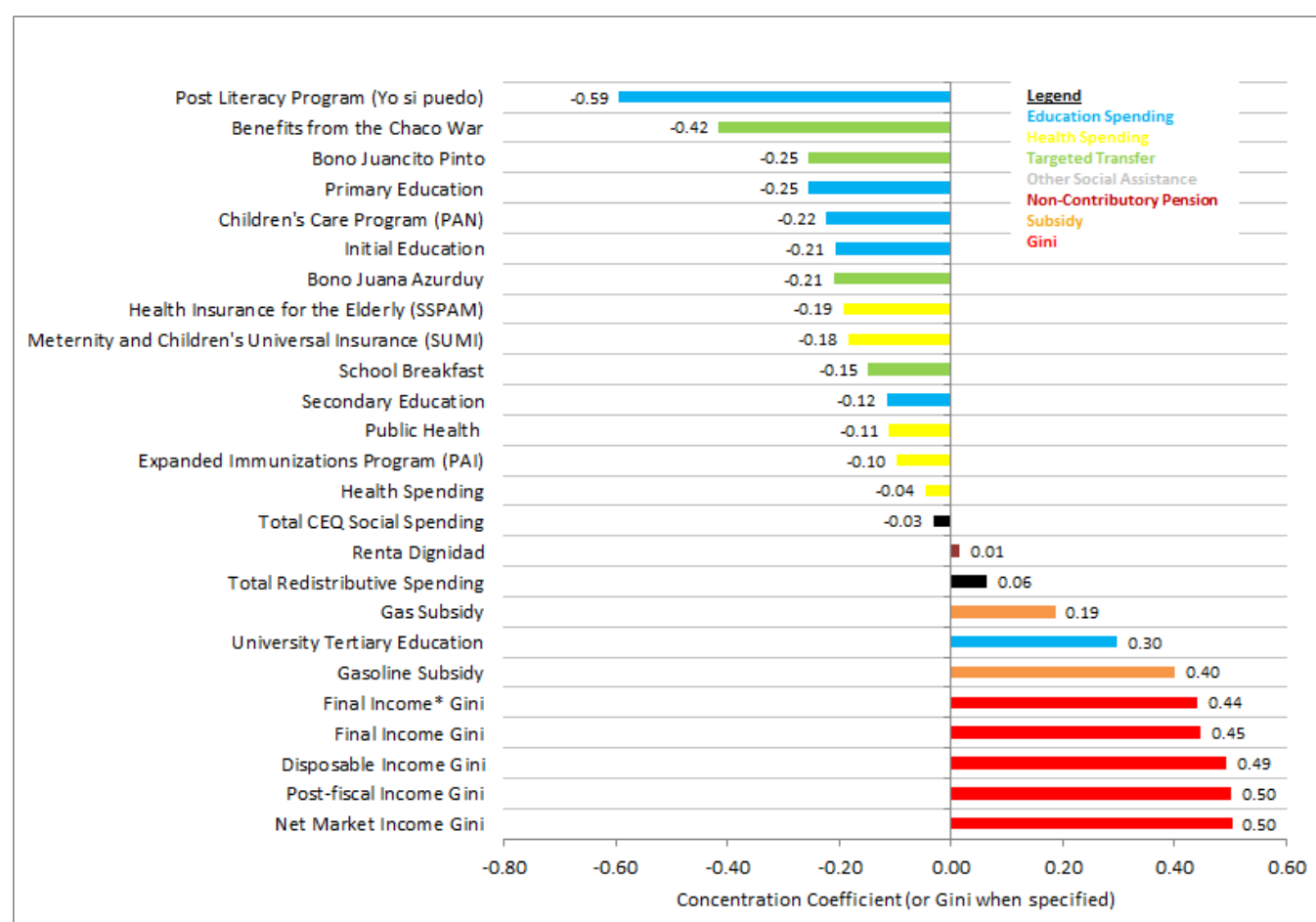
Net Market Income Deciles	Net Market Income	Non-contributory Pension	Flagship CCT	Other Direct Transfers	All Direct Transfers	Disposable Income	Indirect Subsidies	Indirect Taxes	Net Indirect Transfers	Post-Fiscal Income	In-Kind Education	In-Kind Health	In-Kind Transfers	All Transfers (excluding all taxes)	All Taxes	Final* Income	Final Income
1		20.8%	6.6%	5.7%	33.2%	33.2%	1.3%	-18.4%	-17.0%	16.2%	96.7%	66.1%	162.7%	197.3%	-18.4%	195.9%	178.9%
2		10.4%	2.3%	3.1%	15.8%	15.8%	1.2%	-10.3%	-9.1%	6.7%	35.0%	25.6%	60.7%	77.7%	-10.3%	76.5%	67.4%
3		2.9%	1.2%	1.5%	5.6%	5.6%	1.1%	-7.5%	-6.4%	-0.8%	21.1%	20.5%	41.6%	48.3%	-7.5%	47.2%	40.8%
4		2.9%	0.9%	1.2%	5.0%	5.0%	0.8%	-6.5%	-5.7%	-0.7%	16.4%	10.9%	27.3%	33.1%	-6.5%	32.3%	26.6%
5		1.7%	0.6%	0.8%	3.1%	3.1%	0.9%	-5.5%	-4.6%	-1.5%	12.1%	8.7%	20.9%	24.9%	-5.5%	23.9%	19.4%
6		1.4%	0.4%	0.3%	2.1%	2.1%	0.9%	-4.6%	-3.7%	-1.6%	9.6%	7.3%	16.8%	19.9%	-4.6%	19.0%	15.3%
7		1.3%	0.3%	0.2%	1.8%	1.8%	0.6%	-4.6%	-4.0%	-2.2%	9.1%	5.3%	14.4%	16.9%	-4.6%	16.2%	12.2%
8		1.2%	0.2%	0.2%	1.5%	1.5%	0.7%	-4.2%	-3.5%	-2.0%	7.0%	3.7%	10.7%	12.9%	-4.2%	12.2%	8.7%
9		0.9%	0.1%	0.2%	1.2%	1.2%	0.6%	-3.7%	-3.2%	-2.0%	4.3%	2.7%	7.0%	8.7%	-3.7%	8.1%	5.0%
10		0.5%	0.0%	0.0%	0.6%	0.6%	0.5%	-2.6%	-2.1%	-1.6%	1.5%	1.2%	2.7%	3.7%	-2.6%	3.3%	1.1%
Total		1.4%	0.3%	0.4%	2.1%	2.1%	0.7%	-4.1%	-3.5%	-1.4%	7.4%	5.2%	12.6%	15.3%	-4.1%	14.7%	11.2%

Concentration Shares of Taxes and Transfers by Decile																	
Net Market Income Deciles	Net Market Income	Non-contributory Pension	Flagship CCT	Other Direct Transfers	All Direct Transfers	Disposable Income	Indirect Subsidies	Indirect Taxes	Net Indirect Transfers	Post-Fiscal Income	In-Kind Education	In-Kind Health	In-Kind Transfers	All Transfers (excluding all taxes)	All Taxes	Final* Income	Final Income
1	0.7%	10.8%	15.8%	11.8%	11.8%	1.0%	1.5%	3.3%	3.1%	0.9%	9.8%	9.6%	9.7%	9.6%	3.3%	1.9%	1.9%
2	2.1%	14.9%	14.8%	17.9%	15.4%	2.3%	3.7%	5.1%	4.9%	2.2%	9.8%	10.3%	10.0%	10.4%	5.1%	3.2%	3.1%
3	3.5%	7.0%	13.7%	14.2%	9.3%	3.6%	5.8%	6.3%	6.2%	3.5%	9.9%	13.8%	11.5%	11.0%	6.3%	4.5%	4.4%
4	4.7%	9.5%	13.6%	15.6%	11.2%	4.9%	6.0%	7.5%	7.3%	4.8%	10.5%	10.0%	10.3%	10.2%	7.5%	5.5%	5.4%
5	6.1%	7.2%	11.0%	13.2%	8.8%	6.1%	8.5%	8.0%	8.1%	6.0%	9.9%	10.2%	10.1%	9.8%	8.0%	6.5%	6.5%
6	7.6%	7.6%	9.8%	6.3%	7.7%	7.6%	10.3%	8.4%	8.7%	7.6%	9.9%	10.7%	10.2%	9.9%	8.4%	7.9%	7.9%
7	9.5%	8.5%	8.3%	5.9%	8.0%	9.4%	9.2%	10.6%	10.4%	9.4%	11.7%	9.7%	10.9%	10.4%	10.6%	9.6%	9.5%
8	11.9%	9.8%	6.2%	5.0%	8.4%	11.8%	12.6%	12.1%	12.2%	11.8%	11.3%	8.6%	10.2%	10.0%	12.1%	11.7%	11.7%
9	16.7%	10.5%	4.5%	8.1%	9.2%	16.5%	14.6%	15.0%	15.0%	16.6%	9.7%	8.6%	9.2%	9.5%	15.0%	15.7%	15.7%
10	37.2%	14.1%	2.3%	1.9%	10.2%	36.7%	27.7%	23.6%	24.2%	37.2%	7.5%	8.5%	7.9%	9.1%	23.6%	33.5%	33.8%
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%	100.0%	100.0%	100.0%	100.0%

Source: Author's calculations based on *Encuesta de Hogares 2009* and Fiscal accounts.

Figure 2 displays the concentration coefficients of 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 which are progressive in absolute terms, neutral or progressive in relative terms. Of the flagship CCTs in Bolivia, *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.

FIGURE 2. BOLIVIA: CONCENTRATION COEFFICIENT BY SPENDING CATEGORY AND FOR TOTAL SOCIAL SPENDING



Source: Authors calculations based on: *Encuesta de Hogares 2009* and National Fiscal Accounts.

Note: CEQ (FROM Commitment to Equity, the name of the multi-country project) Social Spending includes all cash transfers (except for contributory pensions) and other direct Transfers plus public spending on education and health.

Finally, the redistributive effect of the direct transfers analyzed 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.a). In addition, with respect to vertical reduction efficiency, results show that 38 percent of

direct transfers go to households that are poor before the transfers, considering a US\$4 PPP poverty line (see table 4.b). The spillover reaches 13.4 percent, meaning that the total amount assigned to the transfers exceeds the amount strictly necessary to reach the poverty line. Comparing these results with those obtained considering lower poverty lines, we find that direct transfers do not reach the poorest households. Only 11.5 percent of the transfers go to households that are ultra-poor before the transfers (considering a US\$1.25 PPP poverty line). A disaggregated analysis shows that CCTs are more efficient than non-contributory pensions since they are better targeted to poor households, allowing greater poverty reduction and lower spillover effects.

TABLE 4.A. 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
Bolivia (2009)				
Gini	-2.0%	-0.5%	-12.0%	-11.0%
<i>Effectiveness Indicator</i>	0.97	--	0.88	
Headcount index (%)				
\$2.50 PPP/day	-10.4%	-1.2%	--	--
<i>Effectiveness Indicator</i>	5.06	--	--	--

TABLE 4.B POVERTY REDUCTION EFFICIENCY AND EFFECTIVENESS INDICATORS

	Vertical Expenditure Efficiency ^a	Poverty Reduction Efficiency ^b	Spillover ^c	Poverty Gap Efficiency ^d
Poverty Line: \$1.25 PPP				
Disposable Income	0.115	0.063	0.450	0.232
Non-Contributory Pensions	0.107	0.045	0.575	0.121
Flagship CCT	0.157	0.152	0.031	0.081
Other Direct Transfers (Targeted or Not)	0.112	0.094	0.162	0.045
Poverty Line: \$2.5 PPP				
Disposable Income	0.252	0.188	0.255	0.255
Non-Contributory Pensions	0.241	0.168	0.302	0.104
Flagship CCT	0.299	0.296	0.010	0.037
Other Direct Transfers (Targeted or Not)	0.263	0.211	0.199	0.023
Poverty Line: \$4 PPP				
Disposable Income	0.380	0.329	0.134	0.109
Non-Contributory Pensions	0.346	0.303	0.126	0.073
Flagship CCT	0.473	0.470	0.007	0.022
Other Direct Transfers (Targeted or Not)	0.465	0.355	0.237	0.015

Source: Author's calculations based on *Encuesta de Hogares 2009* and Fiscal accounts.

Notes:

a. Vertical Expenditure Efficiency is the share of total benefit expenditure going to households who are poor before the transfer.

b. Poverty Reduction Efficiency is the fraction of total expenditure allowing poor households to reduce their distance from the poverty line without "overshooting" it.

c. Spillover index is a measure of the excess expenditure with respect to the amount strictly necessary to reach the poverty line. See Immervoll (2009).

d. Poverty Gap Efficiency is the fraction of the poverty gap that is closed by transfers.

5. CONCLUSIONS AND POLICY IMPLICATIONS

Incidence analysis reveals that fiscal policy in Bolivia has a small effect on inequality and poverty reduction. The Gini declines by 2 percent when direct transfers are added to net market income, and declines by only 0.5 percent when net indirect taxes are also included. Compared to other countries in the region, the tax-benefit system in Bolivia is meager in its redistributive effects (Lustig et al. 2012). The small impact cannot be attributed to low tax burdens or to a lack of revenue. In 2009, primary spending was 33.3 percent of GDP, one of the highest in the region.

Social spending size and structure, as well as cash transfer design and targeting help explain the main findings of this article. Bolivia spends a low share of GDP on cash transfers: 2 percent of GDP, with *Renta Dignidad* accounting for 1.4 percent and the other transfer programs accounting for the remaining 0.7 percent. Transfers are mostly flat across deciles. Moreover, *Renta Dignidad*, the largest cash transfer in terms of GDP, shows a distribution biased towards the three richest deciles. None of the programs analyzed in this study were designed with a targeted mechanism to the poor since eligibility is not conditional on being poor. As a result of the significant leakages to the non-poor population and the small size of the transfers, 62.0 percent of benefits distributed through direct transfers are received by the non-poor, and 16.8 percent of the moderate poor and 12.3 percent of the extreme poor are excluded from these transfers.

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, independently of the headcount ratio definition used (based on national or international poverty lines). From the revenues side, the tax system in Bolivia needs a closer analysis in order to identify alternative policies that may prevent poor people from being net payers to the fisc, after capturing evasion rates, especially the ones registered in the informal sector.

Some policy implications from the social spending side are straightforward. 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. The challenges for the pension's system are also important since the actual non-contributory pension *Renta Dignidad* seems not to be enough to close the income gap between those elderly people who benefit from a rent and public health coverage and those who do not. Considering regional disparities could play a significant role in improving the distributive impact of cash transfers by covering as close as possible the universe of the extreme poor. However, additional future policy efforts must go beyond cash transfers, primarily by ensuring universality of in-kind education and health services as well as by guarantying the quality provision of basic services.

Finally, considering that the new law of autonomies and decentralization defines shared and exclusive competences between central government and indigenous, municipal and departmental autonomies, intergovernmental transfers and local public choice should be taken into account as innovating public policy mechanisms to build a more equalizing social system. Under this scenario at least a broad-based fiscal agreement might be a key pre-requisite for a more redistributive tax-benefit system in Bolivia.

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Led by Nora Lustig (Tulane University) and Peter Hakim (Inter-American Dialogue), the Commitment to Equity (CEQ) project is designed to analyze the impact of taxes and social spending on inequality and poverty, and to provide a roadmap for governments, multilateral institutions, and nongovernmental organizations in their efforts to build more equitable societies. CEQ/Latin America is a joint project of the Inter-American Dialogue (IAD) and Tulane University's Center for Inter-American Policy and Research (CIPR) and Department of Economics. The project has received financial support from the Canadian International Development Agency (CIDA), the Development Bank of Latin America (CAF), the General Electric Foundation, the Inter-American Development Bank (IADB), the International Fund for Agricultural Development (IFAD), the Norwegian Ministry of Foreign Affairs, the United Nations Development Programme's Regional Bureau for Latin America and the Caribbean (UNDP/RBLAC), and the World Bank. <http://commitmenttoequity.org>



**COMMITMENT
TO EQUITY**

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