How redistributive is fiscal policy in Latin America? The case of Chile and Mexico

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PREFACE

In recent decades, most Latin American governments have made considerable progress towards more orderly fiscal accounts. Among other measures, they have improved the management of public debt, lowered fiscal deficits and put in place stronger fiscal rules. Moreover, these effective fiscal policy frameworks together with good macroeconomic management created a sufficient fiscal margin to confront the global crisis without compromising fiscal stability.

Throughout this period, fiscal policy has become an integral tool for macroeconomic stabilisation. However, fiscal policy can also play an important role in economic development through the reduction of poverty and income inequality. As depicted in the *Latin American Economic Outlook 2009*, fiscal policy plays an essential role in reducing income inequality in OECD countries while this effect tends to be lower in Latin American economies.

This paper adds to the discussion by looking at the issue from a tax-benefit analysis perspective; namely by estimating the impact of the welfare system on the different income groups in Chile and Mexico. The results for Chile and Mexico suggest that fiscal policy provides significant benefits to the poorest income groups, especially through in-kind services such as education and health care. Nevertheless, in comparison with high-income countries, the effectiveness of fiscal policy in reducing inequality is still limited. The effect of cash transfers (particularly on old-age programmes), direct taxation and, to some extent, a higher inequality generated in the market are the main factors behind this difference.

In this context, increasing the level of social protection in Latin American economies may be an important policy priority. However, reforms aimed at fostering fiscal redistribution need to take into account the various constraints to fiscal policy that Latin American governments face. The higher levels of fiscal revenues in industrialised countries, explained in part by a larger taxation, allows them to achieve a greater inequality reduction through taxes and higher social spending. Thus, the challenge for Latin American economies remains making fiscal systems sustainable while also ensuring a more equitable provision of public goods to its citizens.

This type of cross-country analysis facilitates the process of peer learning and promotes policy dialogue in order to build on one another's experiences. I hope this paper will actively contribute to this debate and will be a catalyst for dialogue among countries.

Mario Pezzini
Director
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July 2013

RÉSUMÉ

Cet article étudie l'impact des politiques fiscales sur la répartition des revenus au Chili et au Mexique. En outre, en intégrant dans la définition des prestations les transferts en nature et les taxes, cet article dresse un portrait complet de l'effet des politiques fiscales dans la réduction des inégalités salariales.

Les différences dans les estimations du Chili et du Mexique avec le reste des pays de l'OCDE permettent un aperçu général de la répartition des revenus dans les pays les plus inégalitaires par rapport aux économies avancées. L'analyse du coefficient de Gini à un niveau détaillé des instruments politiques nous permet également d'identifier les principaux canaux de réduction des inégalités et de comprendre l'origine des divergences entre pays.

Nos résultats pour le Chili et le Mexique suggèrent que la politique fiscale bénéficie significativement aux pays à faible revenu, principalement à travers des services en nature tels que l'éducation et les services de santé. Toutefois, en comparaison avec les résultats des pays à haut revenu, l'efficacité de la politique fiscale sur la réduction des inégalités reste limitée. Les transferts en espèces (particulièrement ceux liés au système des retraites), l'imposition directe et, dans une certaine mesure, de fortes inégalités de marché sont les principaux facteurs de cette différence.

Classification JEL: D31, H20, H31, H40, I30, I32, I38

Mots-clés: Répartition des revenus, politique fiscale, analyse socio-fiscal, Amérique Latine.

ABSTRACT

This paper looks at the incidence of fiscal policy on the income distribution for Chile and Mexico. Notably by broadening the income concept to account for in-kind benefits and taxes, this paper provides a full picture of the effect of fiscal policy on reducing income inequality.

The contrast between the estimates for Chile and Mexico and the rest of OECD countries provides an overall snapshot of income distribution of high inequality countries *vis-à-vis* advanced economies. The breakdown of the Gini coefficient at a detailed level of policy instruments also enables us to identify the main channels of income inequality reduction and shows how these results differ across countries.

Our results for Chile and Mexico suggest that fiscal policy significantly benefits the poorest income groups, mainly through in-kind services such as education and health care. Nevertheless, when compared with outcomes in high-income countries, the effectiveness of fiscal policy in reducing inequality is still limited. Cash transfers (especially those for old-age programmes), direct taxation and, to some extent, a higher market inequality are the main factors behind this difference.

JEL classification: D31, H20, H31, H40, I30, I32, I38

Keywords: Income distribution, fiscal policy, tax-benefit analysis, Latin America.

I. INTRODUCTION

One of the goals of fiscal policy is to reduce income inequality. Accordingly, governments are tasked with the role of determining the desirable distribution of resources within the economy and employing an array of policy tools to adjust economic outcomes for their populations.

Since the 1990s, the dominant approach for social policies in Latin American countries has been based on a strategy that combines economic growth, the participation of the private sector in the provision of some social protection services and the public sector focusing mainly on the most disadvantaged segments of the population (Solimano, 2010). However, up to now there have been few cross-country studies assessing in a standardised way the incidence of fiscal policy across the income distribution.

This study aims to begin filling this void. By providing a tax-benefit analysis for Chile and Mexico (both Latin American and OECD countries) and contrasting these results with previous studies for OECD economies, this paper assesses the incidence of fiscal policy across the income distribution. In particular, this paper seeks to answer three questions: Which income groups carry the burden of financing the government and which are net beneficiaries of social policies? How does fiscal policy affect the distribution of income? And, from a comparative perspective, which are the most effective tools for redistribution?

Our contribution to the literature is twofold. First, this study provides empirical evidence on the redistributive effect of welfare regimes incorporating a broader definition of the tax-benefit system. In particular, by combining administrative records and households surveys' microdata, our estimations include the effect of indirect taxes as well as in-kind government transfers.

Secondly, we compare and contrast our estimates for Chile and Mexico with the rest of the OECD countries. This contrast provides an overall snapshot of the income distribution of high-inequality countries *vis-à-vis* advanced economies. Additionally, we decompose the Gini coefficient at a detailed level of policy instruments which allows us to identify the main channels of income inequality reduction and show how these results differ across countries.

Our results for Chile and Mexico suggest that fiscal policy significantly benefits the poorest income groups, mainly through in-kind services such as education and health care. Nevertheless, when compared with outcomes in high-income countries, the effectiveness of fiscal policy in reducing inequality is still limited. Cash transfers (especially those for old-age programmes), direct taxation and, to some extent, a higher market inequality are the main factors behind this difference.

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This paper is organised in five sections. Section II considers the conceptual and methodological issues with a discussion of the properties of estimates based on microdata as a tool for analysing social and fiscal policies. Section III identifies the overall impact of the tax benefit on households across the income distribution, focusing on its composition before and after government intervention (that is, after taxes and public benefits are computed). The fourth section presents a comparative perspective on tax-benefit systems including those of high-income countries, highlighting the impact of different fiscal policy tools on income redistribution. Section V concludes.

II. CONCEPTUAL AND METHODOLOGICAL ASPECTS

II.1 Estimates based on microdata

Fiscal policy affects individuals' well-being in several ways, but its measurement presents a number of challenges. Household surveys only partially reflect the fiscal dimension as they only include social benefits received in cash. This fails to capture in-kind public services such as education, health care and social protection, all of which expand households' consumption possibilities. According to ECLAC data, social spending in Latin America represented about 52% of total government expenditure in 2005-06. Nevertheless, households pay taxes to finance these services, which are deducted from their gross income and reduce their purchasing power.

The tax-benefit incidence analysis and the use of microdata can be used to overcome some of these limitations by including both government spending and taxes in the income distribution analysis. This approach calculates tax liabilities and benefits by combining data on household characteristics with institutional records about government programmes. The strength of this methodology is the flexibility it allows for the definition of alternative income categories and the assignment of expenditures across households. It has been used extensively including by Euromod (Euromod, 2009) and the OECD (OECD, 2008a and 2011). The work carried out by ECLAC (2009) and the World Bank (Breceda et al, 2008 and Goñi et al, 2008) are regional examples of tax-benefit incidence analysis. Finally, national studies, such as those from the Chilean Planning Ministry, Mideplan (2007) and the Mexican Secretary of Public Finance and Credit (2008), use this approach to evaluate the outcomes of policies captured by household surveys.

Important statistical and conceptual issues limit the possibility of a systematic integration of these factors into households' resources and little consensus exists on the best way of addressing these problems. Available household surveys do not generally contain information on taxes or benefits in kind, or at least not with the required level of disaggregation. Moreover, shifting from market income towards a broader concept of resources at the disposal of the household raises a range of questions related to the valuation of these services and their distribution across individuals, which can significantly affect the results.

One of the limitations of this methodology is the short-term, static perspective. Focusing on annual income, the methodology fails to capture dynamic distributive effects of public expenditure that are more likely to affect households' income distribution over time, such as education and health care. For instance, it is reasonable to think that health services enhance the current and future living conditions of people receiving these benefits. While a dynamic approach could be useful for analysing tax benefit incidence on a lifetime basis, this study focuses on the perspective of vertical equity. The measurement of tax benefit incidence is

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assessed through the changes in the economic position of individuals and households based on a given set of economic circumstances.

Another limitation is the treatment of in-kind transfers. In some cases, expenditure is evenly distributed among household users and, in the absence of equivalent market prices, it is assumed that the cost of providing the service equals the valuation of the individual for such service. While this approach neglects differences across countries in terms of quality and efficiency in the provision of the service and in the value that individuals assign to these services, similar assumptions are a regular feature in the specialised literature (e.g. OECD, 2008a and Euromod, 2009).

Finally, the provision of goods and the collection of taxes modify individuals' behaviour. However, such dynamic effects are not considered in this study assuming that all benefits and burdens do not affect preferences and do not create externalities for the rest of the population.

II.2 A common approach for accounting households' incomes

In order to give consistent results across countries, we employ the accounting income framework applicable to OECD countries (OECD, 2008a). Figure 1 presents the main categories of income used in the present study as well as a brief description of each one.

Figure 1. **Definitions of income**
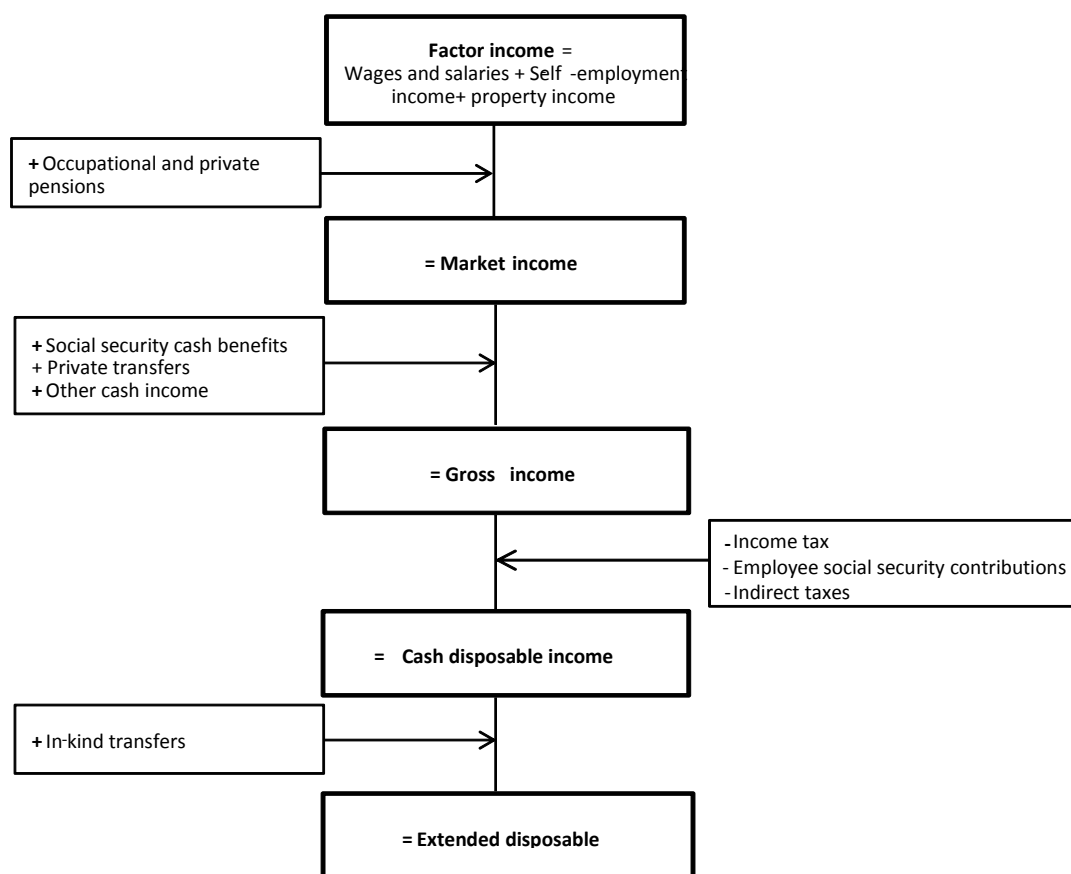
Source: Author's elaboration based on OECD (2008a).

According to this framework, the baseline corresponds to the market income, which is the sum of income from wages and salaries, self-employment and property (factor incomes) and occupational and private pensions. Gross income is defined as market income plus public and private transfers, as well as other types of cash income. When personal income taxes and workers' social security contributions are deducted from gross income, we obtain cash disposable income. Finally, if in-kind benefits are imputed as a component of households' incomes we call this extended disposable income.

The scheme showed in Figure 1 allows different components of income to be related to each other and, when applied to microdata, to calculate the redistribution across the population achieved at different stages. For example, the redistributive impact of cash transfers can be evaluated by comparing the difference between measures of inequality on the basis of market and gross income whereas the effects of in-kind benefits can be measured using the extended disposable income definition.

II.3 Data

Tax-benefit incidence analysis relies on diverse sources of information and uses imputation techniques to splice them together. Data on market and gross income can be obtained from standard household surveys. Income taxes and social security contributions can be accounted through household surveys or imputed depending on whether the data are collected on a gross or net term. Indirect taxes are usually imputed assuming a representative consumption basket using expenditure surveys. Finally, in-kind transfers are usually imputed based on the reported use of public services by individuals in household surveys and the cost of providing the service based on public institutional records. In the cases of Chile and Mexico the following information was used:

- Household surveys: Individual records from the 2006 National Characterisation Socio-economic Survey (CASEN) for Chile and the 2006 Household Income Survey (ENIGH) for Mexico. Both surveys provide data on income of households as well as information on their economic characteristics that can be used to impute public services and taxes to individuals. In Chile, estimates of the effects of value-added taxes and excise duties drew also on the 2006-07 Family Budget Survey (EPF).

- Government statements and institutional records: The analysis covers health and education services, using data on public expenditures and tax collection at institutional level from the Chilean National Budget Office (DIPRES) and the Mexican Ministry of Finance and Public Credit (SHCP). In addition, the distributive impact of health in Chile also relies on the Satellite Account for Health.

- Tax records: Statistics drawn from personal income-tax returns provide another source of information about the tax base. In the case of Chile, specially commissioned data was obtained from the Internal Revenue Service (SII), analysing the number of taxpayers, their assessed income, its composition and the taxes paid by income bracket.

II.4 Determination of tax burdens and benefits

The boundaries of which items can be imputed to households are not always obvious. Certainly items such as health care and education are good candidates. However, any public expenditure or tax has in theory some direct or indirect impact on households' consumption possibilities. For the purposes of this analysis, the approach was a pragmatic one, with the inclusion of questions on specific programmes in household surveys driving the extent to which we can include such items into the analysis. Additionally, this study relies on a precise classification of public services according to their impact on households. Only services that benefit households individually, such as education and health, were considered. Table 1 lists in detail the programmes included in each country as well as the total revenues and expenditures assigned.

Table 1 shows that, for both countries, not all social expenditures and taxes have been captured in this study. Primarily, some important programmes, such as pensions or housing, were excluded from the analysis because of methodological constraints, or because they were left out of the questionnaire. Additionally, even when a public programme is included in the results, the total cost is sometimes less than those available from government statistics. For instance, even though they represent a direct benefit for the population, infrastructure expenditures items were not considered given their inter-temporal effect. On the tax side, this low representation is linked to the fact that a significant fraction of taxes is borne not only by individuals but also firms. All in all, the imputed values we look at account for around two-thirds of total taxes and expenditures (excluding pension expenditures).

Though resources are given at the individual level, the benefits and payments are supposed to affect the whole household. By selecting a larger unit of analysis, we are taking into account the fact that individuals share the income generated by other members of the household to which they belong. This suggests that it is not only the direct receiver that benefits from the government programme or bears the tax burden but also the household. A clear example of this is educational programs. This type of programme mainly benefits children but the reception of this service affects the entire household by increasing the available resources for consuming other type of goods and services. To calculate the amount assigned to the household *h*, the individual benefits and taxes *Yi* are added as follows:

$$(1) \quad Y_h = \sum_i Y_i \; ; \; i \; \in \; h$$

Table 1. **Classification of benefits and taxes from households' surveys**

Country/survey	Item	Programme	Attributed public revenue/spending
			(Percentage)
Chile CASEN 2006	**Cash transfers** (% of social expenditure)		**6.5**
	of which		
	Social assistance	Chile Solidarity	2.3
		United family subsidies (SUF)	10.4
		Family allowance	21.0
		Potable water subsidy	4.3
		PASIS assistance pension	63.1
		Unemployment insurance	0.2
		Other governmental subsidies	1.0
	In kind transfers (% of social expenditure)		**57.3**
	of which		
	Education	School vouchers	47.0
		Preschool education	3.6
		Delegated administration schools	0.9
		School feeding programme	3.4
		Health school programme	0.1
		Oral health school programme	0.0
		School materials and textbooks	0.3
	Health	Supplementary Feeding Program (PNAC)	1.0
		Complementary Food Program to older people (PACAM)	0.4
		Health care net benefits	43.3
	Taxes (% of total collection)		**49.2**
	of which		
	SSC	Health SSC	13.9
	Direct taxes	Income taxes	14.5
	Indirect taxes	VAT/Excises	71.6
Mexico ENIGH 2006	**Cash transfers** (% of social expenditure)		**4.2**
	of which		
	Social assistance	Oportunidades	67.9
		Procampo	32.1
	In kind transfers (% of social expenditure)		**68.4**
	of which		
	Education	Educational services	66.5
	Health	Health care net benefits	33.5
	Taxes (% of total collection)		**62.2**
	of which		
	SSC	Health SSC	6.4
	Direct taxes	Income taxes	37.7
	Indirect taxes	VAT/Excises	55.9

Source: Author's calculations based on National Household Surveys and official public finances data.

We now describe the methodology for estimating the amount of benefits received and the taxes paid by each household in the listed categories:

Cash transfers

Since they generally target people in the lower income strata, in developing countries these programmes are usually among the most visible types of social spending. Household surveys treat them directly, and our calculations take the value that families surveyed declared as received. A special case in this category is contributive pensions. In both countries public and private pension systems co-exist. This may affect international comparisons about the redistributive effects of tax benefit systems, since pensions could be earmarked as market income or as a cash transfer. We deal with this by following OECD (2008a), which means occupational and private pensions are included in the market income definition whereas public pensions are counted as cash transfers. In the case of Mexico, the questionnaire in the survey did not distinguish between the different pension systems. Since the bulk of the pension entitlements correspond to the public system, the amount was totally assigned to this category.

Education

Following OECD (2008a), the incidence of education is calculated by applying the actual-use approach. This means that beneficiaries are those students using the educational services. Information on actual enrolment is available for all individuals in the surveys including the distinction between publicly or privately funded facilities. In both countries, educational transfers include pre-primary, primary and secondary levels. Because of the limitation on available information, Chilean data does not include the tertiary level. The value of education benefits is assigned to each student in publicly funded or heavily subsidised private education institutions. This value is estimated using the total expenditures reported in budgetary executions for each educational programme and then converted to a "per student" basis.

In theory, all individuals of school age have access to government educational transfers. Nevertheless, in practical terms, social background determines largely how these benefits are assigned across the population. As can be observed in Figure 2, public education (including the subsidised private education in the case of Chile) mainly benefits the eight lowest deciles. Conversely, the probability of access to private education is more likely to be in the richest deciles of the distribution in Chile and Mexico.

Figure 2. **School attendance by type of facility in Chile and Mexico**

(Percentages of totals by decile)
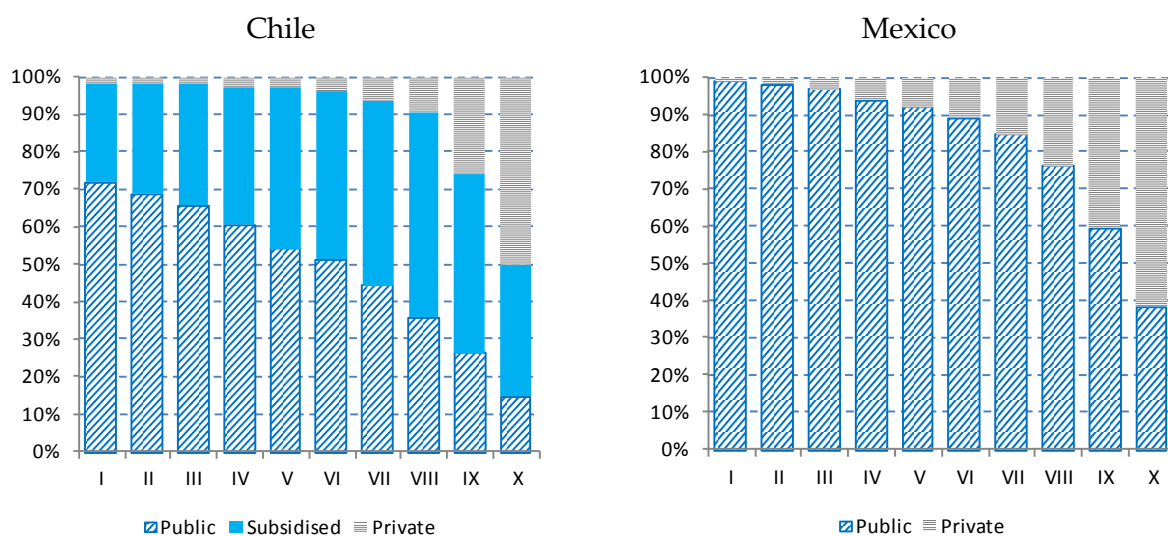
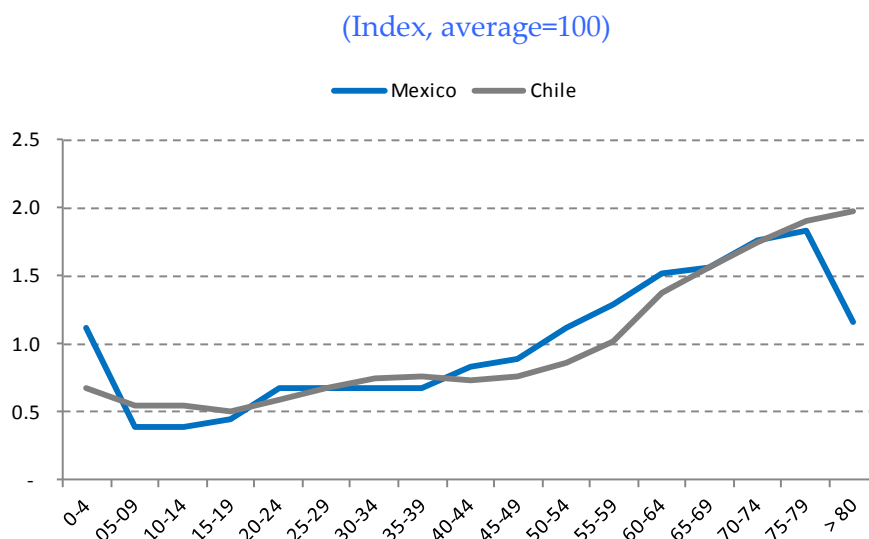*Source:* Author's calculations based on national household surveys.

Health

There are two main alternatives for attributing the benefits of public health care services to individuals. The actual-consumption approach is based on the effective use of health care services. The main criticism of this technique is that it implies that those with greater consumption of health-care services (sick people) are better off than those with a lower consumption (healthy people). Moreover, lacking an additional variable to adjust by health status, it does not take into account other needs of sick people. A second approach imputes an insurance value of coverage to every individual according to certain characteristics (e.g. age and sex). The benefit is determined by the average per capita cost of health services for each individual group, defined under the concept of a government-provided insurance premium that is equal for anyone within the same group.

In this paper, and in accordance with OECD (2008a), we use this insurance-value approach. The insurance value is imputed to each person covered by the health system according to the different demographic groups and irrespective of whether actual use of health care services was made. The total expenditure is taken from the health programmes' budgetary execution and then applied to public system covered individuals according to the factor scale applicable to the different demographic groups. In the case of Mexico, a previous OECD study (OECD, 2005) was used to determine each cost structure. In the case of Chile this information was not available, and it was proxied by the factor scale applicable in the private sector.

The profile of public health expenditure by age is very similar for both countries (see Figure 3). Following a slight fall after an early age, the use of health services remains relatively stable until the age of 45 and finally increases exponentially for the elderly, except for the last age group in Mexico, presumably because of the low use of high-tech medicine (OECD, 2005).

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Figure 3. **Health care costs by age group in Chile and Mexico**

(Index, average=100)

Source: Author's calculations based on Health Superintendence information for Chile and (OECD, 2005) for Mexico.

Direct taxes

Personal income taxes are estimated for each individual according to their reported income in the household survey, the tax legislation in effect in the same year and information on effective income tax revenues. Income reported in household surveys is usually collected on an after-tax basis. Therefore, a first step was to calculate the incidence of taxes paid in 2006 to construct pre-tax estimates for these items. Following Engel et al. (1998), the procedure to estimate the taxable income and the income tax that an individual should pay is described as follows:

The net income *NI* reported by an individual *i* in the survey corresponds to his/her gross income *GI* minus the income taxes paid *T* in the surveyed year:

(2) $NI_i = GI_i - T_i$

Additionally, the income tax that individuals should pay is obtained by applying the statutory tax rate *t* to the taxable income base:

(3) $T_i = GI_i * t$ being *t* the simplified notation for the structure of income tax rates applicable to the existent categories of income brackets

By replacing (2) into (3), two equations are obtained. They relate income taxes and the taxable base, respectively, to the income variables reported in the survey:

(4) $T_i = \frac{\tau_i}{1+\tau_i} e_i$ and (5) $T_i = \frac{\tau_i}{1+\tau_i} e_i$

Income taxes in Chile include the second category (tax on income from dependent employment) and the withholding income tax, and in Mexico the taxes on personal labour income, income derived from interest, rents and self-employment activities. The effect of the credit and subsidy on salary was also considered. Finally, the taxable base was approximated in the survey by the variables that are closest to the tax legislation. In Chile this includes incomes

for dependent and independent workers and other types of incomes such as those coming from interest on deposits, rents and dividends. Due to limitations in the information, no deductions were imputed for DFL2 and article 57 bis tax facilities. In Mexico, this includes salaries and benefits, income from independent activities (which includes property rent), income from business activities, and income from interests (e.g. interest on savings). Table 2 presents tax rates for every income bracket.

Table 2. **Individual taxation regimes, 2006**

Chile				Mexico					
Annual taxable base (Chilean pesos, CLP)		Withholding income tax		Annual taxable base (Mexican pesos, MXN)		Income tax		Subsidy to income tax[a]	
From	To	Rate (%)	Deductions (CLP)	From	To	Rate (%)	Fixed quota (MXN)	Rate (% of marginal rate)	Fixed quota (MXN)
0.00	5 217 372.00	Exempted	-	0.01	5 952.84	3.0	-	50.0	-
5 217 372.01	11 594 160.00	5.0	260 869.00	5 952.85	50 524.92	10.0	178.56	50.0	89.28
11 594 160.01	19 323 600.00	10.0	840 577.00	50 524.93	88 793.04	17.0	4 635.72	50.0	2 318.04
19 323 600.01	27 053 040.00	15.0	1 806 757.00	88 793.05	103 218.00	25.0	11 141.52	50.0	5 570.28
27 053 040.01	34 782 480.00	25.0	4 512 061.00	103 218.01	123 580.20	29.0	14 747.76	50.0	7 373.88
34 782 480.01	46 376 640.00	32.0	6 946 834.00	123 580.21	249 243.48	29.0	14 747.76	40.0	10 326.36
46 376 640.01	57 970 800.00	37.0	9 265 666.00	249 243.49	392 741.96	29.0	14 747.76	30.0	24 903.24
57 970 800.01	Onwards	40.0	11 004 790.00	392 741.97	Onwards	29.0	14 747.76	0.0	37 396.32

Note: [a] The subsidy to the income tax is calculated as follows: tax obligations (i.e. the tax rate applied to respective income bracket) are multiplied by the subsidised rate. This result is added to the fixed quota, which in turn is multiplied by the subsidised rate. This outcome is subtracted from the computed tax obligation (plus the fixed quota), generating the final liability for the taxpayer. The subsidy was repealed in 2007.

Source: Author's elaboration based on national tax legislations.

Additionally, the monthly credit to salaries in Mexico is presented in Table 3. This was meant to aid low-income wage earners, but in effect acted as a negative tax as these amounts often exceeded their tax liabilities.

Table 3. **Monthly credit to salaries (Mexico, 2006)**

From	To	Monthly credit
	(MXN)	
0.01	1 768.96	407.02
1 768.97	2 653.38	406.83
2 653.39	3 472.84	406.62
3 472.85	3 537.87	392.77
3 537.88	4 446.15	382.46
4 446.16	4 717.18	354.23
4 717.19	5 335.42	324.87
5 335.43	6 224.67	294.63
6 224.68	7 113.90	253.54
7 113.91	7 382.33	217.61
7 382.34	Onwards	-

Note: These credits were repealed in 2007.

Source: Author's elaboration based on national tax legislation.

These figures (i.e. theoretical tax revenues) are then compared with the effective tax collection. In the case of Chile, tax-return information was available and the amount of income tax that individuals choose to pay was computed as follows. The number of non-filers in each decile was estimated as the difference between the number of individuals in the household survey with incomes high enough to be subject to the income tax and those who actually filed a tax return and then imputing these randomly within the survey. Then, for the tax filers the proportion of income tax due that individuals actually pay was estimated from the tax-return information and then distributed in the survey proportionately to the estimations of income tax due. In the case of Mexico, only information for total income taxation was available. Therefore, in order to reflect the effective tax collection in the survey, the income tax that an individual should pay is adjusted proportionately to this amount.

Indirect taxes

Household budget survey data and the taxation system in the surveyed year are used to calculate the effect of indirect taxes. The data provides the consumption patterns for a large number of expenditure items. Following Euromod (2009), the effect of each tax is constructed by applying the statutory tax rates and deductions in effect for each type of product in the survey and then aggregating these into 16 COICOP (Classification of Individual Consumption According to Purpose) categories of goods and services. The main objective of the aggregation process is to pool expenditure items with similar characteristics in one commodity group. This reduces the likelihood of having zero expenditure in one particular item, which facilitates the computation of price elasticities.

Table 4. **Budget shares by COICOP commodity group**

(Percentage of total expenditures)

Aggregate	Chile	Mexico
Food and non-alcoholic beverages	18.3	21.9
Alcoholic beverages	1.0	0.3
Tobacco	0.9	0.2
Clothing and footwear	5.3	6.6
Home fuels and electricity	4.6	5.0
Rents	5.2	3.8
Household services	9.8	7.7
Health	5.4	3.9
Private transport	4.8	6.6
Public transport	5.3	4.5
Communication	4.6	4.8
Recreation and culture	7.6	4.9
Education	5.7	7.7
Restaurants and hotels	3.4	7.1
Other goods and services	4.3	7.6
Durables	13.7	7.3
All commodities	100.0	100.0

Source: Author's calculations based on national household surveys.

Table 4 provides the budget shares for 16 COICOP categories in Chile and Mexico. The results highlight the importance of food and non-alcoholic beverages on household

consumption. Given their considerable tax base, significant tax revenues associated with these commodity groups can be expected. Nevertheless, their impact on households' disposable income will also depend on the tax legislation. For instance, food products and non-alcoholic beverages in Mexico are subject to the zero rate VAT scheme, implying in practice a lower tax collection. By contrast, other groups of commodities, like alcoholic beverages and tobacco, are less representative in the consumption basket, but they are normally heavily taxed through excises.

The total collection of indirect taxes is estimated from the effects that both value-added taxes and excise duties have on the price of final goods. The total tax liability T_i for commodity i is calculated on the basis of observed expenditures e_i:

- (5) $T_i = \frac{\tau_i}{1+\tau_i} e_i$ being $\tau_i = \frac{t_i(1+\alpha_{i+}v_i)+v_i}{1-(1+t_i)v_i} + \frac{\alpha_i}{1-(1+t_i)v_i}$

- t_i: VAT rate

  α_i: fraction between the excise duty and the producer price

  v_i: ad valorem tax rate applied on the consumer price

The above formula is applied to individual commodities and then grouped into the COICOP aggregates. The tax liability T for the commodity aggregate k is obtained as the sum of tax liabilities for individual commodities. Hence, the aggregate tax rates are a weighted average of the tax rates on individual commodities with expenditures as weights:

$$(6) \ T_h = \sum_i T_i \ ; \ i \ \in \ k$$

The proportion of indirect taxes that households actually pay was adjusted to the effective tax collection that is transferred to private consumption and then distributed in the survey proportionately to the total tax liability. This amount is estimated from the Tax Matrix information in National Accounts.

In the case of Chile, a matching procedure was used to impute household expenditure from the input data (EPF) into the survey on the basis of budget shares for different population groups identified by disposable income and the largest set of demographic variables – age, sex, educational level, professional status, and number of adults and children – common to both datasets. The matching method used in this study is the parametric estimation of Engel curves on the expenditure data. The fitted model is then applied to predict values in the CASEN dataset.

The aggregates for tobacco, rents, public transport and education are further adjusted as a result of the possibility that these items are not equally demanded across households. Probabilistic models based on socio-demographic variables common to both datasets are then constructed to, first, impute in the CASEN survey the estimated expenditures for consumer households and second, replicate the proportion of non-consumers.

Health-care and social-security contributions

In Mexico, contributions include those made with respect to sickness and maternity insurance within the compulsory scheme (*seguro de enfermedades y maternidad del régimen obligatorio*). In Chile, contributions were calculated according to the scale applicable to the

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different FONASA health groups. These groups are defined by household characteristics such as income level and number of beneficiaries.

II.5 Measurement errors and under-reporting

Household and expenditure surveys are an important source of information on the allocation of tax benefits within households. Nevertheless, systematic misreporting of some income sources, such as capital income, income from self-employment or income from social transfers, can provide a misleading view of the income distribution and redistribution profiles.

Reconciling household-survey data and national-accounts data is a well-known problem. Macro aggregates from household-survey data normally present discrepancies with published national accounts, even though the sample weights are designed to represent the national population. Table 5 illustrates the extent of such discrepancies in recent household budget surveys in Chile and Mexico.

Table 5. **Comparison of national accounts and household survey estimates**

(Millions of local currency units)

	Chile			Mexico		
	National Accounts (A)	Household survey (B)	Ratio (B/A)	National Accounts (A)	Household survey (B)	Ratio (B/A)
Incomes derived from:	**33 817 612**	**28 722 719**	**84.9%**	**5 848 029**	**2 563 766**	**43.8%**
Labour	17 111 903	16 607 568	97.1%	2 605 676	2 160 762	82.9%
Self-employment activities	11 080 198	5 498 981	49.6%			
Social security transfers	2 588 123	2 254 803	87.1%	93 296	29 947	32.1%
Deposits, rents and dividends	1 382 416	647 462	46.8%	3 149 057	373 057	11.8%
Others	1 654 972	3 713 905	224.4%			

Source: Author's calculations based on National Household Surveys and official national accounts data.

The differences between the surveys and estimates from national accounts highlight potential biases in the totals. In particular, household surveys tend to under-report income, as reflected in discrepancy for total income. Nevertheless, one can observe that this discrepancy affects some sources of income more than others. Generally, income derived from self-employment activities and deposits, rents and dividends presents a higher degree of under-reporting.

A common approach in the literature has been to adjust aggregate reported household incomes so as to match corresponding items in national accounts. Therefore, assumptions about the source of the discrepancy are needed in order to assign under-reported income across the population. Particularly, in both countries under study, official methodologies to adjust income to national accounts differ according to the type of income. In general terms, the assumption is that differences arise either owing to under-reporting, omission of information for certain types of income, or a combination of both.

In the first case, the procedure to match national accounts estimates consists in adjusting respondents' income by a constant factor f derived from the ratio of totals between a specific category of income and its equivalent in national accounts in such a way that:

(7) $y_{ad} = f * y_s$; where y_{ad} is the national accounts adjusted individual income and y_s is the reported income in the survey.

In the second case, the omission of information for certain types of income is normally solved by imputing a per capita amount that depends on individual socioeconomic characteristics. A good example is the allocation of income from capital. Since such income in practice tends to be found mostly among upper-income households, the discrepancy is imputed to a specific group according to income characteristics (for instance, to people in the top percentiles of the income distribution).

The afore-mentioned assumptions can be material to the results, particularly when discrepancies are high. Moreover, even assuming that national-accounts aggregates are correct, no agreement exists on the best way to do this. Following OECD (2008a), we have made no adjustments to household-survey income aggregates and all calculations were based on data gathered directly from published records. In the case of Chile, official data is already imputed using estimates from the national accounts (more details about this procedure can be found in Mideplan, 2006), while for Mexico income is not adjusted in the survey.[1]

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1.   This effect is analysed in greater detail in Mexican Ministry of Finance and Public Credit (2008).

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III. THE ALLOCATION OF TAXES AND BENEFITS

In what follows we compare the joint impact of social spending and taxation by income deciles. This section provides another perspective on fiscal policy and is devoted to the question of the channels through which different segments of the population are affected by the fiscal policy and how they fare *vis-à-vis* those above and below them on the income scale. We first analyse the overall net effect of the tax benefit system and then we examine the patterns of social spending and taxation separately.

## III.1 How do social programmes and taxes affect households' incomes?

Net transfers in Latin America appear to have a pro-poor objective. This result is consistent with policies that focus on poverty alleviation rather than income redistribution. As can be observed in Figure 4, the tax benefit system provides a dramatic boost to the income of the more disadvantaged. On average, deciles one to four in Chile increase their incomes by 53% and 44% in Mexico.

Conversely, in the middle sectors income reductions experienced through payment of taxes are closer to gains received through social spending. That is, the net effect of fiscal policy for middle-class households is close to zero and not substantial. Households between fifth and eighth deciles make on average a net payment of 3.4% in Chile and receive a net transfer of 3.6% in Mexico. Finally, taxes paid exceed benefits received for upper-income groups, with all families coming out net taxpayers.

The results also suggest that the overall effect of the tax-benefit system is positive and mainly concentrated in the lowest deciles, where some social mobility is observed, resulting in an increase in the ranks of the middle class (defined as quintiles five to eight). However, this result also underscores high levels of fragility in borderline households (deciles four and five), receiving in net terms less social programmes than households below them in the income scale.

All in all, social spending is found to be a more effective tool in bringing new people into the middle sectors. Accordingly, as shown in Figure 4, public spending has a greater impact relative to the household's disposable income, whereas taxes appear to have a uniform effect in every income group. This effect is far from homogeneous, however. When specific spending programmes or tax categories are analysed independently, the effects vary considerably.

Figure 4. **Tax-benefit structure by household income deciles**

(Percentage of decile mean disposable income, mid 2000s)
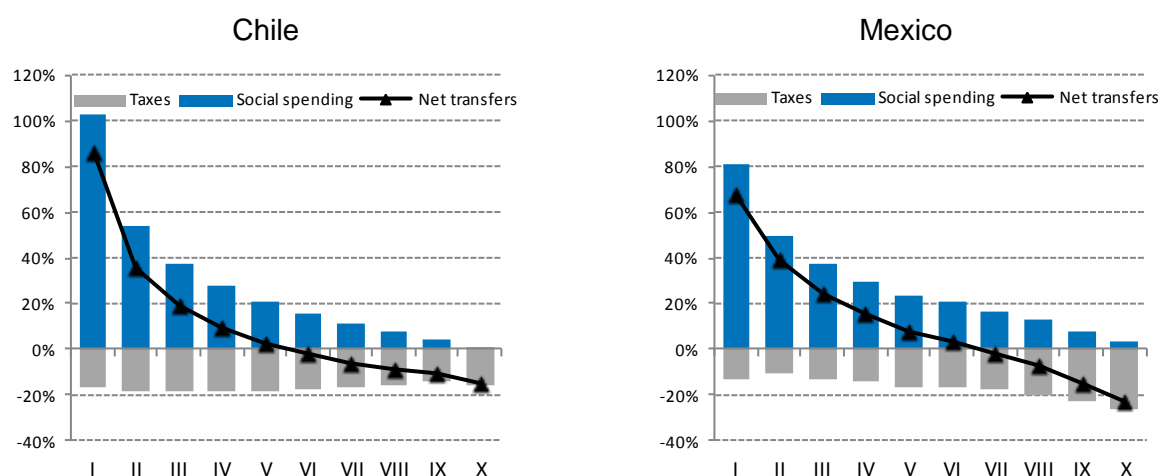
Note: Deciles are defined according to household per capita disposable income including cash transfers.

Source: Author's calculations based on national household surveys.

III.2 Social spending

The importance of the state in improving well-being for low-income households is evidenced by the fact that, on average, public benefits make up about 50% of total resources for these groups in both countries, once non-cash benefits are included. Families in the middle sectors, on the other hand, benefit less from social programmes. From the available data, it appears that those in the middle sectors have less access to public education and health services, where the provision of these services for deciles five to eight corresponds only to 20-30% of what the lower income deciles receive.

Splitting out the components, we find that education appears as the most important item in improving the income of the disadvantaged population. This programme displays a progressive pattern throughout income groups and, as expected, has a larger effect on low-income households. Expressed as a proportion of average income within the relevant deciles, public education is estimated to account for 29.5% and 33.3% of disposable income for low-income families compared to 6.4% and 11.4% for the middle sectors in Chile and Mexico, respectively.

Health is the second programme in magnitude in accounting for disposable income of the economically disadvantaged. Being relatively progressive in both Chile and Mexico, health expenditure accounts for 19.0% and 11.6% of disposable income for disadvantaged households, respectively. For the middle sectors, the figures are 6.1% in Chile and 6.3% in Mexico.

As expected, the majority of cash transfers go to the disadvantaged, for whom they represent the bulk of their disposable income. For the middle sectors, however, transfers play a less significant role when compared to other expenditure programmes as households in this section are usually well-off enough to not qualify for this type of assistance. While rather negligible, the effect is still positive.

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Figure 5. **Effective receipt of benefits by household income deciles, mid 2000s**

(Percentage of decile mean disposable income)
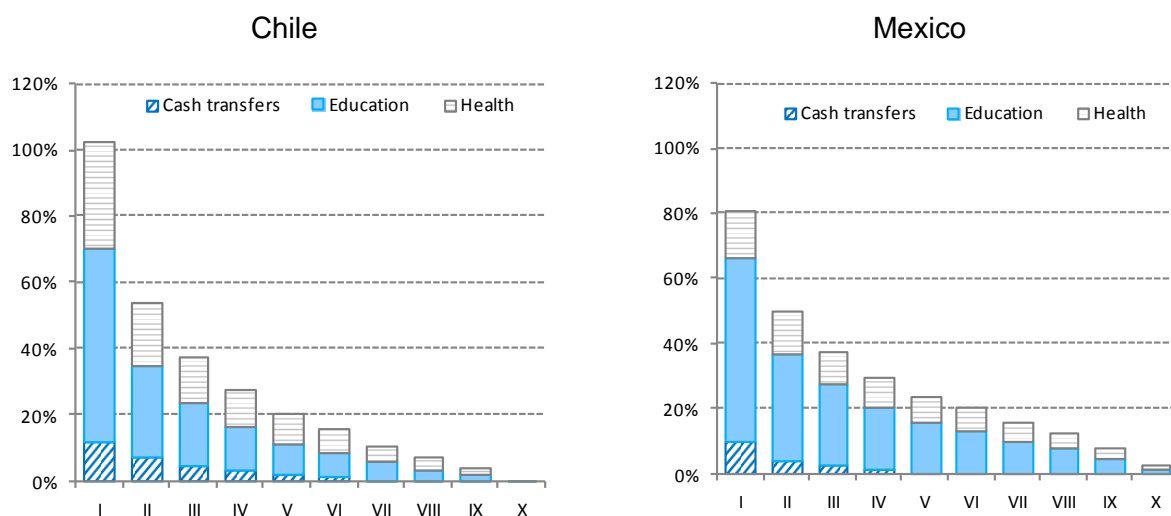
Note: Deciles are based on household per capita disposable income including cash transfers.

Source: Author's calculations based on national household surveys.

As in-kind benefits seem to matter the most, an important fact comes to light. Public support and use of basic services is strongly affected by the perception of their quality. Higher-income families, who can more easily afford private substitutes for public services, have less incentive to be covered by the public sector when they have a negative perception of its quality. For middle-sector families, private health insurance or schooling may also be an attractive alternative to its provision by the public sector, despite adding an additional burden on household budgets. According to an international assessment of educational performance, privately managed schools tend in general to perform better on the PISA scale than publicly managed schools (OECD, 2012).[2]

If the education and health-care services provided by the public sector are of low quality (services that are mostly received by the disadvantaged and middle sectors), then the benefits will be less valued. Though the methodology employed assumes that all services – public or private – are of similar quality, it is fair to conclude that benefits from public services, although equal, are valued less than their private counterparts.

III.3 Taxation

Contrary to their perceptions, the evidence in Figure 6 indicates that middle-income families do not, on average, pay disproportionately high taxes. Of course, the middle-income group is large, and there is considerable variation in the amount of taxes paid by particular

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2.   However, the same study finds that privately managed schools seem to attract advantaged students because their student bodies are advantaged and that students coming from public and private educational institutions present significant differences in their average socio-economic background.

families within it. Nonetheless, the bulk of the total taxation (51% in Chile and 53% in Mexico) is generated in the top two deciles with high-income families being net taxpayers everywhere.

Nevertheless, when we look at the tax burden of each group, other interesting results emerge.[3] With some differences between the two countries, high effective rates are also found at the bottom of the income scale. In fact, deciles one to four pay around 15% of their income, more or less the same tax burden exhibited by the tenth decile in Chile. In Mexico, the first decile bears a total tax burden of 15%, a higher ratio than the one shouldered by deciles two to eight. By contrast, middle-income families in Chile bear a lower tax burden than households below them on the income scale. Correspondingly, in Mexico the effective rate of the middle sectors is considerably lower than that of affluent households.

However, this behaviour is far from homogeneous among the different categories of taxes analysed here: income tax, value-added taxes (VAT), excises and health social security contributions. The indirect taxes are mainly VAT and excise taxes, the former having the greater take. These consumption taxes have the larger impact on the income of middle-sector households, where they account for 13.8% and 9.8% of the mean per capita income for Chilean and Mexican families respectively. When measured relative to disposable income, indirect taxes exhibit a different pattern in Chile than in Mexico. While in Chile the top two and bottom two deciles pay a lower share of their income than the rest, in Mexico the share of income taken is essentially similar across income groups.

Figure 6. **Tax incidence by household income decile**

(Percentage of decile mean disposable income, mid-2000s)
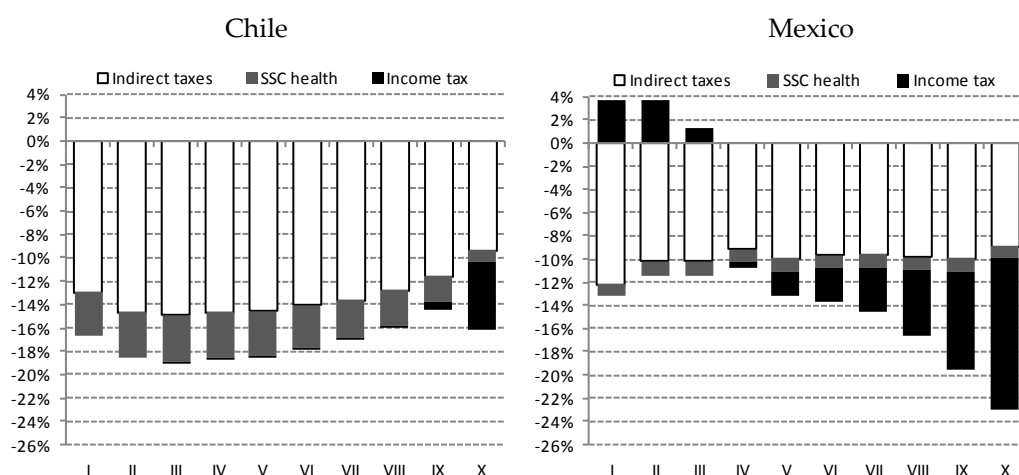
Source: Author's calculations based on national households surveys.

For income tax, as expected, the two last deciles bear the heavier burden, accounting for 3.3% in Chile and 10.8% in Mexico. Even when tax burdens increase with income levels, their concentration in a reduced group of the population implies that their impact on overall income is

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3.   Because this study includes only a reduced type of taxes, the conclusions that emerge from the data should be restricted to the four categories analysed here.

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limited. This concentration in Latin America is exacerbated by the fact that exemption levels leave more than 60% of income earners with no taxes to pay (OECD, 2008b and Daude et al., 2010). For middle-sector families, the negative effect of income taxes is smaller when compared to other tax figures. Equally important is the effect of credits and subsidies on salary – low income groups in Mexico actually have negative contributions.

Social-security contributions for health care present different patterns in the two countries. While they are neutral in Mexico (accounting for about 1% of income in each decile), in Chile they are regressive, which can be explained by the fact that households higher up the income scale tend to opt for private insurance.

IV. COMPARING INCOME INEQUALITY ACROSS COUNTRIES

Once we have delimited the impact of tax benefit systems on household income deciles in Chile and Mexico, we can now start to assess the degree of inequality and the probable causes for such distribution in these two economies. This section provides an overview of the different components which make up overall household income inequality in OECD countries and compares them with our results for Chile and Mexico. By contrasting these two groups of countries, it allows us to identify the relative contribution of particular sources of income on inequality and the effectiveness of fiscal policy in influencing these outcomes.

Figure 7. Inequality of market and disposable incomes

(Gini points, late 2000s[1], total population)
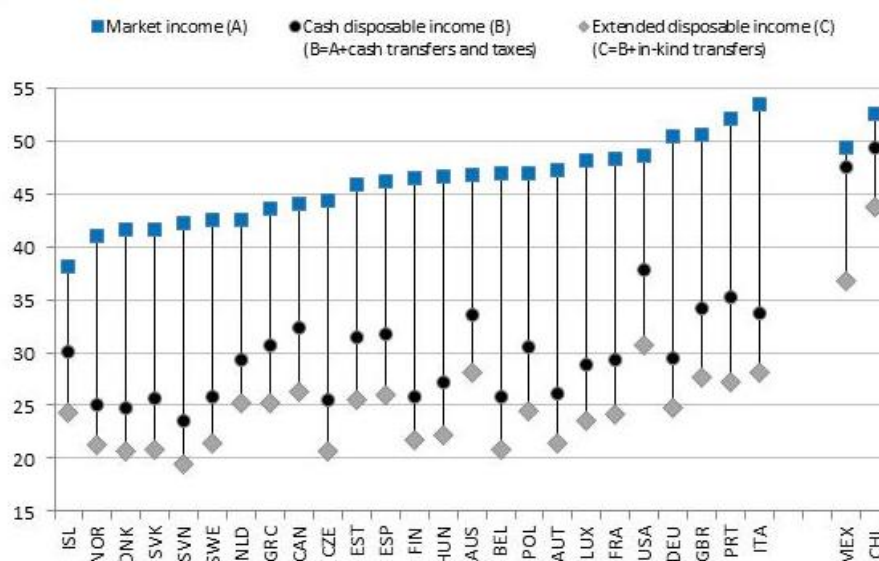
1. Late 2000s refer to a year between 2006 and 2009.
2. For comparability matters, in-kind transfer figures exclude social housing benefits.

Source: Author's calculations based on national households surveys for Chile and OECD, 2011 and Versbit et al., 2010 for the rest of OECD countries.

When measuring income inequality, it is important to distinguish between three different concepts: market sector incomes, cash disposable and extended disposable income. This approach is illustrated in Figure 7 which defines the extent to which these components affect overall inequality. The first pathway (measure A) considers the impact of market earnings inequality. In this framework, inequality is assessed in terms of both labour earnings dispersion as well as the influence of other income sources, such as those coming from capital. The second

pathway is the transmission of public policies to household income inequalities. This involves two additional steps, which consider the impact of both taxes and cash transfers (measure B) and the effect of in-kind benefits (measure C).

The results show that market income distribution is much more unequal than the two measures of disposable income. The Gini coefficient for market income is on average 46.2 whereas the corresponding figures for the two indicators of disposable income (measures B and C) are 30.8 and 24.2, respectively. This suggests that fiscal policy in OECD countries, in general, has a considerable influence on income distribution. In fact, tax-benefit systems in OECD countries offset around half of market-income inequality.

Together with some other OECD countries, Chile and Mexico record high levels of market income inequality. Other things being equal, the latter translates into a greater need for redistributive policies to achieve a given degree of equality in disposable income. Furthermore, the tax-benefit systems in these two countries work quite differently to counterbalance market income inequality. Compared to the rest of the OECD countries, they present a relatively lower impact of fiscal systems on reducing inequality through cash transfers and taxes. Later in the paper we will show that the effect of old-age programmes and direct taxation explain the bulk of this difference.

IV.1 The market component of income inequality

The distribution of market income is a prior determinant of the distribution of household disposable income and therefore has significant implications for the tax-benefit systems. This section examines how income inequality is explained by the different components of market income in the mid 2000s. Figure 8 presents the contribution of three categories of market incomes: wages and salaries, self-employment and capital investment earnings. The calculations are based on a decomposition method developed by Lerman and Yitzhaki (1985).[4] It includes a subset of 14 countries with a gross basis income reporting and eleven additional countries (including Chile and Mexico) where income information is available on a net basis.

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4.   Lerman and Yitzhaki (1985) proposed a decomposition method that quantifies the absolute and relative contribution of income sources to total inequality by using the expression:

$$G = \sum_{k=1}^{k} C_k = \sum S_k G_k R_k$$

Where S_k denotes the share of source k in total income, G_k the Gini coefficient for the corresponding source k and R_k the correlation of income from source k with the distribution of total income.

Using this expression, we are able to decompose the Gini coefficient by income components. In effect, the absolute and relative contribution of source k to total income inequality can be computed respectively by :

$$C_k = S_k G_k R_k \text{ and } C_k = \frac{S_k G_k R_k}{G}$$

Figure 8. **Decomposition of income inequality by income source**

(Gini points, mid 2000s, working-age population)
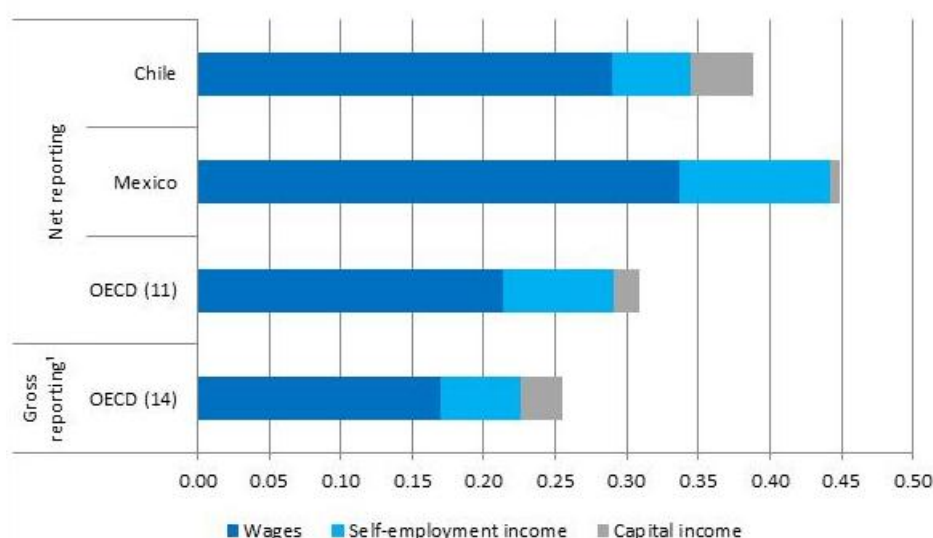
Note: 1. The contribution of wages and salaries is presented net of income taxes and social security contributions.

Source: Author's calculations based on national households surveys for Chile and OECD, 2011 for the rest of the OECD countries.

Figure 8 shows that the labour market generates the largest contribution to overall market inequality, explaining around 70% of the total. This is in line with the relative importance of wages and salaries on disposable income for the working-age population. Incomes from self-employment and capital contribute less to income inequality, but they are more unequally distributed than wages in all OECD countries considered in the sample.

Chile and Mexico demonstrate a particularly high contribution of wages and salaries to overall income inequality. Even when in relative terms, the effect of dependent work earnings in these two countries is similar to international standards, measured in Gini points these figures deviate substantially from OECD levels, approximately 50% above the OECD average.

The higher dispersion of wages observed in these two countries is the result of a complex phenomena and involves not only labour market factors but also demographic and economic aspects. It would therefore be difficult to develop one single model that captures all of these dimensions. Nevertheless, variables such as the participation of household members in the labour force and demographic characteristics such as education and age are some of the possible driving factors to consider in the context of a more skewed distribution.

IV.2 The redistributive power of tax benefit systems

Many governments counterbalance high inequality in market incomes through their tax benefit systems. Using recently assembled data on the incidence of transfers in OECD countries (OECD, 2011 and Versbit et al., 2010), we place Chile and Mexico against the comparative benchmark provided by high-income countries. Figure 9 summarises these results. Public transfers (both cash and in-kind), as well as direct taxation, play a major role in OECD countries in reducing market-income inequality. Together, they reduce inequality (measured by the Gini

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coefficient) by about a half. This redistributive effect was larger in the Nordic countries, as well as in some European continental economies.

The same figure disaggregates the effect of three categories of instruments on income inequality: cash transfers, household taxes and education and health in-kind services. This inspection of the tax-benefit system suggests that the first category accounts for the bulk of total redistribution. On the contrary, in-kind provision of education and health seem to have a lower impact on redistribution.

This is not to deny the relevance of in-kind services. Governments spend as much on public social services as they do on all cash benefits taken together (around 13% of GDP). While the prime objective of social services is not redistribution, but instead the provision of adequate living standards, this is in fact redistributive and reduces disposable income inequality by one-fifth (OECD, 2011).

Figure 9. **Inequality reduction by category of instrument**

(Gini points, mid-2000s)
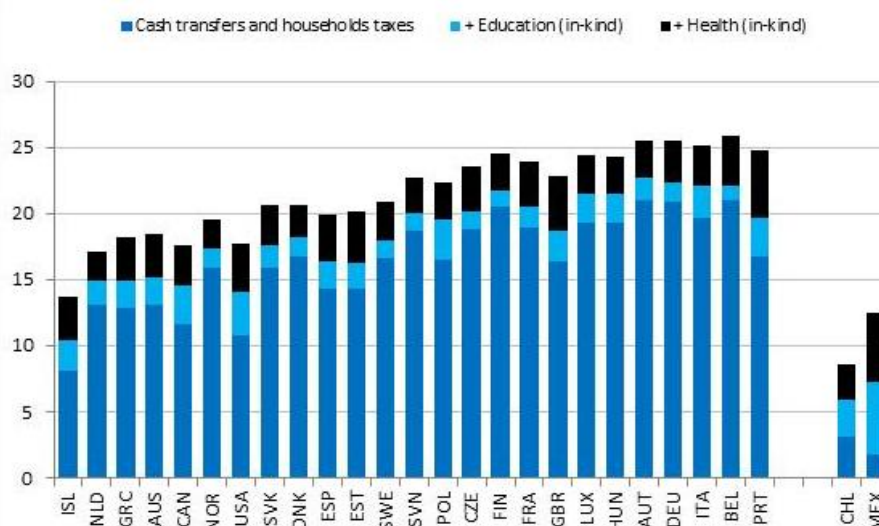
Source: Author's calculations based on national households surveys for Chile and OECD, 2011 and Versbit et al., 2010 for the rest of the OECD countries.

As stated previously in this section, an obvious difference for Chile and Mexico compared to the rest of the OECD countries is the relatively small effect of fiscal systems at reducing inequality. The more limited redistributive capacity in Chile and Mexico is mostly linked to the smaller effect of cash transfers and household taxes with services in-kind programmes being the items that account for the bulk of the income redistribution. For instance, the market Gini index for Chile and Mexico is respectively 52.6 and 49.4, falling to 44.0 and 36.9 after the effect of fiscal systems. For the rest of the countries examined, taxes and transfers affect the Gini index to a higher extent, taking it from 45.9 to 24.2.

Public benefits are normally less generous in Latin America than in OECD countries, thus limiting the effects of transfers on low-income households. OECD countries average 26% of GDP in social spending as opposed to 11% and 7% in Chile and Mexico, respectively. Furthermore, the

characteristics of income distribution and the tax structure in Latin America render the tax system incapable of significantly redistributing wealth after public action is accounted for (OECD, 2008b).

This difference in size is important for two main reasons. Firstly, because much of the inequality reduction in OECD countries is achieved through social spending instruments. Secondly, in-kind benefits highlight the importance of quality in the provision of public services. If much of the effect of fiscal action is felt through the reception of in-kind services, the well-being of individuals is amplified by receiving top quality goods and services. Thus low-quality goods and services in the public system could push up demand for a private alternative provision of goods and services, increasing the non-fiscal burden on household budgets.

A significant amount of the social spending goes to social protection, which is normally channelled through cash transfers. It is in these items where OECD countries vastly outspend the two Latin American economies studied here. In order to explore in further detail the redistributive effect of different types of programmes under this category, we use data from existing studies (Wang and Caminada, 2011) based on the most recent wave of the Luxembourg Income Studies (LIS) and we compare it with our results for Chile and Mexico.

While not directly comparable, LIS estimates reveal some useful insights on which mechanisms are best suited to enhance the inequality-reducing potential of cash transfers. The data in Figure 10 decomposes the effect of the Gini coefficient distinguishing five different types of programmes within cash transfers: incapacity-related, old-age, family, active labour market programmes and other social policy areas.

Figure 10. **Reduction of income inequality due to cash transfers**

(Gini points, mid-2000s)
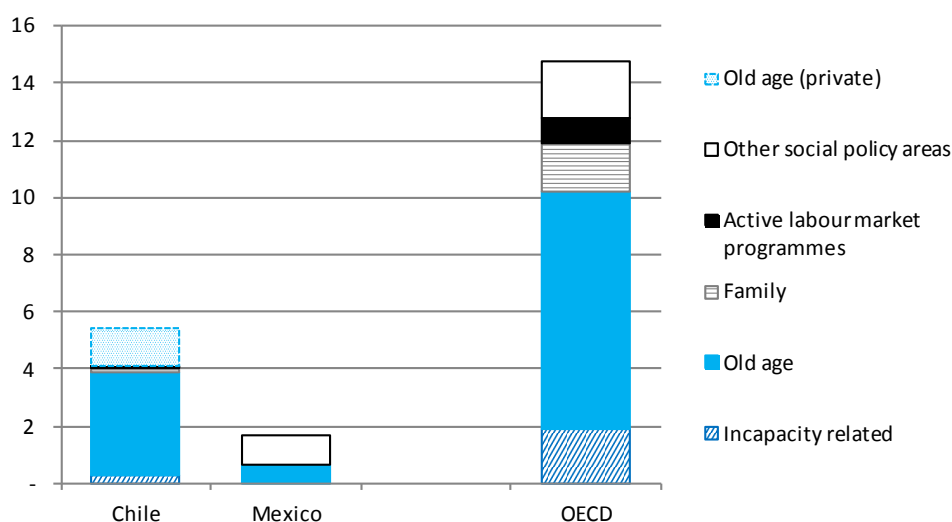
Source: Author's calculations based on national households surveys for Chile and Wang and Caminada, 2011 for the rest of the countries.

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<div style="border:1px solid">

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Box 1. **Recent social reforms in Chile**

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Since the mid-2000s, the Chilean government has put in place reforms in areas including pensions, health and education, which have impacted the tax-benefit system. In order to ensure comparability and consistency with earlier versions of this document, our estimations for Chile were obtained from CASEN 2006. Thus, the effect of recent developments is not reflected in our figures. This section is an attempt to fill this gap.

The methodology described in Section II was applied to CASEN 2009 in order to evaluate the benefits received by Chilean households in this year. Figure 11 presents a comparison of these estimates between the 2006 and 2009 round. They compute the difference achieved in reduction of income inequality between the two time spans. As can be observed, the increase in public spending in the area of pensions, education and health has translated into a deepening of the benefit system. Other things being equal, this implies in practice a reduction in income inequality of around two additional gini points. Some of the elements (the list is by no means exhaustive) that could have an impact on these results are listed below.

<div align="center">

Figure 11. **Reduction of income inequality due to government spending between the 2006 and 2009 round**

(Gini points)

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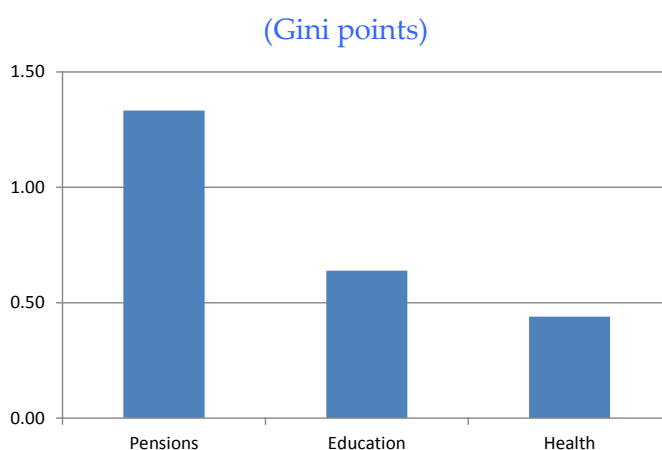
Source: Author's calculations based on national households surveys for Chile.

Education: In order to promote quality, the Chilean system considerably increased public resources to finance education in 2008. The legislation introduced two new main mechanisms. First, a preferential voucher scheme which pays more to schools for children from low-income families in pre-school, primary and lower secondary education (Law No. 20.248). And second, an increase of 15% in educational vouchers for all levels and types of education, and an additional 10% subsidy for rural areas (Law No. 20.247).

Health: Since 2005, AUGE (Acceso Universal con Garantías Explícitas en Salud) or GES (Garantías Explícitas en Salud), supports household expenditure on health care, especially for low-income households. In practice, this reform has meant a growing public spending on health. In its initial phase, the system guaranteed care for a list of 25 selected diseases, which has been increasing gradually and is set to cover 81 pathologies by 2013.

Pensions: In 2008, the Chilean pension system was reformed to increase the coverage of vulnerable groups. A significant part of the Chilean population (notably low-income workers, women and the self-employed) has difficulty in acquiring meaningful pensions, because they receive low salaries or are not able to complete 20 years of contributions to qualify for minimum pensions.

The new scheme considers a solidarity pillar which involves the Basic Solidarity Pension (Pensión Básica Solidaria) and a Pension Solidarity Complement (Aporte Previsional Solidario) for the elderly and disabled. These mechanisms apply to those who are not entitled to a pension under any pension scheme and subject to eligibility criteria. The Basic Solidarity Pension is targeted at people who did not contribute to the pension system, or whose contributions were limited during their working life. In addition to this, the Pension Solidarity Complement is conceived for people who are entitled to one or more pensions and whose basic pension is below the Maximum Pension with Solidarity Contribution (Pensión Máxima con Aporte Solidario).

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Notably, old-age programmes account for a significant part of the total reduction of income inequality. Public pension plans impact significantly the income distribution since inequality is measured at one moment in time and the retirees have in general no other type of income. However, cross-country differences are huge. In comparison with total Gini reduction, the effect of old-age programmes in these two Latin American economies is similar to international standards. Nevertheless, when measured in Gini points, the figures are still far from OECD levels.

While suggestive, this data must be read carefully. The difference in inequality due to the effect of old-age transfers calls for a deeper look at the design of national social security systems as well as the characteristics of the labour market, a question beyond the scope of this paper. However, in the case of Chile, one factor that partially explains this difference is the substitution between public and private pension systems. Additionally, due to methodological reasons, private pensions are included in the market income definition and therefore their impact is not reflected in the figures. When added to the calculations, they contribute to the reduction of the Gini coefficient in 1.3 additional points.

Incapacity-related and family benefits are also important in OECD countries. Remarkably in Latin America, all other social benefit programmes seem to have rather limited redistributive effects, although the programmes in other social policy areas (which include social assistance, income maintenance and other benefits) do have some effect.

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V. CONCLUSIONS

Latin America has come a long way in strengthening its fiscal systems, consolidating the necessary tools to achieve macroeconomic stability and sustain stronger economic growth. While doing so, it has also been able to lift millions of people out of poverty and into a sizeable, but still growing, middle class.

Nevertheless, different social policies and welfare systems lead to a variety of results in terms of income inequality. Compared to high-income countries, the impact of fiscal policy on reducing inequality is still limited in Latin America. Our results for Chile and Mexico have demonstrated that figures of market income inequality, even when relatively high, do not seem out of place in some OECD countries but tax-benefit systems are less effective in reducing this gap.

Both social spending and taxation play a role in this regard. While the bulk of the inequality reduction in Chile and Mexico is achieved through the provision of in-kind services, the effect of other spending programmes such as cash transfers (particularly through old-age programmes) and taxation is less significant. By contrast, the higher levels of fiscal revenues in industrialised countries, explained in part by higher tax incomes, allow them to achieve a greater inequality reduction through taxes. Furthermore, higher revenues also translate into supplementary funds to finance social programmes through fiscal spending.

This does not discount the significance of fiscal policy in Latin American countries. The analysis shows that the majority of income groups benefit in net terms from fiscal intervention. That is, what they receive in public benefits outweighs the contributions they make through payment of taxes. In-kind services such as education and health care add considerably to households' disposable income, particularly for lower income groups.

Nevertheless, in countries such as Chile and Mexico, old-age benefits play a smaller role at reducing inequality compared to those in other OECD economies and largely explain the difference in the total redistributive power of the tax benefit system. While past reforms allowing the participation of the private sector in the pensions system partially explain this gap, there is a need for a deeper look at the design of the national social security systems as well as the characteristics of labour. This has been the case for Chile, which recently reformed its pensions system to increase the coverage of vulnerable groups.

Finally, our analysis of the tax benefit systems for Chile and Mexico allows us to shed some light on the comparison of the redistributive effect in Latin American and OECD economies. The possible extension of this approach to other countries in the region, as well as the expansion of the exercise for different moments in time, are some of the important questions for future research. These perspectives will be of additional value in addressing questions about the

sources of variance across countries and over time of social policy reforms, facilitating the identification of best practices.

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REFERENCES

BRECEDA, K., J. RIGOLINI and J. SAAVEDRA (2008), "Latin America and the Social Contract: Patterns of Social Spending and Taxation", *Policy Research Working Paper* 4604, World Bank, Washington, DC.

DAUDE, C. and A. MELGUIZO (2010), "Taxation and more representation? On fiscal policy, social mobility and democracy in Latin America", *OECD Development Centre Working Paper* 294, OECD, Paris.

ECLAC (2007), *Social Panorama of Latin America 2007*, Economic Commission for Latin America and the Caribbean, Santiago de Chile.

ECLAC (2009), *Social Panorama of Latin America 2009*, Economic Commission for Latin America and the Caribbean, Santiago de Chile.

ENGEL, E., A. GALETOVIC and C. E. RADDATZ (1998), "Taxes and Income Distribution in Chile: Some Unpleasant Redistributive Arithmetic," *NBER Working Paper* No. 6828.

ESTACHE, A. and D. LEIPZIGER (2009), "Overview: Fiscal policy, distribution and the middle class" in A. ESTACHE and D. LEIPZIGER (eds.), *Stuck in the middle: Is fiscal policy failing the middle class?*, Brookings Institution, Washington DC.

EUROMOD (2009), "Accurate income measurement for the assessment of public policies", *Working Paper* EM7/09, Euromod.

GOÑI, E., L. SERVÉN and J.H. LOPEZ (2008), "Fiscal Redistribution and Income Inequality in Latin America", *Policy Research Working Paper Series* 4487, World Bank, Washington, DC.

IMMERVOLL, H., H. LEVY, J. NOGUEIRA, C. O'DONOGHUE and R. DE SIQUEIRA (2006), "The Impact of Brazil's Tax-Benefit System on Inequality and Poverty", *IZA Discussion Paper Series* 2114, Institute for the Study of Labour (IZA), Bonn.

LERMAN, R. and S. YITZHAKI (1985), "Income Inequality Effects by Income Source: A New Approach and Application to the U.S.", *Review of Economics and Statistics* 67(1):151-56.

LINDERT, K., E. SKOUFIAS and J. SHAPIRO (2006), "Redistributing Income to the Poor and the Rich: Public Transfers in Latin American and the Caribbean", *Social Safety Nets Primer Series*, World Bank, Washington, D.C.

MEXICAN MINISTRY OF PUBLIC FINANCE AND CREDIT (2008), *Distribución del pago de impuestos y recepción del gasto público por deciles de hogares y personas: Resultados para el año de 2006*, Secretaría de Hacienda y Crédito Público (SHCP), Mexico D.F.

MIDEPLAN (2006), *Casen 2006: Documento metodológico*, Ministerio de Planificación, Santiago de Chile.

MIDEPLAN (2007), *Distribución del Ingreso e Impacto Distributivo del Gasto Social*, Ministerio de Planificación, Santiago de Chile.

OECD (2005), *OECD Reviews of Health Systems: Mexico 2005*, OECD Publishing, Paris.

OECD (2008a), *Growing Unequal? Income Distribution and Poverty in OECD Countries*, OECD Publishing, Paris.

OECD (2008b), *Latin American Economic Outlook 2009*, OECD Publishing, Paris.

OECD (2010), *Latin American Economic Outlook 2011*, OECD Publishing, Paris.

OECD (2011), *Divided We Stand: Why Inequality Keeps Rising*, OECD Publishing, Paris.

OECD (2012), Public and private schools: How management and funding relate to their socio-economic profile, OECD Publishing, Paris.

VERBIST, G., FÖRSTER, M. and M. VAALAVUO (2012), "The Impact of Publicly Provided Services on the Distribution of Resources: Review of New Results and Methods", *OECD Social, Employment and Migration Working Papers*, No. 130, OECD Publishing, Paris.

WANG, C. and K. CAMINADA (2011), "Disentangling Income Inequality and the Redistributive Effect of Social Transfers and Taxes in 36 LIS Countries", *LIS Working Paper Series*, Luxembourg.

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