

# A Theil decomposition of Latin American income distribution in the 20th Century: Inverting the Kuznets Curve?

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## **Abstract**

This paper applies a Theil decomposition method to investigate long run changes in the functional income distribution of 20<sup>th</sup> century Latin America. Kuznets argued that the economic transition from a traditional rural into a modern urban economy eventually results, after an upswing in the early phase of industrialisation, in sustained lower levels of personal income inequality (Kuznets' inverted U-curve hypothesis). In spite of various phases of strong economic growth and profound structural change a sustained decline in inequality has not taken place in Latin America. This paper argues that the apparent persistency of its inequality levels is the consequence of a trade-off between declining rural-urban income differences and increasing urban sector income differences. Urban sector inequality in a sample of major Latin American economies (Argentina, Brazil, Chile) was, from the start of the 20<sup>th</sup> century until the 1970's, comparable to other advanced New World economies (USA, Canada, Australia). Yet, since the 1970's initial levels of rural and rural-urban inequality were overtaken by a rapid increase of urban inequality in virtually all Latin American countries. In some cases this increase has been so pronounced that the Kuznets' curve should be "re-inverted" to accurately picture the secular inequality trend.

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*Keywords:* Latin America, Income Distribution, Kuznets Curve, Theil index, 20<sup>th</sup> Century

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## 1 Introduction

The absence of a comprehensive conceptual framework in which all components of functional income<sup>1</sup> are integrated is considered as an important shortcoming in distributional research (Atkinson 1997). Although literature pays attention to the “ultimate causes” of inequality such as countries’ colonial antecedents, endowment structures, institutional systems and the impact of globalization,<sup>2</sup> the empirical backbone remains largely confined to the partial assessment of wage and skill-differentials, neglecting the role of factor and sector income differentials: In studies where inequality is represented by a single “catch-all” gini-coefficient, functional income components remain hidden in the black-box all-together (Barro 2000, Forbes 2000). Bourguignon and Morrison argue that the role of economic dualism, and particularly of rural-urban dualism, appears to be *largely ignored* in recent literature (1998; p. 234).

Rural-urban dualism forms the cornerstone of Kuznets’ inequality theory. The basic idea is that changes in the functional income distribution as a result of urbanization and industrialization (i.e. modern economic growth),<sup>3</sup> change the structure of the personal income distribution (Williamson 1991). The theory has some appealing aspects. It incorporates the role of asset distribution. It separates the effects of long run structural change from temporary economic shocks and disequilibria, such as hyperinflation, a debt crises or business cycle effects, on the personal distribution of income. And a practical advantage is the availability of an appropriate instrument, the Theil index, which can be used to decompose the functional income distribution and study the complex of “proximate sources” of inequality in depth.

Studying long run changes in the personal income distribution in advanced industrial countries Simon Kuznets concluded that the transition of a traditional rural into a modern urban economy eventually results, after an upswing in the early phase of industrialisation, in sustained lower levels of income inequality. In spite of various phases of rapid economic growth and

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<sup>1</sup> Functional income refers to income which can be directly related to its economic (functional) source, which can either be a production factor (labour, land, capital etc.) or a particular production sector activity.  
<sup>2</sup> Engermann and Sokoloff 2000, Demsetz 1998, Acemoglu et.al. 2001, Acemoglu 2003, Frankema 2005, Wood 1994, Leamer 2000, Richardson 1995, Levy and Murmane 1992, Krugman 1995, Galor and Zeira 1993, Gylfason and Zoega 1998, Goldin and Katz 1998, Easterly and Levine 2003, Leamer et.al. 1999, Spilimbergo et.al. 1999, Persson and Tabellini 1992, Alesina and Rodrik 1994, De Soto 2000 etc..

<sup>3</sup> In his seminal paper Economic Growth and Income Inequality Simon Kuznets presented his ideas regarding “the character and causes of long term changes in the personal distribution of income” (1955: p.1). During the transition from a pre-modern rural economy to an advanced industrial economy personal income inequality increases in the early stage and decreases in a later stage as economic growth sustains and the industrial economy matures. In his book Modern Economic Growth. Rate, structure and spread, Kuznets distinguishes modern economic growth from pre-modern economic growth as the era starting in Great Britain in the second half of the eighteenth century, characterised by unprecedented and sustained increases in output per capita (or individual), or per worker, most often accompanied by an increase in population and usually by great structural changes, that is, changes in social and economic institutions, or practices. In modern times the main structural changes have been in the movement from agricultural to non-agricultural production (the process of industrialization); in the distribution of population between the countryside and the cities (the process of urbanization); in the shifting relative economic position of groups within the nation (by employment status, level of income per capita, et cetera); and in the distribution of goods and services by use. (1966; p.1) See also Kuznets 1957 and 1979.

structural change and contrary to other Western countries, a sustained decline in income inequality levels has not taken place in 20th century Latin America. Scattered inequality figures suggest that the historically high levels of income inequality have been persistent over time and probably even further rose in the last quarter of the previous century. Why did Latin American inequality not demonstrate an inverted U-shape pattern in the 20<sup>th</sup> century? This paper applies a Theil decomposition of Kuznets' analytical framework to assess the impact of structural change on the personal income distribution in 20th century Latin America.

The set up of the paper is as follows. In the section 2 and 3 I develop my main argument. First, Kuznets' analytical framework is introduced (section 2), then the stylized facts of Latin American modern economic development are discussed (3) and subsequently confronted with Kuznets' theory. Section 4 develops an alternative hypothesis of the long run trend in Latin American inequality. In section 5 the Theil decomposition framework is discussed. Section 7 applies the Theil decomposition to analyze manufacturing wage differentials in 20<sup>th</sup> century Latin America and three New World control countries (Australia, Canada and USA). Section 8 studies the trends in manufacturing factor income. Section 9 adopts the informal-formal sector perspective. In section 10 the main findings are tied together by the construction of an aggregate Theil index showing how and when urban inequality overtook rural inequality in Latin America. Section 11 concludes.

## **2 Kuznets' theory of long run structural change and income distribution**

The process of urbanisation and industrialisation can be considered as a reallocation of resources from low-productive rural activities to high-productive urban activities driven by technological and institutional change. Such profound changes in the structure and organization of economic activity directly impacts on the distribution of sector and factor income. According to Kuznets the changes in the functional income distribution driven by rural-urban dualism translate into changes in the personal income distribution via a *between-sector inequality* effect and a *within-sector inequality* effect. The aggregate effect results in diverging personal incomes in the early phase of the economic transition, and converging personal incomes when the economy "drives to maturity".

*Between-sector inequality:* The expansion of the urban sector is rooted in labour productivity growth which creates a temporary widening of the rural-urban income gap. This rural-urban income gap is driven by increasing average urban incomes and an increasing share of people earning an urban income, *ceteris paribus*. Rural-urban dualism dissolves in the long run when structural change sustains and the share of rural income and population marginalizes. Due to technology and demand spill-overs from the urban sector rural labour productivity may ultimately catch up. In the ideal type growth path, rural-urban dualism reflects a transitory stage of economic development.

*Within-sector inequality*: In the course of rural-urban migration and urban sector expansion incomes within the urban sector are likely to polarize. On the one hand a new and growing class of urban entrepreneurs invests in profitable modern urban industries.<sup>4</sup> Unprecedented rate of urban sector growth obviously favours the owners of physical and human capital. On the other hand, the rural labour surplus keeps down the real wages of (unskilled) workers in the urban sector (see also Lewis 1954). Besides this income effect, the total weight of *within-sector inequality* in the overall income distribution increases with the migration of people from the relatively equal rural sector towards the more unequal urban sector. During the stage of industrial maturation urban incomes will converge and *within-sector inequality* will diminish.<sup>5</sup> A sustained demand for industrial labour eventually absorbs the rural labour surplus and pushes up real wages. Moreover, the labour income share in total national income increases as human capital becomes an increasingly important factor in specialised production processes. Public investments in education and health enhance social mobility and institutional developments further ameliorate the position of labourers, for instance via labour unions negotiating for social security and redistributive taxes (Acemoglu 2000, Acemoglu and Robinson 2006).<sup>6</sup> Since labour income is generally more evenly distributed than capital income personal incomes in the urban sector converge. Indeed, the 20<sup>th</sup> century evolution of middle class society and mass consumption would have been unfeasible without this distributive stylized fact (Kuznets 1966, Soltow and van Zanden 1998).<sup>7</sup>

The reinforcing trends in the *between-sector* and *within-sector* inequality yield an inverted U-curve in the long run. In the empirical literature Kuznets' theory has been primarily assessed in terms of this inverted U-curve prediction.<sup>8</sup> This hypothesis has never reached the status of a "law" of economic development however, which has cast severe doubts on the

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4 Since higher savings enhance the capacity to invest in new productive activities and the marginal propensity to save is higher among the rich than the poor, Kaldor (1956) argues that initial income and wealth inequality is good for growth.

5 What exactly demarcates this turning point is difficult to pin down. One can think of increasing real wages as a result of the dissolution of the rural labour surplus. This may be expressed in a trend break in the wage-rent ratio.

6 I am aware that the line of reasoning presented here is in fact a very dense description of a very complicated process which also entails significant changes in formal and informal institutions, political ideology and external shocks etc. Given the lack of space I will not touch upon these issues here however.

7 In explaining the rise of the labour share in six Western countries (UK, France, Germany, Switzerland, Canada and USA) Kuznets also points at the impact of changing ideology: "To conclude: the share of labor in growing net output has increased, particularly in recent decades, because greater investment has been made in maintaining and increasing the quality of labor. Also, a larger relative share of the gains, after the input of resources adjusted for quality has been considered, has gone to labor – possibly an expression of the higher value that society has now assigned, at least in the free market economies, to the claims of living members than to the claims of their material capital" (1966: pp.92).

<sup>8</sup> Which after all is just a hypothesis. In his seminal paper Kuznets concluded "I am acutely aware of the meagerness of reliable information presented. The paper is perhaps 5 per cent empirical information and 95 per cent speculation, some of it possibly tainted by wishful thinking [.....] speculation is an effective way of presenting a broad view of the field; and that as long as it is recognized as a collection of hunches calling for further investigation rather than a set of fully tested conclusions, little harm and much good may result "(1955: p.26) Paukert 1973, Ahluwalia 1976a and 1976b, Robinson 1976, Anand and Kanbur 1993, Barro 2000 etc..

underlying notions of Kuznet's framework. As Fields wrote in 1980 and 2001, "*Growth itself does not determine a country's inequality course. Rather, the decisive factor is the type of economic growth as determined by the environment in which growth occurs and the political decisions taken*" (Fields 1980: pp. 94; 2001: pp. 69).

Nevertheless, the recent upswing of inequality in China,<sup>9</sup> the growth miracle of our age, shows suspiciously large resemblances with Kuznets' "classic" theory (Zhang and Zhang 2003). And the downswing of the Kuznets curve driven by a rise in the labour income share appears to have been manifest in many advanced industrial countries during the 20<sup>th</sup> century.<sup>10</sup> The lack of empirical support for the Kuznets curve does not indicate that the theory is invalid. In my opinion it is more likely that the effects of structural change remain hidden in the black box of catch-all variables, blurred by temporary shocks, incompatible income concepts and, above all, some countervailing forces that complement rather than disarm the distributive effects of long run structural change.

### **3 The stylized facts of Latin American urbanisation and industrialisation**

In spite of a long century of economic growth and profound structural change a sustained decline of the exceptionally high levels of income inequality in Latin America has not occurred. The question is why? In this section the stylized facts of Latin American modern economic development are discussed and subsequently confronted with Kuznets' theory. In section 4 an alternative hypothesis regarding the long run development of Latin American income inequality will be developed.

All Latin American countries except Nicaragua reached the status of middle income countries in the 20<sup>th</sup> century (WDI 2005). Table 3.1. presents nine distinct phases of transition growth in Latin America from 1820 onwards. Sustained growth in Latin America started roughly in the period 1870-1913 (Cardenas et.al. 2000). For more than a century, from 1870 to 1979, economic growth absorbed high rates of population growth. Besides many short-run fluctuations, the Latin American economy faced grave setbacks in the wake of the global crises in the 1930's and 1980's (Thorp 1998). In particular the lost decade of the 1980's revealed the structural weaknesses of Latin American economic development. The entire region suffered a long-standing recession as a

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<sup>9</sup> At the end of the Maoist era income inequality in China was low by all standards, with a Gini coefficient of 28.8 in 1982. Socialist income policies, an egalitarian distribution of land and labour intensive production methods in a predominantly rural economy resulted in a highly egalitarian society. Since the early 1980's, when the transition of the Chinese economy set in under Deng Xiao Ping's liberalisation program, inequality increased. The twin process of industrialisation and urbanisation produced a rural-urban income gap, an increasing share of people depending on more unequally dispersed urban income and rapidly increasing economic rents for a surging capitalist class. In 1998 the gini coefficient of household income distribution was estimated at 40.3 (WIID, 2.A, 2005).

<sup>10</sup> See a.o. Lindert and Williamson 1980, Kaelble and Thomas 1991, Dumke 1991, van Zanden 1995, Morrisson 2000.

result of structural inefficiencies, severe debt problems and great financial instability (Edwards 1995). Growth recovered hesitantly during the 1990's.

Table 3.2. shows that Latin American economic growth was accompanied by profound structural change during the 20<sup>th</sup> century. The percentage shares of industrial and urban economically active population rose from respectively 13,3% and 31,2% in 1900 to 21,8% and 81,2% in 2000. Early industrial development was closely related to the first wave of globalization (1870-1913), which enormously expanded the opportunities for agricultural and mineral exports (Cardenas et.al. 2000). During the post-war period an acceleration of urbanisation and industrialisation occurred. There was an important role for import substitution industrialisation (ISI) policies that were adopted in response to the global crises of the 1930's. These ISI policies aimed at the development of a strong domestic industrial sector, reducing the impact of price and demand fluctuations of the world markets for primary products. The ISI policies explicitly redirected resources from the primary sectors to manufacturing industries. During the reforms of the 1980's and the 1990's ISI programs were replaced by a policy of economic liberalisation (Cardoso and Helwege 1992, Thorp 1998).

**Table 3.1: The Growth of the Latin American\* economy, 1820-2000.**

	1820- 1869	1870- 1913	1914- 1929	1930- 1939	1940- 1949	1950- 1973	1974- 1979	1980- 1989	1990- 2000
Population	1,3	1,8	1,7	1,8	2,5	2,8	2,4	2,1	1,6
GDP	1,4	3,5	3,2	2,3	4,6	5,3	4,9	1,7	3,2
GDP per capita	0,1	1,8	1,5	0,5	2,1	2,6	2,6	-0,4	1,6

\* Compounded average of 8 core countries covering 80% of total population and 88% of total GDP in 2000; Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay, Venezuela ; Source: Maddison 2003; pp. 128-129, 139-140, 149-150

**Table 3.2 The shares of urban and industrially employed in the total economically active population**

	1900	1950	1960	1970	1980	1990	2000
% Urban economically active population	31,2	43,5	50,5	56,7	64,0	74,5	81,2
% Industrial economically active population	13,3	19,2	20,5	22,2	24,8	23,6	21,8

Sources: Urban EAP: Mitchell for 1900; PREALC (1982) for 1950-1980; FAOSTAT for 1990- 2000. Industrial EAP: Mitchell for 1900; ILO (1997) for 1950-1990; WDI (2005) for 2000. **Show countries**

Interpreting the rates of growth and structural change in the light of Kuznetes' theory, we would expect that levels of income inequality start to decline in the course of the post-war period. However, cross-country studies relating per capita GDP levels to income inequality levels (gini's) suggest that Latin American countries are locked into a steady-state at the top of the Kuznets Curve (see for a discussion Fields 2001; pp. 35-71). Latin American inequality levels were and are higher than in any other region in the world and its intra-regional and inter-temporal variation is confined. The Latin American experience is therefore often denoted as a history of "persistent inequality".

It remains to be seen to which extent the levels of income inequality indeed have been persistent throughout the entire 20<sup>th</sup> century however. The scattered data presented in table 3.3 (see also Deininger and Squire 1996 and 1998)<sup>11</sup> display a long run U-curve trend of inequality with a temporary low in the 1970's (for some countries in the 1960's). Because of the poor quality and limited availability of the early post-war distributional data, literature has understandably been hesitant to jump to conclusions (Thorp 1998, Morley 2001, Worldbank 2004). The significant increase in inequality in the 1980's is generally perceived as a temporary consequence of the economic crises and subsequent reforms which hurt the poor and the unskilled workers more than the rich and the skilled (Szekely and Hilgert 2002, Behrman et.al. 2003). But what if this increase is part of a secular trend of structural change?

**Table 3.3: Income inequality levels in Latin America, 1950-2000, Gini-coefficients**

WIID	1950's	1960's	1970's	1980's	1990's	2000-2
Argentina	43,7	38,2*	37,2*	42,4*	46,6*	52,3*
Bolivia		50,5**		52*	58,7	59,1
Brazil	49,1**	55,1	60,1	59,0	59,4	61,2
Chile		46,1	48,5*	54,5	54,5	58,2
Colombia		57,8**	54,7	50,8	56,4	57,4
Costa Rica		50,0	47,1	45,5	47,1	50,1
Dominican republic		47,2*	45,0	48,0	49,0	
Ecuador				43,7	53,9	56,0
El Salvador		50,8**	43,9		53,1	53,8
Guatemala			47,4	57,6	54,0	59,8
Honduras		62,0		58,8	55,3	
Jamaica	56,0		55,4	49,5	47,6	38,6
Mexico	53,0	55,5	51,6	49,9	54,6	53,0
Nicaragua					53,8	54,2
Panama		51,4**	49,8	54,4	55,9	57,8
Paraguay				45,1*	58,2	
Peru		57,6	56,9	57,0	49,3	49,3
Uruguay		38,8*	42,8*	41,1*	43,7*	44,5*
Venezuela		45,3**	40,8	42,9	47,5	45,8
<b>Latin American average unweighted</b>	<b>...</b>	<b>50,5</b>	<b>48,6</b>	<b>51,7</b>	<b>53,4</b>	<b>53,9</b>

\* Urban inequality only; \*\* indicated as low-quality data (unreliable); Source: UNU/WIDER, World Income Inequality Database (WIID 2a), 2005: As a rule of thumb only income Gini's with a national coverage and reliable quality are included. In case I had to deviate from the rule the figure is marked.

<sup>11</sup> Other sources and overviews of cross-country and cross-regional income distribution data can be found in a.o. Jain 1975, Deininger and Squire 1996 and 1998, Li, Squire and Zou 1998, Morley 2001, World Bank 2004.

#### 4 An alternative hypothesis

Assessing long run changes in Latin American inequality confronts Kuznets' theory with some specific Latin characteristics: 1) a highly skewed distribution of land (and rural income) in the pre-industrial economy, 2) a colonial history of chronic labour scarcity and 3) rapid demographic growth and rural-urban migration in the post-war period that leads to unprecedented labour surpluses.

As stated in section 2, Kuznets theory presupposes that urban income is more unequally distributed than rural income. Yet, in Latin America rural inequality has been pervasive as a result of a deeply rooted colonial heritage of land inequality: a bi-polar distribution consisting of a large base of (native) subsistence-farmers and a confined Creole elite of large landowners. The expansion of the rural and mineral resource exports during the 19<sup>th</sup> century probably has intensified rural inequality, since most of the rents were accrued by large landowners (Duncan and Rutledge 1977, Kay 2001). A quick comparison of land gini's in the early 20<sup>th</sup> century clearly indicates the exceptional wealth (and power) of the Latin American landowning elites: Argentina 1914: 0.80, Brazil 1920: 0.78, Chile 1927: 0.84 and Uruguay 1937: 0.78 versus the USA 1880: 0.48, Canada 1931: 0.49, Japan 1909: 0.40, Turkey 1927: 0.56 or even South Africa 1927: 0.62.

Given the high initial levels of rural inequality the shift of landless labourers to the urban economy may have confined rather than enlarged within-sector inequality. Since labour was relatively scarce in many Latin American countries, traditional coercive land and labour market institutions were confronted with the competition of urban industries for unskilled rural labour. Atlantic labour migration has been a notable source of new labour in some countries (particularly Argentina), but this could not prevent an upward trend in real wages in the period 1870-1929 (in the southern cone countries at least). The increasing bargaining power of unskilled labour in the early 20<sup>th</sup> century fuelled social tensions. In the wake of continuous strikes and conflicts over wages and labour conditions, trade unions gained ground and political power (Scobie 1986, Hall 1986, XXXX). There are good arguments to believe that after the increasing inequality effect of the first export boom, within-sector income inequality declined in a substantial part of Latin American countries. This hypothesis is supported by data indicating an increasing wage-rent ratio's in the period 1914-1960's in Argentina and Uruguay (Bertola 2001, Bertola and Williamson 2003).<sup>12</sup>

In the course of the 20<sup>th</sup> century urban incomes diverged as a consequence of increasing imbalances in the growth process. One of the key conditions of balanced growth is that the expansion of the urban sector is sufficient to absorb population growth (Fei and Ranis 1997). From this point of view growth has been balanced in Latin America until the last quarter of the

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<sup>12</sup> In Mexico labour has been relatively abundant and it is interesting to see that the average wage estimates of the Primer Censo Industrial deviate considerably from the patterns observed in Argentina, Brazil, Chile and Uruguay in 1930.

20<sup>th</sup> century, thereafter urban population growth resulted in chronic high rates of underemployment. Table 4.4 illustrates to which extent growth has been balanced in Latin America as compared to the USA. The ratio of the urban economically active population over urban GDP indicates whether urban economic growth has been capable of absorbing urban labour force growth. The USA has clearly been walking on a path of balanced growth, but the Latin American growth record has been balanced until the 1970's. Thereafter, labour force growth exceeded production growth in the urban economy. Contrary to Kuznets' model the labour surplus did not disappear in Latin America, the reservoir just evolved during the 20<sup>th</sup> century.

**Table 4.4: Ratio of Urban Labour Force over Urban GDP, 1960 = 100**

	<b>1960</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
Latin America	100	82,3	71,3	87,2	91,4
USA	100	81,8	74,7	62,4	50,9

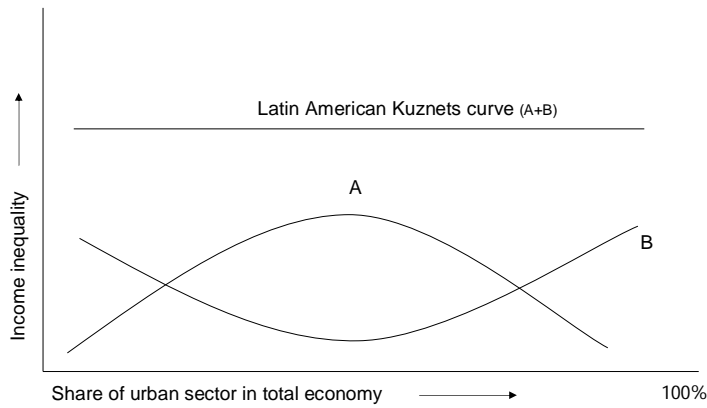
Source: Indicator derived from Smits (2005) calculated on the basis of WDI (GDP data) and FAOSTAT (EAP data)

**Urban sector includes: ....**

The rapid expansion of the labour force was met by significant but insufficient accumulation of human capital. Investments in public education have been lagging behind and education has been spread fairly unevenly compared to other New World countries (Engerman and Sokoloff 2005, Bolt and Frankema 2006). Labour unions were able to influence wage-setting policies, but while higher real wages may have closed part of the traditional income gap between the labour class and capital-owners, it created a new gap between employees in the formal urban sector and informal sector workers, who do not benefit from formal wage policies (Cardoso and Helwege 1992).

Given the important deviations from the basic assumptions of Kuznets' model the expectation of a long run decline in income inequality should be dismissed. A Latin American Kuznets' curve may be depicted as shown in figure 4.1. The between sector inequality (rural-urban) will first increase and later decrease in line with Kuznets' hypothesis (curve A), but the trend of the within-sector inequality is reversed. First, within-sector inequality will decline because of rural-urban migration, but when migration rates and population growth overtake the expansion of the urban economy within-sector inequality will start to increase (curve B). The aggregate outcome may be one of persistency, depending on the timing and relative weight of counteracting movements. This is all an act of speculation of course, but some parts of this hypothesis can be put to the test with a Theil decomposition of sector and factor incomes.

**Figure 4.1: A Latin American Kuznets curve of income inequality**



A-curve: between sector inequality; B-curve: within-sector inequality

### 5 A Theil decomposition of Kuznets' analytical framework.

The Theil index<sup>13</sup> (or Theil coefficient) (Theil 1967) can be formally written as:

$$T = \sum_i w_y^i ((\log w_y^i) - (\log w_e^i)) , \text{ which is equivalent to, } T = \sum_i w_y^i (\log w_y^i / \log w_e^i)$$

Where the Theil index  $T$  sums up over the log percentage share of income  $w_y$  minus the log percentage share of employment  $w_e$  of  $i$  number of sectors, weighted for the percentage share of income of each sector  $i$  in total income. If the employment share  $w_e$  of an arbitrary sector  $i$  is larger than its income share  $w_y$ , the sector generates less income than can be “expected” on the basis of its employment share. In this case its contribution to the Theil index is negative. If the income share exceeds the employment share a sector’s contribution to inequality becomes positive. If the income and employment share are identical the contribution to inequality is zero. The logarithmic specification of the Theil index ensures that the sum of  $i$  sectors contributions to inequality is a positive number between zero and one, where zero indicates perfect equality and numbers closer to one indicate greater inequality.<sup>14</sup>

<sup>13</sup> An excellent and insightful discussion of technical details of the Theil index is given by Conceição, P. and Ferreira, P. (2000) *The Young Person’s Guide to the Theil Index: Suggesting Intuitive Interpretations and Exploring Analytical Applications*, UTIP Working Paper no. 14

<sup>14</sup> It should be noted that the Theil gives attaches exponential weight to higher “levels” of inequality and should not be linearly interpreted.

Extending this technique to Kuznets' theory we obtain the Theil index by aggregating the between-sector and within-sector inequality components as follows,

$$T^{TOT} = T^{U,R} + w_y^R \times T^R + w_y^U \times T^U \quad [5.1]$$

Where, the total Theil is the sum of the rural-urban Theil  $T^{U,R}$  (between-sector inequality), the Theil of rural-inequality  $T^R$  weighted for the share of the rural sector in total national income  $w_y^R$ , and the Theil of urban-inequality  $T^U$  weighted for the share of the urban sector in total national income  $w_y^U$  (within-sector inequality). In the remainder of this paper this core framework will be further broken down in relation to the available functional income data.

## 6 The distribution of rural income

Given the lack of reliable and comprehensive rural income data for the pre-war period it is hard to estimate the Theil of rural inequality precisely. Figures on the distribution of land are more widely available from IIA and FAO surveys and can be used for spatial and temporal comparison; land distribution data are derived from surveys using a clear, uniform and consistent concept of land holdings<sup>15</sup> which is sustained over time. The distribution of land holdings can be expressed by a Theil coefficient. In table 6.1 the land inequality figures for Latin American countries and the USA are shown for four consecutive periods 1900-1920, 1921-1949, 1950-1973 and 1974-2000. The figures are derived from Frankema (2006).

Land inequality in Latin America has been, from colonial times onwards, higher than in any other region in the world. The global comparison of land inequality levels in Frankema (2006) reveals an average land gini of 0,80 in South America, 0,72 in Central America and 0,68 in the Caribbean, against a world average of 0,59. In a ranking of 111 countries from high to low land inequality no less than 16 Latin American countries appear in the top 20! In table 6.1 we see that Haiti is the great exception, but that all other countries obtain substantially higher levels of land inequality than the average 20<sup>th</sup> century Theil of the USA. Table 6.1 further shows that land inequality in most countries is also rather persistent during (parts of) the 20<sup>th</sup> century. Colombia and Panama have probably witnessed the greatest changes.

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<sup>15</sup> "Land holding" refers to the disposable amount of land per farm, which is not the same as the land owned by the farmer. Land property is generally more unequally distributed than land holdings, depending on the share of land under tenure. The distribution of land holdings therefore serves as a lower benchmark of the ownership distribution. The distribution of land holdings is a clear analytical concept as it captures the "access" to land as a production factor. A limitation of both concepts is that differences in land quality are not taken into account and there is little that can be done to correct this.

**Table 6.1: The Theil-index of land inequality in 19 Latin American countries and the USA, 1900-2000**

	1900-1920	1921-1949	1950-1973	1974-2000
Argentina	0,65	0,65	0,67	0,65
Brazil	0,59		0,61	0,63
Chile		0,75	0,82	0,75
Colombia			0,64	0,49
Costa Rica			0,50	
Dominican Republic			0,54	
Ecuador			0,67	0,55
El Salvador			0,62	
Guatemala			0,60	
Haiti			0,17	
Honduras			0,46	0,42
Jamaica			0,58	
Nicaragua			0,53	
Panama			0,43	0,66
Paraguay			0,85	0,80
Peru			0,82	0,71
Puerto Rico		0,47	0,47	0,50
Uruguay		0,56	0,59	
Venezuela			0,82	
USA	0,25	0,31	0,41	0,46

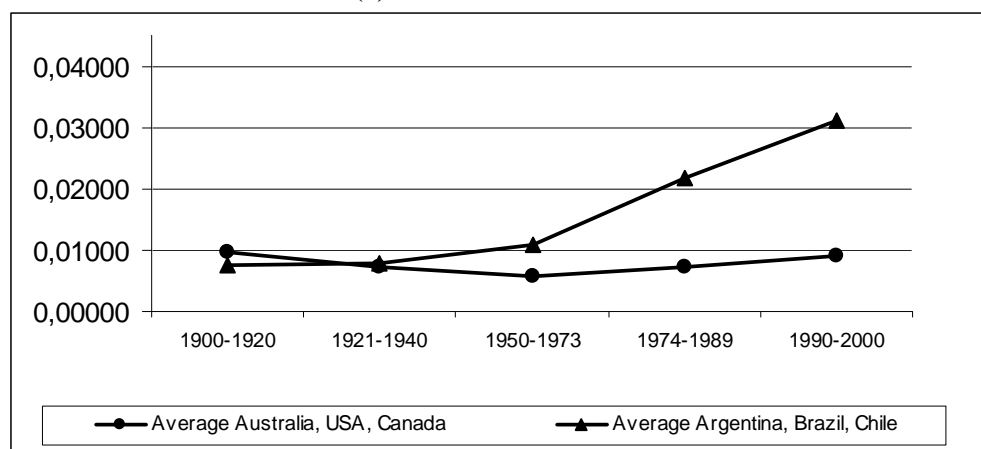
How does a measure of land inequality fit into a measure of rural-income inequality? This obviously requires some very crude, but I think defensible, assumptions. Land and unskilled labour are the two ultimate source of factor income in the rural economy. If we assume that unskilled labour remunerations are uniform, that is, undifferentiated, the distribution of land income determines the distribution of rural income. The value of both factor contributions in production can be estimated by applying various scenarios of wage-rent ratios, for instance those developed by Bertola (2005) (see further section 9). Above all it should be pointed out that estimating comparative trends in rural inequality is a key subject of inequality research in its own right, but that it does not have high priority in this paper that focuses on trends in urban inequality. Indeed, the weight of the rural Theil in the Total Theil declines drastically in the course of the 20<sup>th</sup> century, from around 0.7 in 1900 to less than 0.2 in 2000 (see table 3.2, section 3).

## 7 20th century trends in the distribution of manufacturing income

### 7.1 The development of manufacturing wage inequality

Industrial statistics offer a unique opportunity to decompose manufacturing income. Given the large size and variety of manufacturing sector activities the spread in manufacturing income gives a good picture of inequality levels in the formal urban economy. The administrative separation of labour remunerations and value added enables a detailed analysis of wage differentials and because own-account workers are excluded from the industrial surveys it is possible to make a clear distinction between labour income and capital income. Moreover, since industrial survey data go far back in time for some countries an assessment of trends across the 20<sup>th</sup> century is possible; i.e. three Latin American countries (Argentina, Brazil and Chile) and three New World countries (USA, Canada and Australia). For both groups of countries the Theil index of manufacturing wage inequality is presented for five consecutive periods, 1900-1920, 1921-1940, 1950-1973, 1974-1989 and 1990-2000. The data are standardized to the 20-sector classification of ISIC 1<sup>16</sup> and presented in figure 7.1.

**Figure 7.1: Manufacturing labour income inequality in the 20<sup>th</sup> century: Latin America (3) versus New World countries (3).**



Source: See appendix table A.2

<sup>16</sup> The International Standard of Industrial Classification (ISIC) applied in industrial surveys, guarantees a consistent link between employment, wages and value added. Since the ISIC has only been applied to post-war surveys and has been revised several times, I synchronised the data in order to make the Theil estimates comparable. A compatible sector classification does not mean that all sectors necessarily have to be present, since sector structures change over time and differ from country to country, and as far as this influences sectoral income differentials, this should be included in the Theil estimate. The pre-war benchmarks deviate slightly from the ISIC 1 as some sectors were non-existent at that time and others, such as the food and textile industries, were administered at a more disaggregated level. These pre-war surveys nevertheless include 15 to 19 sectors which is reasonably comparable to the 20 sectors listed in the ISIC 1. It should be noted that the variety of productive activities was smaller in the early period, so the potential spread of sectoral incomes was naturally smaller.

Figure 7.1 shows that the pre-war levels of manufacturing wage inequality in the Latin American countries were comparable to the New World countries' levels and only slightly diverged until the 1970's. The increase in wage differentials in the New World after the 1970's is in line with the established view in the literature.<sup>17</sup> Yet, the increase in Latin America was much more pronounced than in the New World. The Theil index jumped from ca. 0.01 to 0.03 in Latin America, whereas in the New World the Theil remains just below 0.01. These results support the hypothesis formulated in section 4. If the manufacturing sector in Argentina, Brazil and Chile is representative for the general movement of the income distribution in the urban sector of the Latin American economies, than these figures show that urban inequality has increased rather than decreased during the 20<sup>th</sup> century and that the first half of the 20<sup>th</sup> century was characterised by comparatively low levels of urban sector inequality.

Are Argentina, Brazil and Chile representative for Latin America? In table 5.1 the post-war Theil estimates for 15 Latin American countries and the three New World countries are presented. The surveys are standardised to ISIC 1 and for the post-revision (1968) periods to ISIC 2 as well. The table also presents an unweighted average Theil for the whole Latin American region and the three New World countries (underlying data are presented in the appendix table A.2). The Theil estimates confirm the trend observed in Argentina, Brazil and Chile. Except for Colombia, all countries have experienced a substantial increase of sectoral wage inequality since the 1970's. It does not matter whether a 20 or a 28 sector classification is used to determine sectoral wage differentials. It is important to note that the intra-regional variation in manufacturing wage inequality is considerable. Argentina, Colombia, Costa Rica and Mexico stand out by comparatively low levels in the 1990's. Guatemala and Peru have a Theil index exceeding 0.04 in the 1990's. Panama stands out as the country having seen the most rapid rise in manufacturing wage inequality during the second half of the 20<sup>th</sup> century, with a level of .007 in 1961 and 0.041 in 1994.

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<sup>17</sup> See ao. Wood 1994, Richardson 1995, Levy and Murnane 19XX, Williamson 1998 etc.

**Table 7.1: A comparison of manufacturing labour income inequality, focusing on the second half of the 20<sup>th</sup> century: Latin America (15) versus New World countries (3).**

	1900-1920	1921-1940	1950-1973	1974-1989	1990-2000	1974-1989	1990-2000
			20 sectors	20 sectors	20 sectors	28 sectors	28 sectors
Argentina	0,006	0,009	0,006	0,014	0,022	0,015	0,023
Bolivia			0,019	0,023	0,038	0,025	0,040
Brazil	0,009	0,009	0,013	0,027	0,047	0,027	0,048
Chile	0,008	0,005	0,014	0,025	0,027	0,026	0,029
Colombia			0,020	0,015	0,018	0,017	0,019
Costa Rica			0,008	0,015	0,018	0,015	0,019
Dominican Republic			0,021	0,031	na	0,031	na
Ecuador			0,016	0,012	0,037	0,014	0,039
El Salvador			0,013	0,015	0,028	0,016	0,030
Guatemala			0,021	0,030	0,034	0,032	0,046
Mexico			0,010	0,010	0,017	0,011	0,018
Panama			0,007	0,022	0,040	0,023	0,041
Peru			0,012	0,017	0,047	0,018	0,048
Uruguay			0,012	0,015	0,030	0,016	0,031
Venezuela			0,013	0,013	0,032	0,014	0,035
<b>Latin America</b>	<b>0,007</b>	<b>0,008</b>	<b>0,014</b>	<b>0,019</b>	<b>0,031</b>	<b>0,020</b>	<b>0,033</b>
Australia	0,014	0,009	0,002	0,003	0,007	0,003	0,008
Canada	0,010	0,005	0,007	0,008	0,009	0,008	0,010
USA	0,006	0,007	0,007	0,012	0,010	0,013	0,011
<b>New World</b>	<b>0,010</b>	<b>0,007</b>	<b>0,006</b>	<b>0,008</b>	<b>0,009</b>	<b>0,008</b>	<b>0,010</b>

Source: See appendix table A.2

## 7.2 The development of skill-premiums in manufacturing

Another question is to which extent sectoral wage differentials reflect skill-differentials? In the industrial country statistics between 1963 and 1991 a distinction is made between the number and wages of operatives and employees. This distinction (which unfortunately is not maintained in the UNIDO yearbook series starting in 1995) enables the analysis of within-sector wage differentials: the average wage of blue collar workers versus the average wage of white collar workers. Table 7.2 presents the aggregate results for 12 Latin American countries and the three New World countries. In addition the separate Theil of sectoral blue collar income and white collar income is presented.

Table 7.2 reveals first of all that the wage gap between blue and white collar workers in the New World countries is significantly smaller than in all Latin American countries, except Argentina. It is unclear however whether the rise in manufacturing labour income inequality since the 1970's is really driven by an increasing gap between blue and white collar wages. In Bolivia, Chile and Venezuela the wage gap has expanded substantially since the 1970's, while in Brazil and Colombia the wage gap narrowed.

**Table 7.2: The ratio of average blue collar wages over white collar wages and respective Theil indices, Latin America (12) vs New World (3), 1960-1989.**

	1960's			1970's			1980's		
	Ratio blue/white	Theil blue	Theil white	Ratio blue/white	theil blue	Theil white	Ratio blue/white	theil blue	theil white
Argentina	0,77	0,0036	0,0017	0,67	0,0069	0,0119	0,63	0,0128	0,0456
Bolivia				0,59	0,0148	0,0318	0,23	0,0117	0,0139
Brazil	0,45	0,0093	0,0209	0,47	0,0230	0,0133	0,60	0,0381	0,0301
Chile	0,33	0,0240	0,0147	0,38	0,0148	0,0148	0,28	0,0357	0,0175
Colombia	0,43	0,0120	0,0094	0,44	0,0141	0,0108	0,56	0,0139	0,0142
Ecuador	0,39	0,0100	0,0239	0,44	0,0072	0,0067			
Guatemala				0,30	0,0134	0,0266	0,39	0,0311	0,0523
Mexico	0,49	0,0098	0,0161	0,54	0,0155	0,0089	0,50	0,0081	0,0069
Panama	0,47	0,0065	0,0054	0,48	0,0178	0,0089			
Peru	0,42	0,0093	0,0240	0,41	0,0111	0,0089	0,45	0,0254	0,0182
Uruguay				0,43	0,0128	0,0097	0,45	0,0120	0,0104
Venezuela	0,40*	0,0107	0,0057	0,17	0,0053	0,0060	0,17	0,0047	0,0056
<b>Latin America</b>	<b>0,47</b>	<b>0,0106</b>	<b>0,0135</b>	<b>0,44</b>	<b>0,0131</b>	<b>0,0132</b>	<b>0,43</b>	<b>0,0193</b>	<b>0,0215</b>
Australia	0,77	0,0040	0,0007	0,76	0,0026	0,0023	0,83	0,0048	0,0051
Canada	0,72	0,0098	0,0027	0,74	0,0084	0,0022	0,69	0,0125	0,0036
USA	0,65	0,0110	0,0032	0,65	0,0107	0,0137	0,64	0,0436	0,0370
<b>New World</b>	<b>0,71</b>	<b>0,0083</b>	<b>0,0022</b>	<b>0,72</b>	<b>0,0073</b>	<b>0,0061</b>	<b>0,72</b>	<b>0,0203</b>	<b>0,0152</b>

(unweighted averages)

Source: See appendix table A.2; Venezuela 1971.

The decomposition of the Theil index of manufacturing labour income into blue and white collar wages further reveals that the increasing income differentials since the 1970's applied to both groups of workers. In the majority of Latin American countries and in all New World countries the average sectoral wages of blue and white collar workers became spread more unevenly. This means that the observed inequality trend should first and for all be interpreted as a result of labour income changes between, rather than within manufacturing sectors. In some countries the sectoral inequality may be driven by an increasing white-collar premium, yet in other countries sectoral inequality increased while the wage gap between blue and white collar workers narrowed. Mexico, Uruguay and Colombia do not fit in either of these two scenarios however (at least until the 1980's). One real Latin American stylized fact can be maintained: manufacturing sectoral wage differentials in the 1990's are substantially higher than in the period 1950-1973. Colombia is the single exception confirming this rule.

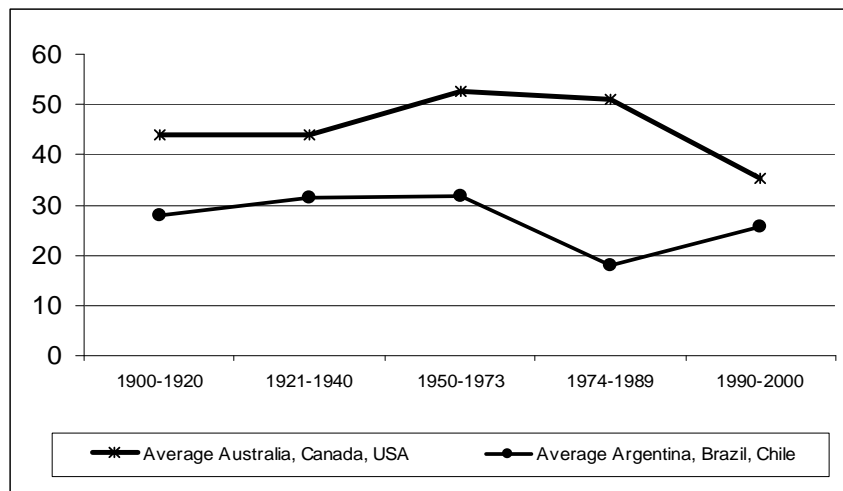
### 7.3 The labour and capital income share in manufacturing value added

The distribution of labour-capital income is crucial in Kuznets' explanation of the secular trend of income inequality. Since labour income is considered to be more evenly distributed than capital income, an increase in the labour-capital income ratio is likely to reduce personal income inequality and vice versa. Due to the high capital-intensity of the manufacturing sector the labour-

capital income ratio is usually lower than for the total economy including labour-intensive service industries.

Figure 7.2 presents manufacturing labour income shares for the six countries in the 20<sup>th</sup> century. The figure shows that labour income shares in Argentina, Brazil and Chile have been systematically lower than in Australia, Canada and the USA during the entire 20<sup>th</sup> century (see also Hofman 2001). The Latin American labour income share increases slightly during the 20<sup>th</sup> century until the 1970's from 28% to ca. 32%, followed by a steep fall in the period 1974-1989 to 18%, which is probably related to the effects of the economic crises. During the 1990's the labour income share recovered to 28%, which is still lower than the level in the 1970's.

**Figure 7.2: Manufacturing labour income shares in the 20<sup>th</sup> century: Latin America (3) versus New World countries (3).**



Source: see Appendix table 2.A, Argentina 1974-1989 on the basis of the World Bank, *World Tables 1994*, pp. 100-101.

*[Insert figures and discussion on the distribution of capital income per establishment]*

## 8 The development of the urban informal sector in Latin America

Since many informal sector activities and earnings are unobserved it is impossible to execute a Their decomposition of informal sector income. It is possible however to obtain data about the relative magnitude of the informal sector as a percentage share of the total (urban) economically active population. The impact of the informal sector on total income inequality predominantly depends on its comparative size. Within-informal sector income differences are likely to be confined since the far majority of informal sector workers earn an income near subsistence level. Indeed, the gap between average informal and formal sector incomes is likely to be the decisive factor.

The ILO has devised a simple but consistent method to measure the size of the informal sector on the basis of economically active population data derived from household surveys and population censuses. The method basically involves a classification of own account workers and unpaid family workers into distinct categories. The categories consist of agricultural self-employed (farmers), professional and technical self-employed (i.e. lawyers, ICT-workers etc.), domestic servants and other self-employed. The first two categories are respectively classified as workers in the traditional agricultural sector (distinct from employees working in modern agricultural enterprises) and urban self-employed in the formal sector. The latter two categories are considered to consist of informal sector workers.

The shortcoming of this classification is that it probably overstates the size of the urban informal sector since the large heterogeneous category of other self-employed may include micro-enterprises in the formal sector, as for instance retailers. It can be expected to give a rather accurate picture of time trends however, and I will use it primarily for this purpose. In table 8.1 the average figures for Latin America for the period 1950-1999 are presented. These figures are based on the data of 12 Latin American countries given in appendix table A.3.

**Table 8.1: Structural change of the economically active population and the development of the informal and formal urban sector, Latin America (12), 1950-1999**

	Urban formal sector		Urban informal sector		Urban	Rural
	Total	Independent Workers	Domestic Services	Total	Total	Total
<b>Latin America (unweighted average)</b>						
1950	32,2	8,6	5,3	13,9	46,1	53,9
1960	36,5	10,3	5,5	15,8	52,3	47,7
1970	41,7	11,8	5,6	17,4	59,1	40,9
1980	46,2	13,8	5,9	19,7	65,8	34,2
1990	52,0	18,1	4,4	22,5	74,5	25,5
1999	54,6	20,5	4,9	25,4	80,0	20,0

Source: see appendix table A.3

Table 8.1 shows that in 1950 the majority of Latin Americans were employed in the rural sector (54%) and only fifty years later about four-fifth (80%) were working in the urban sector. The formal and informal urban sector expanded correspondingly, from 32 to 55% and 14 to 25% of the labour force respectively. The data demonstrate that the growth of the urban informal sector kept pace with the growth of the formal urban sector. When focusing on the independent informal sector workers (excluding domestic servants) the ratio of informal to formal sector workers first rose marginally from 26.7 in 1950 to 28.3 in 1970 and 29,8 in 1980 but then rapidly increased to 34.8 in 1990 and 37.5 in 1999.

These figures support the hypothesis formulated in section 4. In most Latin countries rural-urban migration accelerated during the post-war period. Because of the diminishing relative magnitude of the rural economy the impact of the rural-urban income gap on total income inequality gradually declined. However, while the rural-urban income gap became smaller the

urban income gap opened up. The crucial turn in the development of the informal sector has to be located somewhere in the late 1970's and early 1980's, since from that time onwards the informal sector expanded more rapidly than the urban economy as a whole.

## 9 Accounting total inequality in the 20<sup>th</sup> century: An inverted Kuznets curve?

This section presents the aggregate trends in the comparative development of the functional income distribution in the 20th century for Argentina, Brazil and Chile. The USA serves as a comparative benchmark. The four main components of the functional income distribution, i.e. rural inequality, rural-urban inequality, urban informal-formal inequality and urban formal inequality are tied together in the comprehensive framework of the total Theil index as presented in section 5. After the formal derivation of the framework and its assumptions the empirical results will be presented.

Equation 5.1 was the departure point of our inequality accounting exercise:

$$T^{TOT} = T^{U,R} + w_y^R \times T^R + w_y^U \times T^U \quad [5.1]$$

The rural-urban Theil  $T^{U,R}$  is directly estimated with a weight  $w$  of 1, since it covers the income and labour force of the total national economy. The rural Theil is weighted according to the rural income share in national income  $w_y^R$ . Rural inequality can be further decomposed into the respective Theil coefficients of the factor income shares of rural labour  $w_y^{RL} \times T^{RL}$ , and land  $w_y^{RK} \times T^{RK}$ , and the between-factor inequality of labourers and land-owners  $T^{RL,RK}$ .

$$T^{TOT} = T^{U,R} + w_y^R \times T^{RL,RK} + w_y^{RL} \times T^{RL} + w_y^{RK} \times T^{RK} + w_y^U \times T^U \quad [9.1]$$

The urban sector Theil is decomposed twice. The first decomposition contains the between-sector inequality of the informal and formal sector. The second decomposition contains the between-factor inequality of labourers and capitalists within the urban formal sector. Taking  $w_y^U \times T^U$  from equation 8.1 and including informal-formal sector dualism equation 8.2 is obtained,

$$w_y^U \times T^U = w_y^U \left( T^{UI,UF} + w_y^{UI} \times T^{UI} + w_y^{UF} \times T^{UF} \right) \quad [9.2]$$

Extending equation 8.2 by including the separate Theil indices of labour and capital income in the urban formal sector  $w_y^{UF} \times T^{UF}$  equation 8.3 is obtained,

$$w_y^U \times T^U = w_y^U \left( T^{UI,UF} + w_y^{UI} \times T^{UI} \right) + w_y^U w_y^{UF} \left( T^{UFL,UFK} + w_y^{UFL} \times T^{UFL} + w_y^{UFK} \times T^{UFK} \right) \quad [9.3]$$

Substituting 8.3 into 8.1 gives the comprehensive Theil framework,

$$\begin{aligned}
T^{TOT} &= T^{U,R} \\
&+ w_y^R \times (T^{RL,RK} + w_y^{RL} \times T^{RL} + w_y^{RK} \times T^{RK}) \\
&+ w_y^U (T^{UI,UF} + w_y^{UI} \times T^{UI}) \\
&+ w_y^U w_y^{UF} (T^{UFL,UFK} + w_y^{UFL} \times T^{UFL} + w_y^{UFK} \times T^{UFK})
\end{aligned} \tag{9.4}$$

This Theil framework can be empirically estimated by imposing some restrictive assumptions for the pieces of information that are lacking. I will discuss these restrictions one by one. It is important to notice that, given the line of argumentation followed above, the assumptions were made in such a way that the extent of urban inequality is more likely to be underestimated than overestimated. In other words, the restrictions of the empirical assessment of the Latin American development of the urban sector Theil are on the “safe” side.

- 1) Inequality in rural income is assumed to be exclusively driven by the distribution of land  $w_y^{RK} \times T^{RK}$  and land generates constant returns to scale. For the distribution of land holdings  $T^{RK}$  a Theil index is available. The imputed weight of land income is 0.5 **[apply various scenarios]**. Rural labour income is assumed to be perfectly equally distributed, so  $T^{RL}$  is zero.  $T^{RL,RK}$  is unknown and for the time being assumed to be captured by the land Theil **[adjust]**.
- 2) The Theil of manufacturing labour and capital income is assumed to represent total urban formal sector income inequality  $T^{UF}$  **[adjust]**.
- 3) Income within the urban informal sector is assumed to consist exclusively of labour income, which is perfectly equally distributed among the informal sector labour force. The urban informal-formal sector Theil  $T^{UI,UF}$  is determined by attributing the average wage of manufacturing workers to the urban formal labour force and the minimum wage of manufacturing workers (the lowest sector wage earned) to the informal sector labour force.
- 4) The actual distribution of manufacturing capital income  $w_y^{UFK} \times T^{UFK}$  is unknown. The Theil of capital income in the urban formal sector is estimated on the basis of sectoral differentials of manufacturing value added per employee.

Including these restrictions in the model, equation 8.4 can be simplified to,

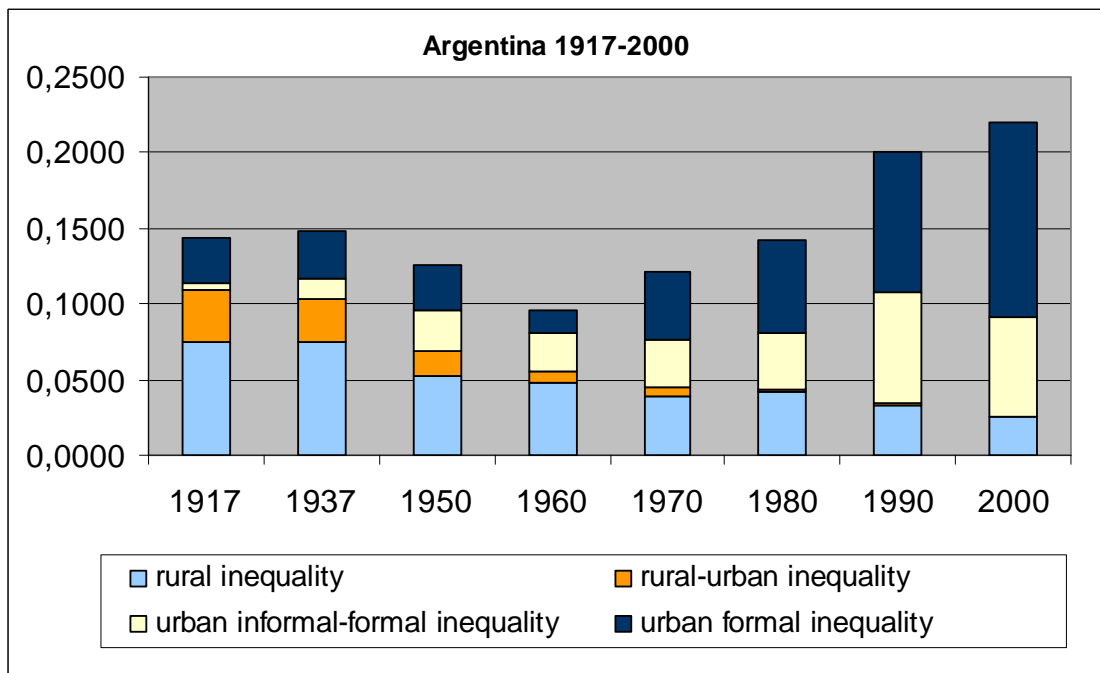
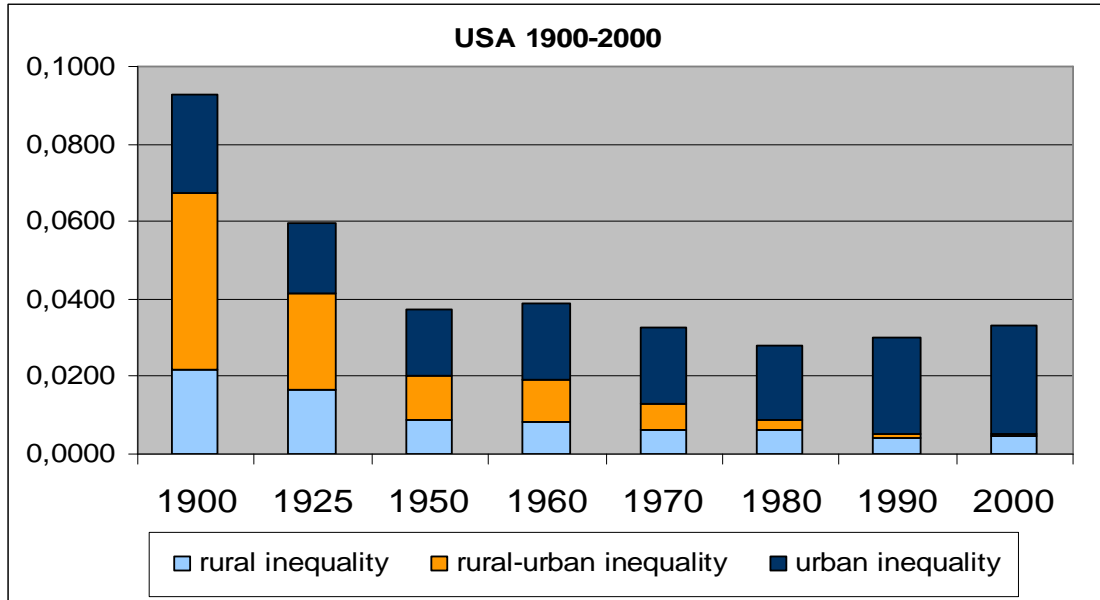
$$\begin{aligned}
T^{TOT} &= T^{U,R} \\
&+ w_y^R \times (w_y^{RK} \times T^{RK}) \\
&+ w_y^U (T^{UI,UF}) \\
&+ w_y^U w_y^{UF} (T^{UFL,UFK} + w_y^{UFL} \times T^{UFL} + w_y^{UFK} \times T^{UFK})
\end{aligned} \tag{9.5}$$

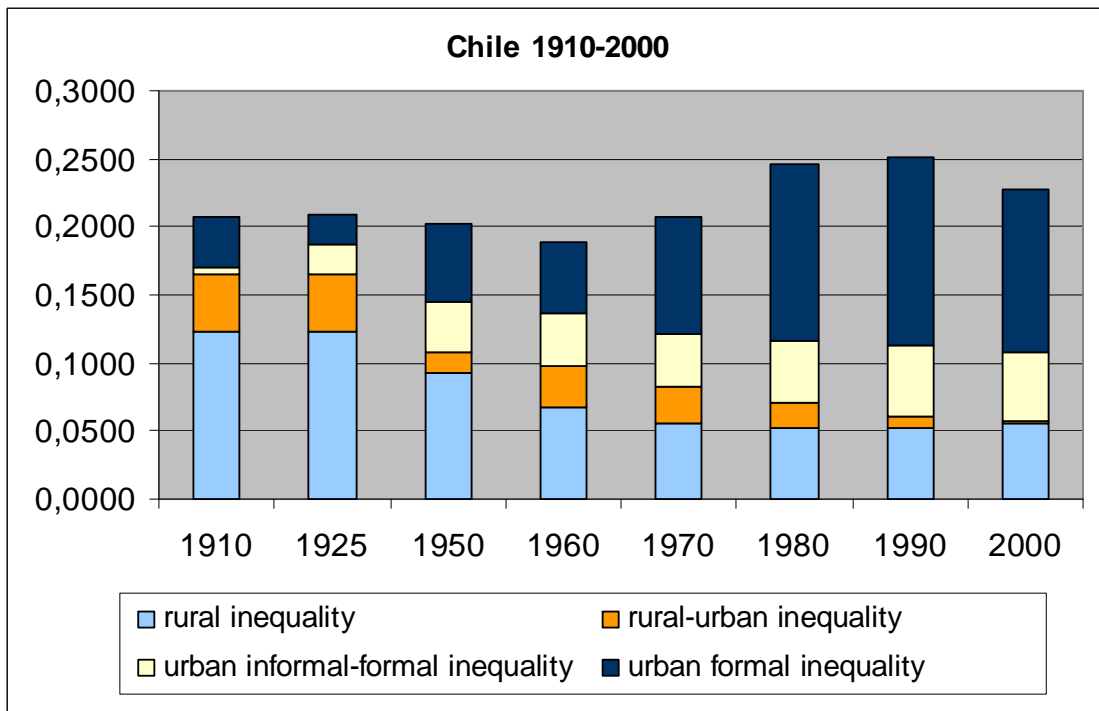
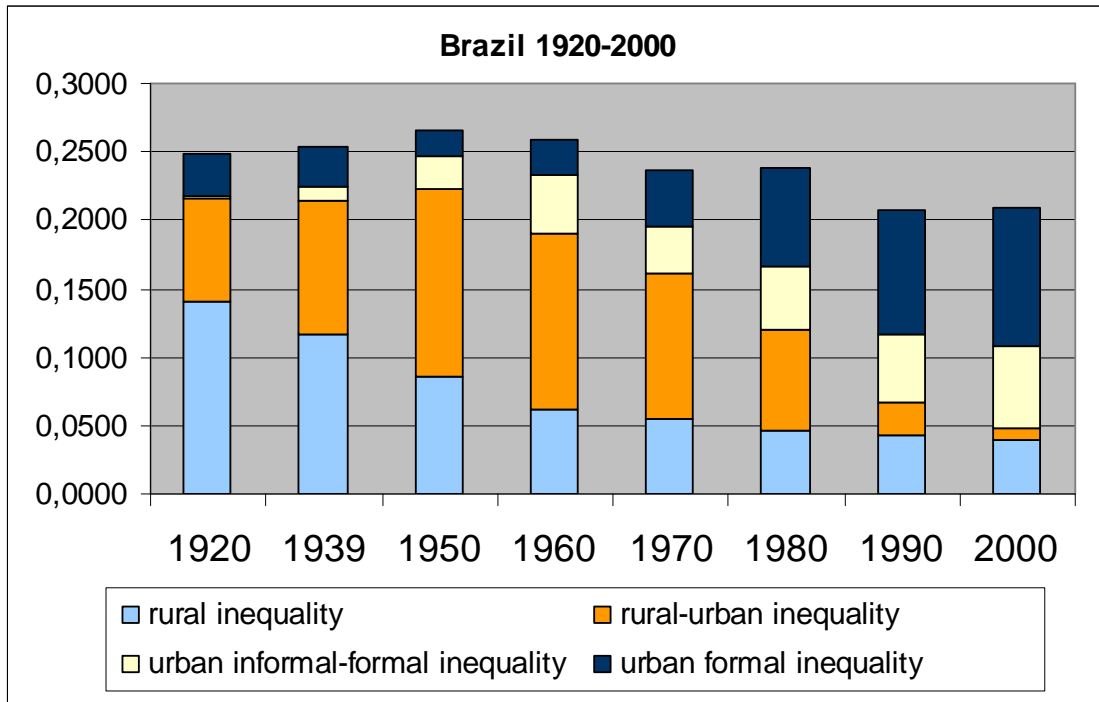
In figure 9.1. the total income inequality Theil estimates are presented for 8 benchmark years in the 20<sup>th</sup> century. The underlying sector contributions to inequality are made visible in the stacked column charts. The charts can be interpreted as a picture of the secular trend of functional income inequality in the 20<sup>th</sup> century, but have to be interpreted very carefully, with the discussed restrictions in mind.

The USA demonstrates an “ideal type” Kuznetsian downswing of inequality until the 1970’s. Both rural inequality and rural-urban dualism decline significantly during the 20<sup>th</sup> century. Moreover, urban inequality decreases until the 1970’s, even while the size (and therefore the weight) of the urban income share in total national income increases. The increase of urban formal sector inequality since the 1980’s is the result of increasing manufacturing wage inequality, rather than a larger weight of the urban economy in the total economy. The three Latin American countries deviate significantly from the US pattern in several respects. The aggregate level of the Theil index reveals greater persistency, especially in Brazil and Chile. In Brazil a slight declining trend of inequality across the 20<sup>th</sup> century can be observed, whereas Chile reveals a slight upward trend towards the 1990’s and a slight downturn in the last decade. In Argentina the rise of the Theil since 1960 is most pronounced.

The case of Brazil illustrates some of the major stylized facts of structural change in the functional income distribution very well. Rural inequality declines as a result of its diminishing share in total national income and the evolution and dissolution of rural-urban dualism results indeed, in a traditional Kuznets curve during the period 1920-1970 (it should be noted that the estimated contribution of rural-urban dualism to total inequality is not subject to any of the restrictions mentioned above). As can be expected on the basis of the comparative development of the Brazilian economy, the rural-urban dichotomy is much larger than in Argentina and Chile with their relatively high productive rural sectors (note with respect to the Chilean case that mining is included in the rural sector). Contrary to Kuznets’ hypothesis however we cannot observe an expansion of urban inequality in the early stage of the economic transition, which confirms the hypothesis formulated in section 3.

**Figure 9.1: Aggregate Theil of sectoral income inequality, USA, Argentina, Chile and Brazil, 20<sup>th</sup> century.**





Sources: Mitchell 1993, Maddison 2003, Frankema 2005, FAOSTAT 2006 and UN, National Accounts, various issues, Economía Chilena 1810-1995: Estadísticas Históricas, PREALC 1982, ILO 2000, Series Históricas del Crecimiento de América Latina 1978

The rural-urban income gap in Argentina and Chile probably has reached its zenith in an earlier stage during the second half of the 19<sup>th</sup> century, since at the start of 20<sup>th</sup> century rural income amounted to approximately 25% and 35% in total income in both countries respectively. In both countries the contribution of urban inequality to total inequality remains confined until the 1960's. Urban inequality just expands beyond the USA levels during the last quarter of the century. A substantial part of urban inequality is caused by the growing productivity gap between informal and formal urban activities. Equally important is the sectoral inequality within the urban formal sector.

It should be pointed out that these figures probably underestimate the comparative impact of formal urban sector inequality and informal-formal sector dualism. It is assumed that every employee earns a share of capital income in line with its relative labour productivity. In fact, capital income is much less evenly distributed and a large part of it ends up in the hands of a small minority. Temporal changes in the unobserved distribution of capital income therefore are a main candidate to revise the charts presented here. The income gap between the informal and formal urban sector is also based on rather conservative estimates.

The most interesting part of this analysis, in my view, concerns the perceived potential turning point in the trend of income inequality, which I speculatively situated in the 1970's. This prediction is not exactly represented by the charts in figure 8.1. Brazil still awaits such a turning point. In Argentina and Chile this turning point is shown quite convincingly however, but earlier, around 1960 already. These results correspond quite well to the income Gini's presented in table 3.3 (section 3). These scenarios thus indicate what the potential impact of long run structural change has been on the secular trend of personal income inequality and they are in line with literature that tentatively suggests that from the early 20<sup>th</sup> century onwards until the 1970's income inequality has been declining in Latin America (Bertola 2001, Thorp 1998).

## **9 Conclusion**

Kuznets argued that the economic transition from a traditional rural into a modern urban economy eventually results, after an upswing in the early phase of industrialisation, in structurally lower levels of personal income inequality (inverted U-curve). However, in spite of various phases of strong economic growth and profound structural change such a sustained structural decline in income inequality has not taken place in Latin America. The question addressed in this paper is how structural change can account for the apparent "persistence" in Latin American personal income inequality over time. A Theil decomposition is used to investigate long run changes in the functional income distribution of 20<sup>th</sup> century Latin America.

The answer I put forward has two dimensions. First, the Theil decomposition indeed underlines a tendency towards persistency because of a well observable "overtaking inequality" effect. The initial expansion of rural-urban sector dualism has been countered by relatively low levels of

within-sector inequality in the urban economy in the early 20<sup>th</sup> century. In the post-war period, urban inequality rapidly overtakes the declining rural-urban income gap. A rapid increase in manufacturing productivity and wage differentials and an acceleration in the expansion of the urban informal sector pushed urban inequality beyond pre-modern levels. The pre-modern levels appear to be very well comparable to major New World countries as Australia, Canada and the USA, but deviated from the ideal type Kuznetsian path since the 1970's.

Second, a tendency of persistency, to a certain extent also draws a misleading picture of the Latin American distributional experience. The graphs in the previous section show that the composition of the income distribution has been transformed profoundly during the 20<sup>th</sup> century, more than ever before. The functional income approach is probably the only feasible approach to assess the major shifts in personal income inequality levels before the 1970's, which so far remain largely unobserved. Combining Kuznetsian logic with the Theil estimates of sector and factor income presented in this paper, support the idea that the secular trend in 20<sup>th</sup> century income inequality in Latin America corresponds to a reversed Kuznets curve. Of course it should be stressed, once again, that this result is based on several crude assumptions regarding lacking observations.

In any case it is impossible to escape the conclusion that the *traditional type of rural inequality* characteristic of the colonial and 19<sup>th</sup> century economy has become less influential, whereas meanwhile, *the modern type of urban inequality* has remained confined until at least the two first post-war decades. Although important dimensions of urban inequality (service and public sector inequality for instance) and capital income inequality have been left untouched in this paper, there is no evidence that the recent expansion of urban inequality since the 1970's has been preceded in any period between 1870 and 1979. In other words, the timing of the trade-off between the two types of economic dualism supports a U-curve, rather than an inverted U-curve trend in the 20<sup>th</sup> century.

Perhaps most important is that the results show that the "traditional" Kuznetsian framework, focusing on functional income distribution, earns a prominent place in the inequality research agenda. This approach guarantees an extension of potential data sources, in combination with an appropriate analytical tool (Theil index). Kuznets analytical framework offers the opportunity to work with a comprehensive comparative perspective on income inequality across countries and over time. Such an approach, I am convinced, will ultimately reveal the major importance of long run secular trends as an "ultimate cause" of inequality.

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**Appendix: Table A.2: Summary and sources of Manufacturing Theil estimates, the labour income share and the ratio of blue vs white collar income, Latin America (15) and New World (3), 1900-2001**

Country	year	THEIL Labour income	THEIL Value added	Labour income share	blue collar / white collar	Standard; Source
<b>1900-1920</b>						
Argentina	1917	0,0061	na	na	na	13 sectors; Anuario Estadístico 1917, Boletín no. 42, Buenos Aires 1919
Brazil	1920	0,0085	0,0383	0,26	na	13 sectors; Recenseamento do Brazil 1920, Volume V, Rio de Janeiro 1927
Chile	1910	0,0077	0,0478	0,30	na	16 sectors; Estadística Industrial de la República de Chile, 1910
Australia	1912	0,0136	0,0262	0,56	na	16 sectors; Manufacturing Industries in the Commonwealth 1912, Melbourne 1914
Canada	1905	na	na	na	0,54	15 sectors; Census and Statistics, Bulletin II, Manufactures of Canada, Ottawa 1907
Canada	1910	0,0096	0,0286	0,35	na	15 sectors; The Canada Yearbook 1912, Ottawa 1913
USA	1900	0,0061	0,0307	0,41	na	15 sectors; Abstract of the Twelfth Census of the United States 1900, Washington 1902
USA	1914	0,0059	0,0324	0,41	na	16 sectors; Statistical Abstract of the United States 1928, Washington 1928
<b>1921-1940</b>						
Argentina	1937	0,0092	0,0440	0,41	na	20 sectors; Estadística Industrial de la República Argentina 1938, Buenos Aires 1940
Brazil	1939	0,0089	0,0315	0,21	na	19 sectors; Recenseamento do Brasil 1950, sinopse preliminar do censo industrial, Rio de Janeiro 1953
Chile	1925	0,0053	0,0274	0,32	0,38	17 sectors; Anuario Estadístico de la República de Chile, Vol. IX, 1925, Santiago de Chile 1927
Mexico	1930	0,0282	0,0252	0,33	na	15 sectors; Primer censo industrial de 1930, Mexico
Uruguay	1930	0,0042	0,0167	0,38	0,67	18 sectors; Censo Industrial de 1930, in: Revista de la Unión Industrial de Uruguay, año 57, no. 135
Australia	1923	0,0091	0,0284	0,51	0,60	19 sectors; Production Bulletin No. 17, Summary of Australian Production Statistics for 1912-13 to 1922-23, Melbourne
Australia	1935	0,0096	0,0326	0,44	0,61	15 sectors; Production Bulletin No. 30, Summary of Australian Production Statistics for 1925-26 to 1935-36, Canberra
Canada	1925	0,0054	0,0207	0,44	0,53	9 sectors; Dominion Bureau of Statistics, The Canada Yearbook 1927-28, Ottawa 1928
Canada	1935	0,0044	0,0202	0,43	0,53	9 sectors; Dominion Bureau of Statistics, The Canada Yearbook 1938, Ottawa 1938
USA	1925	0,0059	0,0217	0,40	na	16 sectors; Statistical Abstract of the United States 1928, 50th number, Washington

USA	1935	0,0082		0,0332	0,39	na	16 sectors; Statistical Abstract of the United States 1938, 60th number, Washington
<b>1950-1973</b>							
Argentina	1953	0,0056		0,0408	0,31	na	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Argentina	1963	0,0032		0,0211	0,52	0,77	ISIC 1; UN, The Growth of World Industry, 1958-1967, 1968 edition, New York 1970
Bolivia	1966	0,0190	0,0190	na	na	na	ISIC 1 & 2; UN, The Growth of World Industry 1960-1969, Volume 1, 1970 edition, New York 1972
Brazil	1949	0,0132		0,0185	0,28	na	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Brazil	1959	0,0133		na	na	0,45	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Chile	1957	0,0140		0,0716	0,27	0,34	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Chile	1963	0,0255		0,0573	0,24	0,33	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Colombia	1958	0,0199		0,0722	0,32	na	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Colombia	1963	0,0146		0,0647	0,32	0,43	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Costa Rica	1963	0,0085	0,0088	0,0609	0,27	na	ISIC 1 & 2; UN, The Growth of World Industry 1961-1970, Volume I, 1971 edition, New York 1973
Dominican R.	1963	0,0210	0,0215	na	0,48	na	ISIC 1 & 2; UN, The Growth of World Industry 1961-1970, Volume I, 1971 edition, New York 1973
El Salvador	1972	0,0161	0,0194	na	na	na	ISIC 1 & 2; UN, The Growth of World Industry 1961-1970, Volume I, 1971 edition, New York 1973
Ecuador	1963	0,0127		0,0605	0,28	0,39	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Guatemala	1968	0,0207	0,0218	0,0591	0,29	na	ISIC 1 & 2; UN, The Growth of World Industry 1961-1970, Volume I, 1971 edition, New York 1973
Mexico	1960	0,0102		0,0376	0,36	0,49	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Panama	1961	0,0068		0,0420	0,35	0,47	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Peru	1963	0,0124		0,0400	0,30	0,42	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Uruguay	1968	0,0115	0,0115	0,0430	0,33	na	ISIC 1 & 2; UN, The Growth of World Industry 1961-1970, Volume I, 1971 edition, New York 1973
Venezuela	1971	0,0130	0,0136	na	na	0,40	ISIC 1 & 2; UN, The Growth of World Industry, Volume I, 1973 edition, New York 1975
Australia	1954	0,0024		0,0292	0,58	0,82	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Australia	1963	0,0035		0,0213	0,52	0,77	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
Canada	1963	0,0072		0,0208	0,49	0,72	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
USA	1954	0,0072		0,0154	0,54	0,64	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967
USA	1963	0,0095		0,0207	0,49	0,65	ISIC 1; UN, The Growth of World Industry, 1953-1965, National Tables, New York 1967

**1974-1989**

Argentina	1976	0,0077	0,0083	na	na	0,67	ISIC 1 & 2; 13 & 15 sectors* ; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Argentina	1985	0,0195	0,0208	na	na	0,63	ISIC 1 & 2; 13 & 15 sectors* ; UN, Yearbook of Industrial Statistics 1986, Volume 1, New York 1988
Bolivia	1976	0,0140	0,0172	0,0858	0,31	0,59	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Bolivia	1988	0,0312	0,0325	0,0912	0,31	0,23	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
Brazil	1976	0,0191	0,0191	0,0436	0,21	0,47	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Brazil	1984	0,0345	0,0346	0,1113	0,15	0,60	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1988, Volume 1, New York 1990
Chile	1976	0,0148	0,0154	0,1255	0,15	0,38	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Chile	1984	0,0353	0,0369	0,1775	0,15	0,28	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1988, Volume 1, New York 1990
Colombia	1976	0,0151	0,0168	0,0931	0,20	0,44	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Colombia	1986	0,0157	0,0167	0,0800	0,16	0,56	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
Costa Rica	1975	0,0134	0,0136	0,0915	0,23	0,46	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1979, Volume 1, New York 1981
Costa Rica	1986	0,0164	0,0169	0,1332	0,25	na	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
Dominican R.	1975	0,0230	0,0232	na	na	na	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1977, Volume 1, New York 1979
Dominican R.	1985	0,0394	0,0395	na	na	na	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1988, Volume 1, New York 1990
Ecuador	1976	0,0075	0,0089	0,0490	0,26	0,44	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Ecuador	1986	0,0161	0,0184	0,0263	0,37	na	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
El Salvador	1975	0,0136	0,0148	0,0702	0,21	0,39	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1977, Volume 1, New York 1979
El Salvador	1985	0,0174	0,0177	0,0359	0,26	na	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1988, Volume 1, New York 1990
Guatemala	1974	0,0249	0,0262	0,0608	0,24	0,30	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1977, Volume 1, New York 1979
Guatemala	1986	0,0353	0,0379	0,0516	0,23	0,39	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
Mexico	1976	0,0116	0,0117	0,0479	0,13	0,54	ISIC 1 & 2; 15 & 18 sectors** ; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Mexico	1986	0,0090	0,0090	0,0549	0,16	0,50	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
Panama	1976	0,0155	0,0161	0,0457	0,30	0,48	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Panama	1987	0,0281	0,0288	0,0548	0,35	na	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
Peru	1973	0,0102	0,0122	0,1134	0,18	0,41	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1977, Volume 1, New York 1979
Peru	1986	0,0230	0,0248	0,1977	0,19	0,45	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
Uruguay	1981	0,0136	0,0144	0,1768	0,32	0,43	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1982, Volume 1, New York 1984

Uruguay	1986	0,0161	0,0173	0,1741	0,25	0,45	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
Venezuela	1976	0,0121	0,0125	0,3484	0,25	0,17	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Venezuela	1986	0,0135	0,0152	0,1567	0,29	0,17	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
Australia	1976	0,0024	0,0027	0,0084	0,56	0,76	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Australia	1985	0,0039	0,0041	0,0153	0,48	0,83	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1986, Volume 1, New York 1988
Canada	1976	0,0060	0,0065	0,0156	0,51	0,74	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
Canada	1986	0,0096	0,0103	0,0202	0,45	0,69	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1990, Volume 1, New York 1992
USA	1976	0,0133	0,0139	0,0278	0,50	0,65	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1980, Volume 1, New York 1982
USA	1985	0,0116	0,0122	0,0271	0,49	0,64	ISIC 1 & 2; UN, Yearbook of Industrial Statistics 1986, Volume 1, New York 1988
<b>1990-2000</b>							
Argentina	1996	0,0222	0,0226	0,1706	0,29	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Bolivia	1998	0,0382	0,0398	0,0681	0,24	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Brazil	1996	0,0466	0,0482	0,0784	0,29	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Chile	1996	0,0271	0,0295	0,1364	0,19	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2003, Vienna 2003
Colombia	1996	0,0180	0,0189	0,0779	0,16	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Costa Rica	1996	0,0179	0,0185	0,1020	0,33	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Ecuador	1996	0,0371	0,0388	0,2932	0,15	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
El Salvador	1996	0,0279	0,0296	0,2732	0,26	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 1999, Vienna 1999
Guatemala	1998	0,0340	0,0455	na	na	na	ISIC 1 & 2; UNIDO, Industrial Statistics 2005 (website)
Mexico	1996	0,0174	0,0181	0,0616	0,16	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Panama	1994	0,0405	0,0530	0,0669	0,48	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 1999, Vienna 1999
Peru	1996	0,0466	0,0591	0,2300	0,18	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Uruguay	1997	0,0302	0,0307	0,3147	0,36	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Venezuela	1996	0,0318	0,0355	0,2300	0,05	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Australia	1998	0,0073	0,0076	0,0390	0,36	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
Canada	1996	0,0090	0,0096	0,0285	0,40	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002
USA	1997	0,0104	0,0111	0,0465	0,30	na	ISIC 1 & 2; UNIDO, International Yearbook of Industrial Statistics 2002, Vienna 2002

\* Theil upwards adjusted on the basis of survey 1996 by taking the ratio of 20/13 and 28/15 sectors

\*\* Theil upwards adjusted on the basis of survey 1987 by taking the ratio of 20/15 and 28/18 sectors

**Table A.3: Structural change of the economically active population and the development of the informal and formal urban sector, Latin America (12), 1950-1999**

	Urban formal sector		Urban informal sector		Urban	Rural
	Total	Independent Workers	Domestic Services	Total	Total	Total
<b>Latin America (unweighted average)</b>						
1950	32,2	8,6	5,3	13,9	46,1	53,9
1960	36,5	10,3	5,5	15,8	52,3	47,7
1970	41,7	11,8	5,6	17,4	59,1	40,9
1980	46,2	13,8	5,9	19,7	65,8	34,2
1990	52,0	18,1	4,4	22,5	74,5	25,5
1999	54,6	20,5	4,9	25,4	80,0	20,0
<b>Argentina</b>						
1950	56,8	9,5	5,7	15,2	72,0	28,0
1960	63,4	8,8	5,4	14,2	77,6	22,4
1970	66,0	9,5	6,1	15,6	81,6	18,4
1980	65,0	12,1	7,3	19,4	84,4	15,6
1991	58,4	24,0	5,0	29,0	87,4	12,6
1998	63,7	20,4	5,7	26,1	89,8	10,2
<b>Brazil</b>						
1950	28,5	6,9	3,8	10,7	39,2	60,8
1960	31,8	10,8	4,6	15,4	47,2	52,8
1970	38,6	9,3	5,6	14,9	53,5	46,5
1980	45,2	10,7	6,2	16,9	62,1	37,9
1990	55,5	15,5	5,3	20,7	76,2	23,8
1999	55,2	19,9	7,8	27,7	82,9	17,1
<b>Chile</b>						
1950	40,8	13,8	8,3	22,1	62,9	37,1
1960	44,5	12,3	8,2	20,5	65,0	35,0
1970	53,1	11,5	5,2	16,7	69,8	30,2
1980	54,1	13,9	6,2	20,1	74,2	25,8
1990	57,7	16,4	4,2	20,6	78,3	21,7
1998	62,3	15,1	4,2	19,3	81,6	18,4
<b>Colombia</b>						
1950	23,9	8,5	6,8	15,3	39,2	60,8
1960	28,0	10,4	6,7	17,1	45,1	54,9
1970	38,7	11,5	6,2	17,7	56,4	43,6
1980	42,6	16,3	6,0	22,3	64,9	35,1
1990	50,3	17,6	5,1	22,7	73,0	27,0
1998	51,3	22,3	5,6	27,9	79,2	20,8
<b>Costa Rica</b>						
1950	29,7	6,3	6,0	12,3	42,0	58,0
1960	35,1	6,9	5,8	12,7	47,8	52,2
1970	44,1	7,3	5,6	12,9	57,0	43,0
1980	52,9	7,1	5,3	12,4	65,3	34,7
1990	55,4	13,9	4,3	18,2	73,6	26,4
1999	59,5	14,6	5,4	20,1	79,6	20,4
<b>Ecuador</b>						
1950	21,5	7,7	4,0	11,7	33,2	66,8
1960	19,1	14,0	4,4	18,4	37,5	62,5
1970	17,2	13,7	10,0	23,7	40,9	59,1
1980	22,7	15,4	10,0	25,4	48,1	51,9
1990	39,6	23,5	3,3	26,9	66,5	33,5

1998	45,0	24,4	4,5	28,9	73,9	26,1
<b>Honduras</b>						
1950	11,4	4,5	3,0	7,5	18,9	81,1
1960	16,7	6,7	5,0	11,7	28,4	71,6
1970	21,8	9,8	4,0	13,8	35,6	64,4
1980	25,6	14,0	3,2	17,2	42,8	57,2
1990	32,4	21,7	4,1	25,9	58,3	41,7
1999	37,4	27,0	3,7	30,7	68,1	31,9
<b>Mexico</b>						
1950	21,6	9,7	3,2	12,9	34,5	65,5
1960	32,2	10,0	3,5	13,5	45,7	54,3
1970	33,9	14,5	3,7	18,2	52,1	47,9
1980	39,5	18,3	3,7	22,0	61,5	38,5
1990	54,5	13,6	3,3	16,9	71,4	28,6
1999	60,0	14,3	3,7	18,0	78,0	22,0
<b>Panama</b>						
1950	34,9	6,3	5,5	11,8	46,7	53,3
1960	36,6	6,8	6,3	13,1	49,7	50,3
1970	43,8	10,4	5,4	15,8	59,6	40,4
1980	45,3	12,1	8,8	20,9	66,2	33,8
1991	53,4	14,6	5,8	20,4	73,8	26,2
1999	56,4	18,0	5,3	23,3	79,7	20,3
<b>Peru</b>						
1950	19,1	9,8	7,1	16,9	36,0	64,0
1960	23,7	12,8	5,1	17,9	41,6	58,4
1970	29,8	17,0	3,7	20,7	50,5	49,5
1980	35,0	20,4	3,4	23,8	58,8	41,2
1991	39,1	21,1	3,1	24,2	63,3	36,7
1998	44,2	20,8	3,8	24,6	68,8	31,2
<b>Uruguay</b>						
1950	63,3	9,0	5,5	14,5	77,8	22,2
1960	63,6	10,0	5,6	15,6	79,2	20,8
1970	64,2	11,1	5,7	16,8	81,0	19,0
1980	63,3	13,0	6,0	19,0	82,3	17,7
1990	63,9	15,9	5,8	21,7	85,6	14,4
1999	61,1	19,6	6,5	26,2	87,3	12,7
<b>Venezuela</b>						
1950	34,7	11,4	5,0	16,4	51,1	48,9
1960	43,1	14,1	5,9	20,0	63,1	36,9
1970	48,9	16,0	6,4	22,4	71,3	28,7
1980	62,6	12,2	4,2	16,4	79,0	21,0
1990	63,9	19,3	3,4	22,7	86,6	13,4
1999	58,9	29,3	2,3	31,6	90,5	9,5

Sources: The figures for 1950 to 1980 are derived from ILO/PREALC, *Mercado de Trabajo en Cifras. 1950-1980* (1982); For 1990 and 1998/1999 from ILO, *Panorama Laboral de America Latina y el Caribe* (2000). Regarding the latter a few adjustments were made: since the rural sector was originally excluded I imputed rural-urban shares from FAOSTAT for the years 1990 and 2000; the share of domestic servants in Colombia was suspiciously low, I re-estimated this figure on the basis of the 1990 Household survey as presented in the ILO, *Yearbook of Labour Statistics* (1991).