

## INCOME DISTRIBUTION DATA REVIEW - CHILE

### 1. Available data sources used for reporting on income inequality and poverty

#### 1.1. *OECD reporting:*

OECD income distribution and poverty indicators for Chile are provided by the Ministerio de Desarrollo Social (Ministry of Social development), from the National Socio-economic Survey (Caracterización Socioeconómica Nacional - CASEN), a household survey conducted at national, regional, urban and rural levels, and developed by the Ministerio de Planificación Nacional y Política Económica (MIDEPLAN). It has been carried out for the following years: 1985, 1987, 1990, 1992, 1994, 1996, 1998, 2000, 2003, 2006, 2009 and 2011. Data provided to the OECD refer to the years 1996, 2006, 2009 and 2011.

#### 1.2. *National reporting and reporting in other international agencies:*

##### 1.2.1 *National reporting:*

Alternative data sources to CASEN are:

- The Encuesta Suplementaria de Ingresos (ESI), conducted by the INE
- The Encuesta de Protección Social (EPS), conducted by the Ministry of Social Protection
- The Encuesta Financiera de Hogares (EFH) from the Chilean Central Bank

##### 1.2.2 *International reporting:*

Chilean data on Income and poverty are also available from the The World Bank PovCalNet database (<http://data.worldbank.org/country/chile>). The World Bank database, as the OECD, uses the CASEN survey for data reporting.

Table 1 below presents the main characteristics of these different sources:

**Table 4. Characteristics of dataset, Chile**

	<b>National Socioeconomic Characterisation Survey (Encuesta CASEN)</b>	<b>Encuesta Suplementaria de Ingresos</b>	<b>Encuesta de Protección Social</b>	<b>Encuesta Financiera de Hogares</b>
Name	The National Socio-economic Survey (Encuesta de caracterización Socioeconómica Nacional - CASEN)	Encuesta Suplementaria de Ingresos	Encuesta de Protección Social	Encuesta Financiera de Hogares
Name of the responsible agency	Data are provided by the Ministerio de Desarrollo Social (Ministry of Social development) – the survey was developed by the MIDEPLAN	National statistical Office (INE)	Ministerio de Protección Social.	Banco Central de Chile
Year (survey and income/wage)	1985, 1987, 1990, 1992, 1994, 1996, 1998, 2000, 2003, 2006, 2009, 2011	Every year since 1990. The survey is conducted as an additional questionnaire, containing 8 questions on earnings from employment and other sources, which is added to the National Employment Survey.	2002, 2004, 2006, 2009	
Period over which income is assessed	Between November and January	Last quarter of the year (October-December).		
Covered population	Covers the whole population including rural areas excluding people who lives areas where access is difficult, which represent only 1.36% of the total population	The whole Chilean territory is covered (i.e both urban and rural) with the exception of areas with difficult access. (This is the same coverage as for the national Employment survey.). People living in collective dwellings (hospitals, prisons, convents, barracks and others) are excluded. It includes persons aged 15 and over.		
Sample size	2006: about 73 700 households; 2009: about 71 500 households; 2011: about 59 100 households	The survey is carried out in 36,000 households (12,000 a month) countrywide, through a system of rotating the sections and choosing a new selection of homes to avoid survey fatigue amongst participants and to keep the sample up to date. Using this system any household included in the survey is interviewed 6 times in an 18 month period.	15 000 households	
Sample procedure	Multistage random methodology. A geographic stratification is used	Similar procedure to the National Employment Survey: Two-level stratified sample. The method of sampling selection is based on probability in two stages with geographic stratification by region and by urban-rural area. The values associated with the design are not self-weighted and are adjusted by an exogenous projection of the population calculated by demographic methods agreed to by the INE and CELADE (the Latin American Demographic Center).		
Response rate	Not specified			
Imputation of missing values	yes			
Other adjustments	Adjustment is made to match national accounts data, by the mean of a factor for each type of income.	Not adjusted with national account.		The income distribution is forced to be equal to the CASEN.
Unit for data collection	household and individual	The sample design of the survey have similar methodological characteristics than the national employment survey in which sampling units are firstly, the sections (residential areas) and secondly, households.		

	National Socioeconomic Characterisation Survey (Encuesta CASEN)	Encuesta Suplementaria de Ingresos	Encuesta de Proteccion Social	Encuesta Financiera de Hogares
Break in series		The survey is re-designed from 2010: Nueva Encuesta Suplementaria de Ingresos		-
Web source	<a href="http://www.ministeriodesarrollosocial.gob.cl/casen/en/index.html">http://www.ministeriodesarrollosocial.gob.cl/casen/en/index.html</a>	<a href="http://www.ine.cl/canales/chile_estadistico/mercado_del_trabajo/encuestas_suplementarias/encuestas_suplementarias.php?lang=eng">http://www.ine.cl/canales/chile_estadistico/mercado_del_trabajo/encuestas_suplementarias/encuestas_suplementarias.php?lang=eng</a>	<a href="http://www.proteccionsocial.cl/index.asp">http://www.proteccionsocial.cl/index.asp</a>	<a href="http://www.bcentral.cl/estadistica-economicas/financiera-hogares/index.htm">http://www.bcentral.cl/estadistica-economicas/financiera-hogares/index.htm</a>

The EFH income distribution is forced to be equal to the CASEN figures. As a consequence, the results are the same by construction and this source cannot be considered as a possible alternative to CASEN for measuring income-related variables.

The EPS is not really more frequent than CASEN (it is conducted every second or every third year) and covers less households (15000) than CASEN or ESI.

For these reasons, the remaining of this note will be mostly focused on the comparison between the CASEN survey and the ESI.

## 2. Comparison of main results derived from sources used for OECD indicators with alternative sources

### 2.1 Income

#### 2.1.1 Time series of Gini coefficients and other inequality indicators

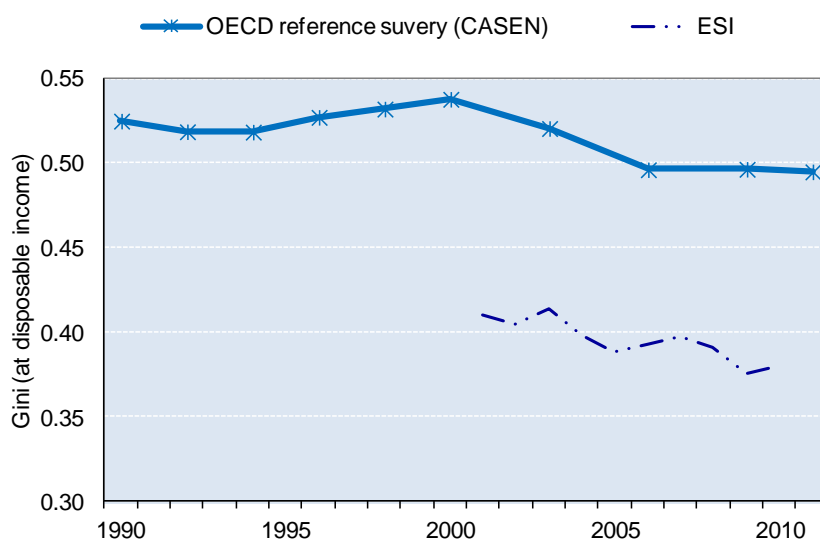
The charts below compare the Gini coefficients and the S80/S20 quintile share ratios from the OECD reference series, based on CASEN<sup>18</sup> with data series based on ESI.

Both indicators computed from CASEN are significantly higher than those based on the Encuesta Suplementaria de Ingresos: the Gini index computed from CASEN is about 25 per cent higher than data from the INE survey; the difference is even higher when considering the quintile share ratio -- in the most recent years, the CASEN ratio is nearly the double of the ESI ratio. In each case, the overall trend is broadly similar in both surveys but there are slight differences for particular sub-periods.

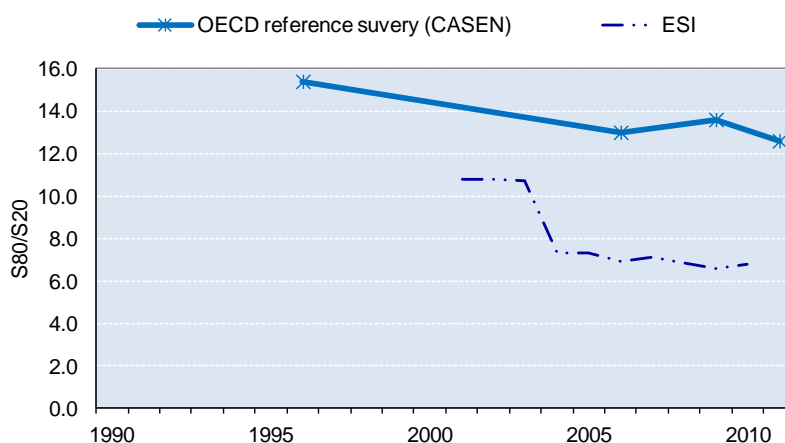
According to both data sources, both inequality indicators decreased over the 2000-2006 period. The ESI data suggest that this is mainly due to a fall in 2003/2004. After 2006, both data series suggest broadly a stability in the inequality indicators. For the ESI data, there was a slight fall in 2009 followed by a small regain in 2010 but this should be interpreted with prudence because a redesign of the survey (with the implementation of the so-called NESI) took place by this time.

<sup>18</sup> Note that the data shown here refer to a data delivery of revised series in December 2012. These indicators are preliminary and have not been completely validated yet.

**Figure 8. Trends in Gini coefficients**

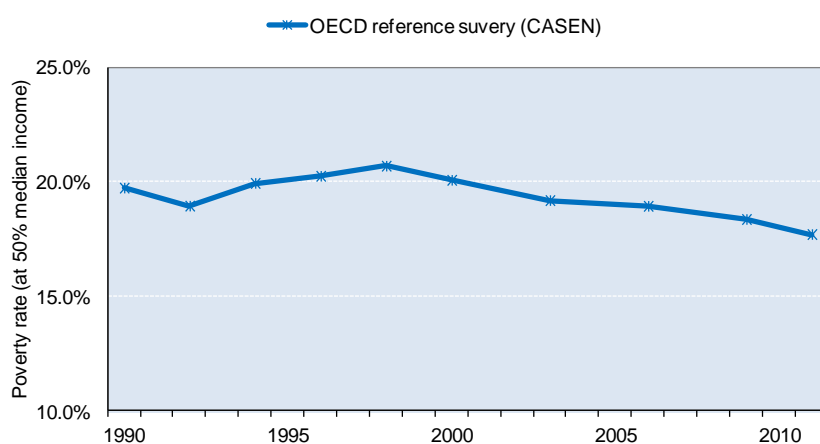


**Figure 9. S80/S20, Chile**



*2.1.2 Time series of poverty rates*

The Chart below shows the movement over time in the poverty rate according to the CASEN survey. On the basis of the observations available, it appears that this indicator decreased monotonically between 1996 and 2011, by 3 percentage points (from 20.7% to 17.7%). It has unfortunately not been possible to include corresponding data based on the ESI, since, for this survey, the statistical information gathered for this preliminary study (mean income by decile) was not specific enough to compute accurate poverty rates.

**Figure 10. Trends in poverty rates**

## 2.2 Wages

See Part II of the present Quality Review.

## 3. Consistency of income components shares with alternative data sources

### 3.1. Comparison of main aggregates: earnings, self-employment income, capital income, transfers and direct taxes

Table 2 shows shares of income components for the latest available year, according to the OECD benchmark series. Unfortunately, such information is not available for the other data sources described in table 1.

**Table 2. Shares of income components in total disposable income, OECD reference series**

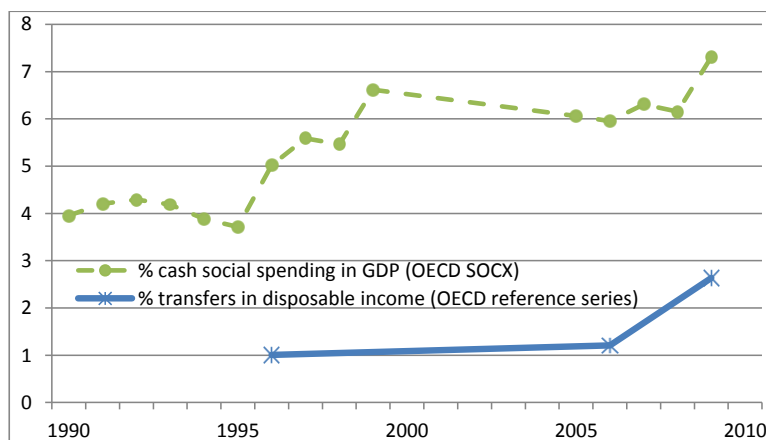
Survey	Year	Unit	Average income			Average income	K	SE	TR	TA	HDI
			EH	ES	EO	Wages	Capital	Self Employment	Transfers	Taxes	
OECD Reference Survey	2009	natcur	1831740	554292	938292	3324324	590532	1500516	123816	-913716	4697569
		% av HDI	39.0%			70.8%	12.6%	31.9%	2.6%	-19.5%	

Table 3 lists in detail the income components which have been considered as part of household income in the CASEN data provided to OECD, including a description of transfer programmes covered.

**Table 3. Income components covered in OECD reference series**

Income components		
<i>Wage and salary income (EH, ES, EO):</i>		
- Wage and salaries (excluding employers' contribution to social security)	Yes	
- Related bonuses and commissions	Yes	
- Goods provided by employers	No	
- Severance and termination pay	No	
- Sick paid day paid by the government	Yes	
- Other	Please specify	
<i>Self-employment income (SE):</i>		
- Profit/losses from unincorporated enterprise	Yes	
- Net values of goods and services produced for final consumption	Yes	
- Other	Please specify	
<i>Capital income, including private pensions, private occupational pensions and all kinds of private transfers (K):</i>		
- Income from financial assets, net of expenses	Yes	Intereses por depósitos; Dividendos por acciones o bonos financieros; Arriendo de Propiedades Urbanas;
- Income from non-financial assets, net of expenses	Yes	Arriendo de Maquinarias, animales o implementos; Arriendo de Propiedades Agrícolas Arriendo de propiedades de temporada Retiro de Utilidades de empresa
- Royalties	No	
- Pensions from individual private plans	Yes	Jubilación o pensión de vejez (de origen privado) Pensión de Invalidez (de origen privado) Pensión de Orfandad (de origen privado) Montepío o Pensión de Viudez (de origen privado)
- Pensions from occupational private plans	Yes	Seguro de desempleo o cesantía Pensión de Alimentos;
- Regular transfers received from/paid to other households	Yes	Dineros aportados por una persona ajena al hogar Donaciones
- Other private transfers	Please specify	Severance and termination pay (if actually unemployed)
<i>Social security transfers from public sources (TR):</i>		
<b>Please specify programmes names in each case (in national language and English)</b>		
- Accident and disability benefits	Yes	Subsidio a la discapacidad mental (mental disability subsidy); Subsidio Familiar Duplo por Invalidez (Disability subsidy); Pensión Básica Solidaria de Invalidez (Basic solidarity Pension for disability); Aporte Previsional Solidario de Invalidez (Solidarity Previsional Support for Disability)
- Old-age cash benefits	Yes	Pensión Básica Solidaria de Vejez (Basic Solidarity Pension for old age); Aporte Previsional Solidario de Vejez (Previsional solidarity support for old-age); Bono Bodas de Oro (50th wedding anniversary Bonus) Jubilación o pensión de vejez (Pagadas por Dipreca, Capredena o INP/IPS) Pensión de Invalidez (Pagadas por Dipreca, Capredena o INP/IPS) Montepío o Pensión de Viudez (Pagadas por Dipreca, Capredena o INP/IPS); Pensión por Leyes Especiales de Reparación (Pagadas por Dipreca, Capredena o INP/IPS)
- Unemployment benefits	Yes	Subsidio de cesantía (Disability subsidy);
- Maternity allowance	Yes	Maternal Assistance Subsidy; Maternal Assistance Subsidy
- Child and/or family allowance	Yes	Subsidio familiar al menor recién nacido (New Born Subsidy); Pensión de Orfandad (Pagadas por Dipreca, Capredena o INP/IPS); Subsidio de Asistencia Familiar (Family Assistance Subsidy); Asignación Social (Social Assignment Subsidy); Bono de Protección Familiar (Family Protection Subsidy); Bono de Egreso (Graduation Bonus); Asignación Familiar (Family Assignment).
- Housing benefits	Yes	
- Other income-tested and means-tested benefits (please specify)	Yes	Bono Invierno (Winter Bonus); Subsidio al Empleo Joven (Young Employment Subsidy); Subsidio de Agua Potable (Drinking Water Subsidy)
- Other	Please specify	
<i>Taxes and social security contributions paid by household (TA)</i>		
- Income taxes	Yes	
- Taxes on wealth	Yes	
- Employees' social security contributions	Yes	
- Other	Please specify	
<i>Imputation procedures</i>		
Please list the above income components that have been imputed and specify the imputation method	All taxes have been imputed. In this procedure we estimate the amount of tax that the individual should have paid to get the net income reported in the data. To do this we apply the tax payment structure reported in Servicio de Impuestos Internos, and estimate the gross income (before taxes and social security payment). After this, we apply an effective tax rate for income components wage and salary, Capital and self employment income. Finally we apply the social security payment to the estimated income, to get the total tax paid by the persons.	

Figure 4 compares the trend in shares of public cash transfers in equivalised disposable income from the OECD reference series with the share of total cash social spending in GDP, reported from the OECD Social Expenditure database (OECD SOCX). OECD SOCX series include pensions, incapacity, family, unemployment, social assistance. Both series show pretty similar trends throughout the period.

**Figure 11. Trends in shares of public social transfers**

#### 4. Metadata of data sources which could explain differences and inconsistencies

##### *Definitions, methodology, data treatment*

One main particularity of the CASEN survey is that micro data from this survey are adjusted to provide income estimates which match the national accounts. This is not the case for any other OECD countries data sources.

The adjustment consists in multiplying the income by (or adding to the income, in the case of property income) a certain factor, which is variable over the years and the types of income. Almost all multiplicative factors are greater than 1, with the exception of those for imputed rents, making the adjusted incomes higher than the unadjusted ones. As increased due to the adjustment is more pronounced in incomes from the highest deciles (i.e. the highest incomes), the Gini coefficient is automatically increased.

According to a June 2011 study<sup>19</sup>, the variation of the Gini coefficient due to the imputations for adjustment to National Accounts figures was regularly around 7 % for the surveys conducted during the period 1990-2006. This makes the Chilean coefficient less comparable to those of other OECD countries. Nevertheless, the consistency over time in the overestimation leaves the analysis of the movements in the coefficient time series unaffected by the adjustment. Adjustment to National account affects, in theory, other indicators related to income distribution. In particular, it is likely to underestimate the poverty rate and to overestimate the quintile share ratio higher. This adjustment may also explain (at least part of) the gap between CASEN and ESI.

Up to the 2011 data provision, another particularity of the CASEN estimates was that imputed rents as well as income in-kind from self-consumption have been added to cash household income. For the most recent 2012 data provision and modification, these income components have no longer been included in order to match other OECD countries data. The revisions were undertaken for the years 2006, 2009 and 2011.

Another possible reason for differences between Chilean CASEN survey and the OECD framework could be found in the way pension benefits and unemployment and work accidents insurance benefit are

<sup>19</sup> Bravo, D. and J. A. Valderrama Torres, "The impact of income adjustments in the CASEN Survey on the measurement of inequality in Chile", *Estudios de Economía*. Vol. 38 – No 1, June 2011, pages 43-65. <http://www.scielo.cl/pdf/ede/v38n1/art03.pdf>

classified between public transfers and private transfers/savings/capital income. In the past (up to 2011), all pension benefits have been coded as “public transfers” including the mandatory private pensions which are managed by the private sector. This has been revised in the 2012 update and modifications: In the current Chilean data, pension benefits are treated only as public transfers when they are provided by the state (i.e. the “old system” pension and pensions to the armed forces), while they are considered as capital income when private. Further, the social security contributions represent 20% of the incomes (it is a flat-rate payment in Chile). While all these 20% had been counted as taxes in the former data delivery, a social security tax of only 7% is imputed now. This is the mandatory health insurance. The remaining 13% are not considered since the return of that part of social security payments is treated in the model as capital income/private transfer and not as public transfer. Only those who answer in the survey that have a working contract are assumed to pay 7% for health insurance and are also assumed to pay taxes. Independent workers are assumed to pay taxes only if they mention in the survey that they file for taxes (“boletas” or receipts). Independent workers are assumed to pay 7% health insurance taxes only if they mention in the survey that they pay social security.

Another issue which raised controversial debate in Chilean and international media refers to a modification in the 2011 CASEN survey, with regard to the 2009 survey, namely the inclusion of a category “other income”. In particular, a question was included to get a better idea of the composition of “other incomes” category. It is not easy to assess how it affects the comparison with previous survey, but it concerns a rather restricted part of the respondents: this question were asked only from those having replied ‘no’ to the question whether they have worked during the week before the survey and ‘no’ to the question whether they have worked during the month before the survey. Still, the controversy is about whether addition of this component “other income” actually would lead to a lower estimate of the number of poor persons. Chilean representatives from the Ministerio de Desarrollo Social and from the Ministry of Finance suggest that a larger part (at least 50%) of this “other income” had actually been recorded in past surveys, and had been hidden in other categories. The Secretariat has requested some sensitivity estimates which include and exclude this income category.

Apart from the methodological changes introduced by this revision, Chilean representatives mentioned an exceptional lump-sum bonus paid in November 2011, while the survey was already ‘in the street’, and that could not be spread over all months of the year. The effect has been minor.

## **5. Summary evaluation**

Overall, whatever the survey (CASEN or ESI), the few income distribution indicators observed in this review roughly lead to the same conclusions in terms of long-term trends.

However, significant differences between indicators from both surveys in levels are observed, which may be due in particular to the inclusion of the above-described adjustment in the CASEN data. This adjustment may limit the international comparability of the data, although CASEN, based on a big sample, is a very well known and a widely used source of information on income distribution and poverty.

The ESI presents the advantage of being annual and can, thus, allow to capture some short-term movements in the indicators. This latter survey, conducted as an additional questionnaire to the National Employment Survey, could also present consistent statistical characteristics with labour market indicators if they were used in a common study.