ADBI Working Paper Series

SECTORAL LABOR INCOME SHARE DYNAMICS: CROSS-COUNTRY EVIDENCE FROM A NOVEL DATASET

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Abstract

Despite steady growth of the literature on labor income share, empirical studies are mostly limited to country-level analyses. At the sectoral level, data on labor income share are available only for advanced countries. This paper overcomes this constraint and provides some preliminary outcomes from a novel dataset that the authors compile at the sectoral level (10 sectors) for 53 countries, including 20 developing countries. The preliminary evidence suggests that, at the disaggregated level, the government service sector accounts for the largest share of labor income (46%), whereas public utilities (16%) and mining (20%) are the sectors with the smallest shares of labor income. The unweighted average labor income share in developing countries is slightly lower than that in developed countries. We find considerable variation in labor income share estimates within each region and within each broad category of sectors, measured at the level and with changes over time.

Keywords: labor income share, cross-country data, income distribution

JEL Classification: E24, E25, J30

Contents

1. INTRODUCTION

The study of factor income shares plays an important role in understanding the relationship between national income and personal income, the relationship between wage inequality and wealth inequality, and concerns for fairness in different sources of income (Atkinson 2009). Recent studies draw attention to a global decline in the labor income share. While the ongoing debate over the downward trend of the labor income share is far from being settled, a deeper understanding of the differences in the sectoral labor income share trends,[1] that is, the analysis of the labor income share at the disaggregated level, remains a potential area for research (Duarte and Restuccia 2010; Herrendorf, Valentinyi, and Rogerson 2014; Buera, Kaboski, and Rogerson 2015). At the sectoral level, data on the labor income share is available only for the OECD countries from the EU KLEMS database, which is the main source for empirical studies.[2] For this reason, studies commonly use the national (aggregate) labor income share as an approximation for the sectoral labor income shares.[3] This paper helps to overcome this data limitation by constructing a novel dataset at the sectoral level for a large number of developing countries.

Research theorizes that, if the elasticity of substitution between capital and labor is different from one and varies across sectors (e.g., agriculture versus manufacturing), then the sectoral labor income share trends are likely to follow different trajectories despite identical factor price movements across sectors. In a recent study on the US, Alvarez-Cuadrado, Long, and Poschke (2015) show that the larger decline in the labor income share in manufacturing relative to that in services is partly due to larger elasticity of substitution (in other words higher elasticity of substitution between capital and labor) in manufacturing associated with much faster labor-augmenting productivity growth relative to services. In an early paper, Bentolila and Saint-Paul (2003) study the labor income shares in the value added of 13 industries in the business sectors of 12 OECD countries during the period 1972–1993. Two other papers (Young 2004; Zuleta and Young 2007) investigate the labor income shares of 35 industries (value added) in the US for the period from 1958 to 1996. In another study on the US, Valentinyi and Herrendorf (2008) find that the smallest labor income share is in agriculture, followed by manufactured consumption, services, equipment, and construction. They aggregate the factor income shares in the industry outputs to obtain the sectoral level. Overall, the availability of the sectoral labor income share is limited to the advanced countries (e.g., Jorgenson's 35-sector KLEM database for 16 developed economies).

In this paper, we create a novel dataset on the labor income share at the disaggregated 10-sector level following the classification of the Groningen Growth Data Centre (GGDC)[4]. Various issues stem from the accounting method of national income, treatment of intangible inputs, measurement of non-private sectors and informal sectors, and

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[1] For example, in a recent study on the US, Alvarez-Cuadrado, Long, and Poschke (2015) show that a larger decline in the labor income share in manufacturing relative to that in services is partly due to larger elasticity of substitution between capital and labor in manufacturing compared with services.

[2] Buera, Kaboski, and Rogerson (2016) compare the labor income shares for high-skilled labor (college graduates and above) in six key manufacturing sectors using EU KLEMS data.

[3] However, a recent paper by Valentinyi and Herrendorf (2008) shows that the sectoral labor income shares could be different from the aggregate labor income share.

[4] Agriculture, hunting, forestry and fishing (AGR); 2. Mining and quarrying (MIN); 3. Manufacturing (MAN); Electricity, gas and water supply (PU); Construction (CON); Wholesale and retail trade, hotels and restaurants (WRT); Transport, storage, and communication (TRA); Finance, insurance, real estate and business services (FIRE); Government services (GOV); Community, social and personal services (OTH).

attribution of mixed income. We use three data sources, the GGDC 10-Sector Database, the Socio-Economic Account (SEA), and ILOSTAT. We obtain the denominator of the labor income share, estimated value added, from the GGDC and SEA. For the numerator, we obtain the mean nominal monthly earnings of employees and the number of employees from ILOSTAT. We estimate the sectoral labor income shares of 53 countries across 5 regions based on the most recent World Bank classification of countries (9 from East Asia and the Pacific, 27 from Europe and Central Asia, 8 from Latin America and the Caribbean, 2 from the Middle East and North Africa, 2 from North America, and 5 from Sub-Saharan Africa). Of the 53 countries, 20 are developing countries (based on the World Bank classification), and, for a sample of 45 countries, data are available for at least 5 years. The preliminary evidence suggests that, at the disaggregated level, GOV shows the greatest share of the labor income (46%). Other sectors, including AGR, TRA, WRT, and MAN, also show a relatively large labor income share of about 40%. On the other hand, PU (16%) and MIN (20%) are the sectors with the smallest share of the labor income. We find considerable variation in the labor income share estimates within each region and within each broad category of sectors, both at the level and with changes over time. Overall, there is a fall in the average change in the labor income share in the secondary sector and a rise in both the primary and the tertiary sector. Regional diversity is predominant. On average, the labor income share in developing countries is slightly smaller than that in developed countries.

We structure the paper as follows. We provide a detail account of the data sources, methodology, and data coverage in Section 2. Section 3 offers a snapshot of the summary statistics of the sectoral labor income share at the regional and country levels. We also analyze the time series sectoral labor income share for a handful of developing countries. In Section 4, we study the growth in the labor income share between manufacturing and services for a large sample of countries. We compare the outcomes from our novel dataset with those from EU KLEMS for 16 developed countries for robustness purposes. Section 6 presents concluding remarks.

2. DATA

2.1 Data Sources

We use three data sources, the GGDC 10-Sector Database, the Socio-Economic Account (SEA), and ILOSTAT. The Groningen Growth and Development Centre publishes the GGDC 10-Sector Database. [5] It provides comparable long-run macroeconomic statistics on the sectoral level for 42 countries[6] for 1950–2013. The World Input Output Database (WIOD) provides the Socio-Economic Account (SEA).[7] This dataset provides macroeconomic statistics such as industrial output, capital investment and stocks, and employment by skill type. It covers 40 countries for the period from 1995 to 2009. It estimates the data mainly based on EU KLEMS (EU-level analysis of capital (K), labor (L), energy (E), materials (M), and service (S) inputs), EUROSTAT, and the OECD's STructural ANalysis database (STAN). ILOSTAT[8] is a data source that

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[5] https://www.rug.nl/ggdc/productivity/10-sector/

[6] Including West Germany

[7] http://www.wiod.org/database/seas13

[8] https://www.ilo.org/ilostat/faces/wcnav_defaultSelection?_adf.ctrl-state=6ghjloohd_110&_afrLoop=316 028130615831&_afrWindowMode=0&_afrWindowId=6ghjloohd_107#!%40%40%3F_afrWindowId%3D6 ghjloohd_107%26_afrLoop%3D316028130615831%26_afrWindowMode%3D0%26_adf.ctrl-state% 3Dbl8xscafv_9

the International Labour Organization (ILO) compiles, and it stores broad statistics on labor and consumer, population, and socio-economic issues. In general, the labor and earnings survey is based on definitions and concepts that the ILO generates; therefore, it provides comparability to a certain extent. However, as governmental or regional bodies or international organizations collect each dataset independently, the comparison among countries should receive appropriate attention when applying non-standard classifications or concepts. In case special attention is necessary, the ILO provides notes. In addition, it offers information on the data source, its characteristics, any change in methodologies, and indications of unreliability for each value. Appendices 2 and 3 summarize this information over time and among countries.

2.2 Methodology

When studies use labor as one of the factors to produce national income, they define the labor income share as a ratio showing "how much of national income accrues to labor" (Lübker 2007). Therefore, the definition of the labor income share at the spectral level is as follows for year t and sector k:

$$LIS \equiv \frac{Labor\ income_{tk}}{\text{National income}_{tk}}$$

However, it is not straightforward in its computation. Various issues stem from the accounting method of national income, treatment of intangible inputs, measurement of non-private sectors and informal sectors, and attribution of mixed income (i.e., the income for non-wage workers, as researchers regard non-wage workers as not only contributing to labor factors, so their income includes revenue from other contributions). Among them, huge debates and substantial literature exist on the treatment of proprietors' income and indirect taxes less subsidies, as ambiguity is always present when attempting to measure the actual economic activities. One approach to tackling this issue is to impute the figures following Cooley and Prescott (1995); however, in this paper, we employ an alternative approach that Gomme and Rupert (2004) inspire and calculate the sectoral labor income share as follows:

$$LIS = \frac{Compensation\ of\ employees_{tk}}{\text{Value added}_{tk}}$$

This computation is plausible if we assume that the portion of "ambiguous" income is the same as that of the remainder of the sectors. According to Gomme and Rupert (2004), the literature supports this assumption,[9] and this method enables us to compute the labor income share using obtainable statistics.

$$\frac{Compensation\ of\ employees_{tk}}{\text{Value added}_{tk}}$$
$$= \frac{Average\ monthly\ earning_{tk}\ \times 12\ \times\ Number\ of\ employees_{tk}}{\text{Value added}_{tk}}$$

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[9]   See Appendix 3 for the concept of ambiguous and unambiguous elements of national income.

We evaluate both earnings and value added in the current value in the local currencies. We adjust the currency unit for countries that experienced redenomination or the introduction of a new currency in their sample periods. Appendix 5 lists each adjustment of that currency unit. For the classification of economic activity, we follow the GGDC ten-sector classification based on ISIC Rev. 3. An accurate reconstruction of ISIC Rev. 4 to Rev. 3 is not possible without detailed data according to the four-digit-level ISIC. Therefore, though some countries collect data according to ISIC Rev. 4, especially in recent years, we limit the data to those available with ISIC Rev. 3.

We obtain the denominator, estimated value added, from the GGDC and SEA. Among them, the 30 countries and regions that the GGDC[10] and SEA cover complement the rest.[11] The SEA released in 2012 provides value added for 35 economic activities based on ISIC Rev. 3. For the countries that the SEA covers, we obtain the value added for 10 sectors by simple aggregation of the 35 sectors. In the numerator, we obtain the mean nominal monthly earnings of employees and the number of employees from ILOSTAT. Data are available for 18 sectors. These 18 sectors are aggregated into 10 sector levels after calculating the total labor income for each of the 18 categories. Among the 10 sectors, WRT, FIRE, CON, and OTH are a combination of the 18 sector categories. Taking a close look at the data, we find significant differences in the size of employment and the average earnings at the 18-sector-level even within the same category at the 10-sector level. Therefore, if any of the 18-sector-level values are missing, we do not impute the labor income for their 10-sector level. We relax this conservative computation for AGR and the countries without 18-sector-level employment data. Regarding AGR, many countries do not have separate earnings data for the 18-sector-level "fishery" from the "agriculture" sector. In those cases, we assume that the employees in the agriculture sector and in the fishery sector have the same level of earnings on average.[12] For the countries and regions for which detailed employment data are not available,[13] we use the GGDC employment data and multiply them by the simple average of the available 18-sector earnings data within each of the 10-sector categories. Appendix 4 summarizes the aggregation scheme.

Regarding the earnings data, weekly or hourly earnings are only available for some countries.[14] We multiply the hourly working hour data by the weekly working hour data obtained from ILOSTAT. Multiplying weekly earnings by 4.33 turns them into monthly figures. As for the hourly working hours and the number of employees, we interpolate and extrapolate the missing values by assuming monotonic time trends. If possible, we estimate the time trend for the 2000s and the 1990's separately.[15]

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[10] Brazil, the People's Republic of China, Denmark, France, India, Indonesia, Italy, Japan, the Republic of Korea, Mexico, the Netherlands, Spain, Sweden, Taipei,China, the United Kingdom, and the United States.

[11] Australia, Austria, Belgium, Bulgaria, Canada, Cyprus, the Czech Republic, Estonia, Finland, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, the Russian Federation, the Slovak Republic, Slovenia, and Turkey.

[12] The impact of using the agriculture sector earnings as a proxy for the fishery sector earnings on the calculation of the labor income share in AGR should be small, as the size of the fishery sector is small relative to that of agriculture.

[13] The People's Republic of China, Taipei China, and the US.

[14] Weekly earnings are available for the dataset for Australia, Egypt, Great Britain, United States, Canada, and Ireland. Hourly wages are available in some of the datasets for Denmark, Spain, Sweden, Australia, Austria, Germany, and Malta.

[15] One exception is Canada, where only the data for 2016 are available. We extrapolate the data to every year.

We calculate the broader sector labor income share based on the ten-sector-level economic activities. They are the average of the labor income share in ten sectors weighted by the number of employees at the ten-sector level. Note that we compute two labor income shares for the tertiary sector, one including PU, WRT, TRA, FIRE, GOV, and OTH and the other excluding GOV and OTH. We exclude these two sectors because they require careful attention. Studies often exclude GOV from the computation of the labor income share to avoid complications in the interpretation of the government sector regarding taxes and subsidies (Gomme and Rupert 2004). Moreover, its comparability is limited, as countries differ in accounting for the government output. For example, while some countries measure the output using solely wages, others impute capital compensation.   [16]   With   regard   to   OTH,   we   exclude it from the alternative computation since it includes a sub-sector for which the labor income share is one by definition. The included sub-sector is "activities of private households as employers and undifferentiated production activities of private households"; as this sector's output solely consists of labor compensation, the labor income share of this sector should be one.[17]

With the conservative aggregation and limited imputation method at the cost of a smaller number of observations, we still have unreliable values that exceed 1. Of 4221 calculated labor income shares, 275 are above 1 throughout the 10 sectors. We eliminate them from our sample individually, for the entire sector for the specific country, or for whole datasets.   First,   if   we   observe   that   hikes   in   either   employment or earnings cause the unreliable values, for example in Peru in the year 2002, we eliminate those observations. Secondly, if we observe multiple unreliable values in a specific sector, we eliminate all the values for the sector, for example AGR and OTH for Brazil. In this case, we suspect that the unreliable values could be due to the sector-specific characteristics. For example, in the construction sector, the number of employees could be the accumulation of the headcount of short-time workers, while the earnings are for full-time workers. As another example, the degree of inclusion of the informal sector may vary among value-added, earnings, and employment. In those cases, we cannot obtain a meaningful labor income share with the available dataset, so we eliminate those sectors. Thirdly, for the countries that have multiple data sources for computing the labor income, if some of them include unreliable values in addition to having unignorable differences from other sources, we drop all the calculated values from the same dataset, for example for Brazil after the year 2003, as this might cause a problem when we analyze the change over time. After these eliminations, 3868 observations remain in total.

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[16] For a further discussion on growth accounting for the government sector, see for example Mas (2005).

[17] For a further discussion on this sector, see for example the EU KELMS Consortium's "EU KLEMS Growth and Productivity Accounts Version 1" (2007). http://www.euklems.net/data/EUKLEMS_Growth _and_Productivity_Accounts_Part_II_Sources.pdf

Table 1: Data Coverage (Region, Country, Year)

Region	Country	Starting Year	Ending Year	# Years (N)
East Asia and Pacific	Australia	1995	2006	9
	People's Republic of China	1986	2008	23
	Indonesia	2000	2010	11
	Korea, Rep. of	1993	2008	14
	Malaysia	2000	2001	2
	Philippines	1996	2008	9
	Singapore	1998	2008	11
	Taipei,China	1983	2008	8
	Thailand	2010	2010	1
Europe and Central Asia	Austria	1995	2007	13
	Belgium	1995	2007	13
	Bulgaria	1996	2008	13
	Cyprus	1998	2006	9
	Czech Republic	1996	2007	12
	Denmark	1995	2011	16
	Estonia	1995	2008	14
	Finland	1995	2008	14
	France	1997	2006	8
	Germany	1996	2008	13
	Greece	2000	2006	3
	Hungary	1995	2008	14
	Ireland	1996	2006	11
	Italy	1995	1995	1
	Latvia	1995	2008	14
	Lithuania	1995	2008	14
	Luxembourg	1995	2008	14
	Netherlands	1994	2005	12
	Poland	1995	2006	12
	Portugal	1998	2008	11
	Russian Federation	1995	2009	9
	Slovak Republic	1995	2008	14
	Slovenia	1995	2008	14
	Spain	1999	2008	10
	Sweden	1993	2007	15
	Turkey	1995	2005	11
	United Kingdom	1995	2008	14
Latin America and Caribbean	Argentina	2004	2010	6
	Bolivia	2005	2009	5
	Brazil	1994	2011	17
	Chile	2006	2011	4
	Colombia	2002	2011	8
	Costa Rica	1998	2008	7
	Mexico	1991	2004	12
	Peru	2002	2011	10
Middle East and North Africa	Egypt, Arab Rep.	1996	2007	12
	Malta	2000	2008	9
North America	Canada	1995	2008	14
	United States	1969	2008	10
Sub-Saharan Africa	Botswana	1997	2010	14
	Ethiopia (excludes Eritrea)	2005	2005	1
	Ghana	2006	2006	1
	Mauritius	1999	2010	12
	Tanzania	2006	2006	1

Source: Authors' own calculations.

2.3 Data Coverage

Table 1 shows the availability of data for 53 countries across 5 regions based on the most recent World Bank classification of countries (9 from East Asia and the Pacific, 27 from Europe and Central Asia, 8 from Latin America and the Caribbean, 2 from the Middle East and North Africa, 2 from North America, and 5 from Sub-Saharan Africa). Countries enter this list when we have data for at least 1 year in at least 1 sector. Out of 53 countries, 20 are developing countries (based on the World Bank classification), of which 5 are from the East Asia and the Pacific region and 5 are from Sub-Saharan Africa. We have data for only 1 year for 3 countries (Italy, Colombia, and Peru), and for 45 countries data are available for at least 5 years. As is evident from Table 1, data in most of the country cases are available from the mid-1990s. The People's Republic of China has sectoral labor income share data available for the longest period (23 years), followed by Denmark (16 years) and Sweden (15 years). The earliest year for which data are available is 1969 (agriculture, the US), and 2011 is the most recent year for which data are available in most of the countries.

Table 2 shows the country-level labor income share data coverage for 10 sectors.[18] Country–year data are mostly unavailable for OTH (available only for 16 out of 53 countries). Data for AGR and GOV are unavailable for 19 and 18 countries, respectively. On the other hand, the data coverage significantly improves for sectors like MIN, MAN, PU, and TRA. In each of these sectors, we manage to calculate the labor income share for around 50 countries. Among the developing country sample, we find a representative time series (data available for at least 10 years in certain sectors) for the People's Republic of China, Indonesia, Peru, Mauritius, Mexico, Egypt, and Botswana. For the People's Republic of China, data are available for 7 sectors (MIN, MAN, PU, WRT, TRA, FIRE, and GOV) for the period from 1986 to 2008, for the Philippines for 8 sectors (AGR, MIN, MAN, PU, CON, WRT, TRA, and FIRE) for the period from 1996 to 2008, for Brazil for 8 sectors (MIN, MAN, PU, CON, WRT, TRA, FIRE, and GOV) for the period from 1994 to 2002, for Mexico for all 10 sectors for the period from 1991 to 2004, and, finally, for both Egypt (1996–2007) and Botswana (1997–2010), data are available for 8 sectors (AGR, MIN, MAN, PU, CON, WRT, TRA, and FIRE). We discuss these country cases in greater detail in Section 3. In certain countries, data are available for only 1 sector. For example, the labor income share in manufacturing in Malaysia is available for 2000 and 2001. In the US, the labor income share in agriculture is available only for 10 time points between 1969 and 2011.

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[18] We follow the Groningen Growth Data Center (GGDC) classification of 10 sectors (AGR, MIN, MAN, PU, CON, WRT, TRA, FIRE, GOV, and OTH).

Table 2: Data Coverage (Region, Country, 10 Sectors)

Region	Country	Years	AGR	MIN	MAN	PU	CON	WRT	TRA	FIRE	GOV	OTH
East Asia and Pacific	Australia	9	5	6	6	6	6	6	6	6	6	0
	People's Republic of China	23	0	23	23	23	0	21	23	23	23	0
	Indonesia	11	11	11	11	11	11	11	11	11	11	11
	Korea, Rep. of	14	0	14	14	14	14	0	13	0	0	0
	Malaysia	2	0	0	2	0	0	0	0	0	0	0
	Philippines	9	9	9	9	9	9	9	9	9	0	0
	Singapore	11	0	0	11	0	11	11	10	10	0	0
	Taipei,China	8	0	8	8	8	0	5	8	8	8	0
	Thailand	1	1	1	1	1	1	1	1	1	1	1
Europe and Central Asia	Austria	13	0	0	13	13	13	9	9	9	9	9
	Belgium	13	0	9	13	9	13	9	9	9	1	0
	Bulgaria	13	13	13	13	13	13	13	13	13	13	0
	Cyprus	9	6	9	9	9	9	9	9	9	9	0
	Czech Republic	12	12	12	12	12	12	12	12	12	12	0
	Denmark	16	0	16	0	16	0	0	16	0	0	0
	Estonia	14	14	14	14	14	14	14	14	14	14	0
	Finland	14	0	14	14	14	14	14	14	14	14	0
	France	8	0	4	4	4	4	4	4	4	4	4
	Germany	13	11	13	13	13	13	2	2	2	0	0
	Greece	3	0	3	3	3	3	1	3	3	0	0
	Hungary	14	14	14	14	14	14	14	14	14	14	0
	Ireland	11	0	11	11	11	0	0	0	0	0	0
	Italy	1	0	1	1	1	1	1	1	0	0	0
	Latvia	14	14	14	14	14	13	14	14	14	14	0
	Lithuania	14	14	14	12	14	14	14	14	14	14	0
	Luxembourg	14	0	14	14	14	14	14	1	1	0	0
	Netherlands	12	5	12	12	12	12	12	12	12	12	0
	Poland	12	12	12	12	12	12	12	12	12	12	0
	Portugal	11	0	0	0	11	11	11	0	11	1	0
	Russian Federation	9	9	9	9	9	9	9	9	9	9	0
	Slovak Republic	14	14	14	14	14	14	14	14	14	14	0
	Slovenia	14	14	14	14	14	14	14	14	14	14	0
	Spain	10	0	10	10	10	10	10	10	0	0	0
	Sweden	15	15	15	15	15	15	15	15	0	8	0
	Turkey	11	6	11	11	11	5	4	4	0	0	0
	United Kingdom	14	14	14	14	0	14	0	14	0	0	0
Latin America and Caribbean	Argentina	6	6	6	6	6	6	6	6	6	6	6
	Bolivia	5	0	5	5	5	0	0	5	5	0	5
	Brazil	17	0	9	9	9	9	9	8	9	9	0
	Chile	4	1	4	4	4	4	4	4	4	0	1
	Colombia	8	8	8	8	8	8	2	8	8	0	2
	Costa Rica	7	7	6	6	5	6	6	6	6	1	3
	Mexico	12	12	12	12	12	12	12	12	12	12	12
	Peru	10	7	9	8	9	9	8	8	9	0	8
Middle East and North Africa	Egypt, Arab Rep.	12	11	12	12	11	0	11	12	12	2	2
	Malta	9	6	8	9	9	9	9	9	9	9	0
North America	Canada	14	14	14	14	14	14	14	14	14	14	14
	United States	10	10	0	0	0	0	0	0	0	0	0
Sub Saharan Africa	Botswana	14	8	14	14	11	14	14	14	11	2	0
	Ethiopia (excludes Eritrea)	1	1	1	1	1	1	1	1	1	1	1
	Ghana	1	1	1	1	1	1	1	1	1	1	1
	Mauritius	12	12	12	12	12	12	12	12	12	12	2
	Tanzania	1	0	1	1	1	1	1	1	1	1	0

Note: Each column under disaggregated sector headings represents the number of years for which labor income share data are available for a country. The column "# of years" shows the total number of years for which data are available for a country in at least one sector.

3. DESCRIPTIVE EVIDENCE

We categorize the 10 GGDC disaggregated sectors into the following 3 broad categories: (1) the primary sector, consisting of AGR and MIN; (2) the secondary sector, consisting of MAN and CON; and (3) the tertiary sector, consisting of the remaining six sectors (PU, WRT, TRA, FIRE, GOV, and OTH). Table 3 shows the average (unweighted) figures (across all countries) for these broad sectors and the 10 disaggregated sectors. On average, employees in both the secondary and the tertiary sector enjoy about 35% of the total income, whereas in the primary sector the labor income share averages around 25%. In some countries, the labor income share in the primary sector reaches 87%. At the disaggregated level, GOV accounts for the largest share of the labor income (46%), followed by TRA, MAN, WRT, and TRA, each with an average of 40%. On the other hand, PU (16%) and MIN (22%) are the sectors with the smallest share of the labor income. At the disaggregated level, except in PU and MIN, the maximum labor income share for the rest of the sectors crosses the 90% threshold.

Table 3: Summary Statistics of the Sectoral Labor Income Share (Unweighted)

|	Observations	Mean	Standard Deviation	Min	Max
Primary	495	0.28	0.18	0.01	0.87
Secondary	506	0.35	0.14	0.08	0.73
Tertiary	516	0.36	0.15	0.05	0.92
AGR	317	0.40	0.25	0.01	0.97
MIN	480	0.20	0.14	0.00	0.82
MAN	492	0.40	0.14	0.07	0.97
PU	486	0.16	0.11	0.03	0.74
CON	438	0.32	0.22	0.03	1.00
WRT	419	0.40	0.16	0.04	0.97
TRA	455	0.40	0.16	0.09	0.97
FIRE	392	0.28	0.19	0.03	0.99
GOV	307	0.46	0.15	0.14	0.93
OTH	82	0.33	0.18	0.10	0.99

3.1 Cross-Country Comparison

In Figure 1, we compare the unweighted regional averages of the labor income share across three broad categories. On average, labor receives the smallest share of income in the primary sectors in all the regions except the Middle East and North Africa (MENA) and Sub-Saharan Africa (SSA). In East Asia and the Pacific (EAP) and North America, the labor income share is the largest in the tertiary sector, whereas in the Europe and Central Asia region, the secondary sector shows the most favorable returns to labor. Another point to note is that the average sectoral labor income share across sectors is of a similar magnitude in the Middle East and North Africa and the Sub-Saharan Africa

region. However, in other regions, such as North America and East Asia and the Pacific, the labor income share in the primary sectors is significantly smaller than that in the other sectors.

Figure 1: Labor Income Share (Broad Sectors) across Regions
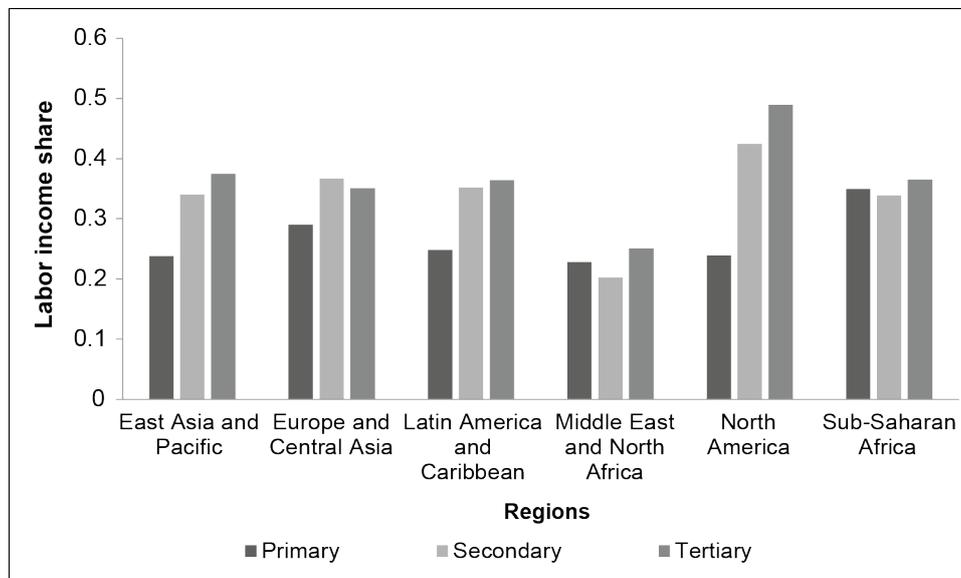
Source: Authors' own calculations.

We next compare the broad sectoral outcomes at the country level. We find considerable variation in the labor income share estimates within each region and within each broad category of sectors. In the East Asia and the Pacific region, the Republic of Korea and Taipei,China show the highest average labor income share across sectors, while in the Philippines it is as little as 2% in the primary sector. In the same region, laborers in Republic of Korea and Taipei,China enjoy a larger income share in the secondary sector. On the other hand, Spain is the only country in our sample to have an average labor income share over 50% in all sectors. In the Latin America and Caribbean region, Costa Rica accounts for the largest labor income share in both the primary sector and the tertiary sector, whereas Brazil tops the list in the secondary sector.

Overall, we find no discernable trends or similarities in the estimates of the labor income share within a country across sectors or within a sector across countries within a region. On average, the labor income share in developing countries is slightly smaller than that in developed countries.

Table 4: Labor Income Share (Broad Sectors) across Countries

| Region	Country	Primary	Secondary	Tertiary (1)	Tertiary (2)
East Asia and Pacific	Australia	0.137	0.343	0.359	0.404
	People's Republic of China	0.287	0.290	0.375	0.409
	Indonesia	0.363	0.160	0.322	0.354
	Korea, Rep. of	0.264	0.637	0.513	0.513
	Malaysia		0.363		
	Philippines	0.018	0.115	0.121	0.121
	Singapore		0.291	0.328	0.328
	Taipei,China	0.260	0.563	0.382	0.417
	Thailand	0.097	0.075	0.145	0.151
Europe and Central Asia	Austria		0.466	0.263	0.262
	Belgium	0.287	0.380	0.267	0.273
	Bulgaria	0.090	0.249	0.175	0.216
	Cyprus	0.190	0.368	0.236	0.272
	Czech Republic	0.170	0.273	0.214	0.248
	Denmark	0.094		0.702	0.702
	Estonia	0.185	0.323	0.254	0.283
	Finland	0.124	0.337	0.379	0.416
	France	0.380	0.371	0.432	0.411
	Germany	0.346	0.515	0.166	0.166
	Greece	0.323	0.340	0.278	0.278
	Hungary	0.124	0.301	0.240	0.268
	Ireland	0.191	0.269	0.203	0.203
	Italy	0.286	0.446	0.353	0.353
	Latvia	0.345	0.251	0.206	0.238
	Lithuania	0.353	0.261	0.208	0.251
	Luxembourg	0.299	0.286	0.274	0.274
	Netherlands	0.151	0.545	0.674	0.756
	Poland	0.541	0.307	0.244	0.296
	Portugal		0.302	0.630	0.632
	Russian Federation	0.119	0.293	0.245	0.270
	Slovak Republic	0.171	0.272	0.192	0.230
	Slovenia	0.633	0.346	0.319	0.363
	Spain	0.644	0.581	0.511	0.511
	Sweden	0.571	0.439	0.418	0.459
	Turkey	0.439	0.434	0.174	0.174
	United Kingdom	0.290	0.661	0.553	0.553
Latin America and Caribbean	Argentina	0.030	0.168	0.294	0.325
	Bolivia	0.155	0.613	0.520	0.374
	Brazil	0.239	0.586	0.453	0.487
	Chile	0.102	0.286	0.355	0.337
	Colombia	0.293	0.284	0.320	0.295
	Costa Rica	0.438	0.422	0.535	0.547
	Mexico	0.245	0.213	0.220	0.268
	Peru	0.334	0.325	0.403	0.340
Middle East and North Africa	Egypt, Arab Rep.	0.269	0.216	0.310	0.324
	Malta	0.174	0.184	0.128	0.154
North America	Canada	0.182	0.424	0.500	0.489
	United States	0.320			
Sub-Saharan Africa	Botswana	0.092	0.266	0.294	0.314
	Ethiopia (excludes Eritrea)	0.768	0.622	0.313	0.363
	Ghana	0.855	0.520	0.389	0.420
	Mauritius	0.589	0.390	0.352	0.406
	Tanzania	0.160	0.286	0.516	0.531

Note: The primary sector is composed of AGR and MIN; the secondary sector consists of MAN and CON. We use two definitions of the tertiary sector: the tertiary (1) sector consists of PU, WRT, TRA, and FIRE; the tertiary (2) sector consists of PU, WRT, TRA, FIRE, GOV, and OTH.

Source: Authors' own calculations.

3.2 Country Case Studies

In this section, we provide an in-depth analysis for four developing countries: the People's Republic of China (East Asia and the Pacific), Brazil (Latin America and the Caribbean), Egypt (the Middle East and North Africa), and Botswana (Sub-Saharan Africa). For the People's Republic of China, data are available for 7 sectors (MIN, MAN, PU, WRT, TRA, FIRE, and GOV) for the period from 1986 to 2007. Figure 2 plots the time series of the estimates of the labor income share for 7 sectors. We find a steady downward trend in GOV and MIN since the early 1990s, whereas WRT and FIRE show an upward trend. One possible reason for the declining labor income share in MIN could be that MIN has become more capital intensive over time. The labor income share is the smallest in PU, followed by MIN and manufacturing.

Figure 2: Sectoral Labor Income Share: The People's Republic of China
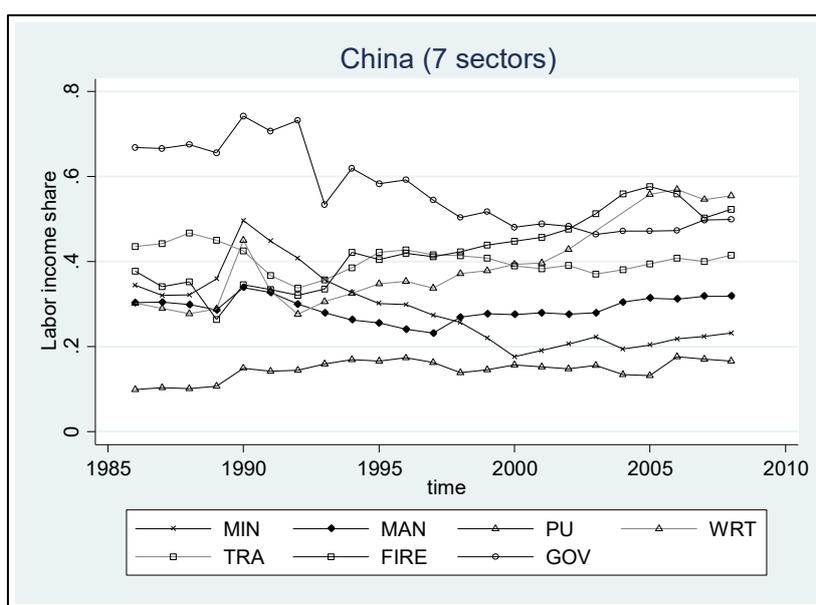
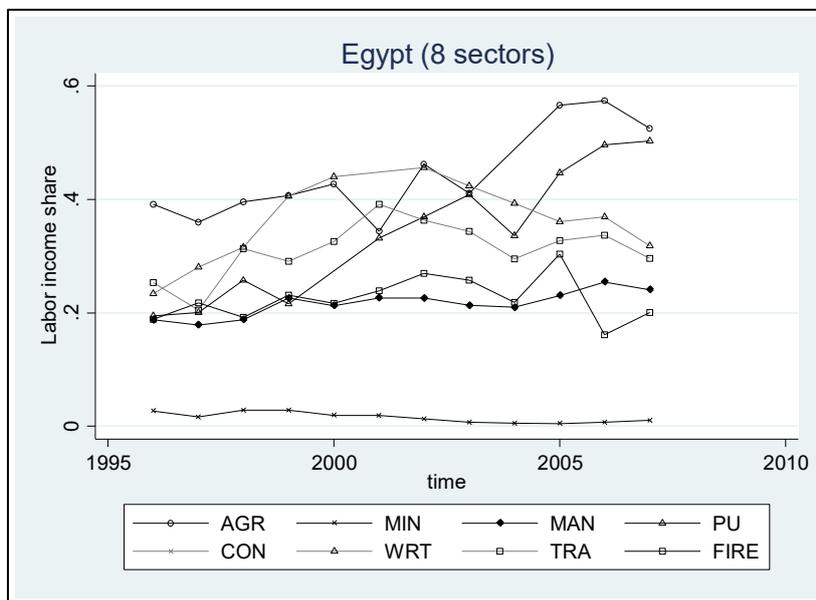Source: Authors' own calculations.

For Brazil, we estimate the labor income shares for 8 sectors (MIN, MAN, PU, CON, WRT, TRA, FIRE, and GOV) for the period from 1994 to 2002. The labor income shares in TRA and MAN show a downward trend, and the same applies to CON since the late 1990s. The income share for laborers is small in PU, TRA, and MIN. For both the People's Republic of China and Brazil, we find a relatively smaller level of the labor income share in MIN, especially since the late 1990s. This could be due to the more capital-intensive technologies that MIN has introduced in both countries. At the same time, the smaller income share in PU could be due to increasing use of computers, arguably reducing the number of employees.

Figure 3: Sectoral Labor Income Share: Brazil
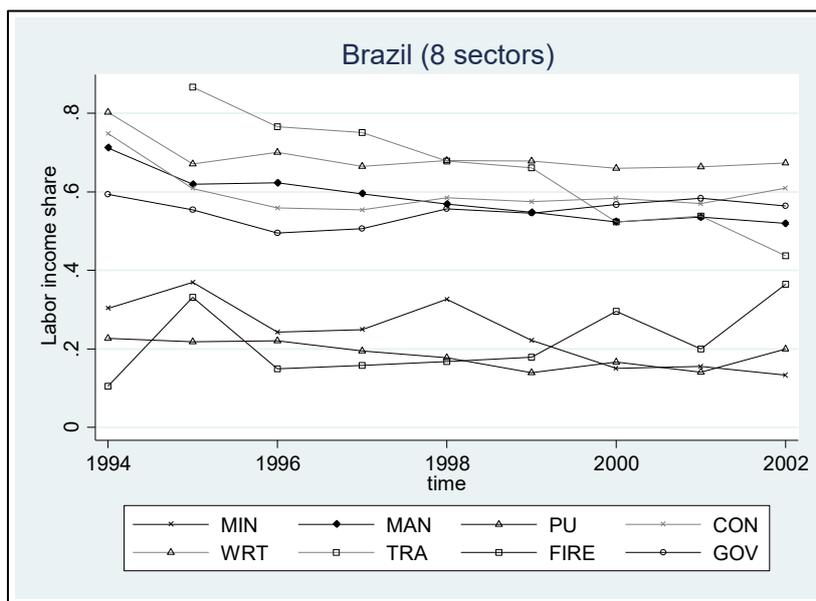
Source: Authors' own calculations.

**Figure 4: Sectoral Labor Income Share: Egypt**

Source: Authors' own calculations.

We present in Figure 4 the sectoral labor income share trends for Egypt (1996–2007) and in Figure 5 the same for Botswana (1997–2002). Data for both countries are available for 8 sectors (AGR, MIN, MAN, PU, CON, WRT, TRA, and FIRE). In Egypt, the labor income shares in AGR and PU show an upward trend since the early 2000s. The labor income share in MIN is by far the smallest. There is not much oscillation in the sectoral labor income share trends for other sectors. Botswana is the only country from Sub-Saharan Africa for which we can estimate sectoral time series for a decent period of 10 years. In Botswana, the labor income shares in both AGR and TRA increase over time. However, like the People's Republic of China, Egypt, and Brazil, MIN is the sector

13

with the smallest share of the labor income. Overall, we find some robust evidence that PU and MIN have predominantly become sectors with a smaller share of the labor income.

**Figure 5: Sectoral Labor Income Share: Botswana**
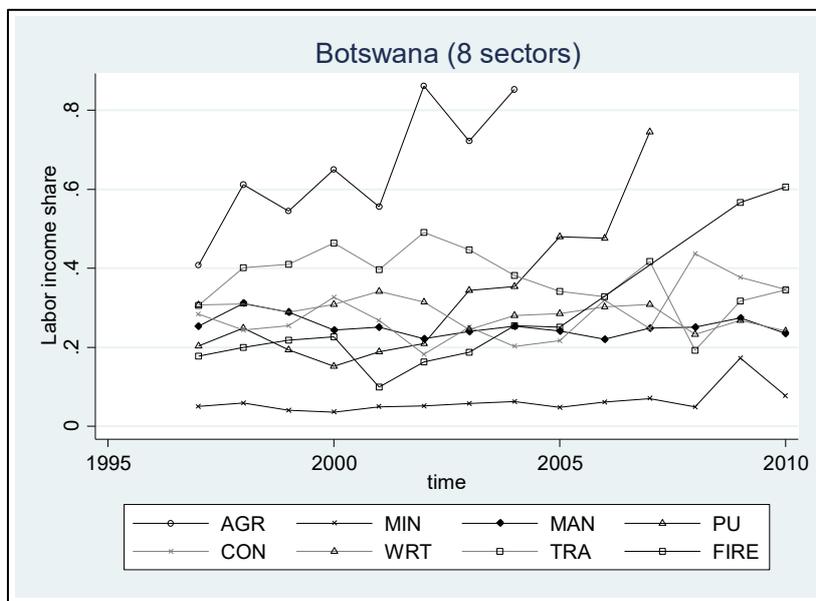
Source: Authors' own calculations.

4. MANUFACTURING VERSUS SERVICES

In this section, we compare the labor income share trends between two broad sectors, manufacturing and services. If the elasticity of substitution between factor inputs is different from one and varies across sectors (e.g., manufacturing versus services), then the sectoral labor income share trends could follow different trajectories. In a recent study on the US, Alvarez-Cuadrado, Long, and Poschke (2015) show that the larger decline in the labor income share in manufacturing relative to that in services is partly due to larger elasticity of substitution (in other words higher elasticity of substitution between capital and labor) in manufacturing associated with much faster labor-augmenting productivity growth relative to services. Alvarez-Cuadrado, Long, and Poschke (2015) use Jorgenson's 35-sector KLEM database for 16 developed economies. They calculate the labor income share for 2 broad sectors, manufacturing and services, which they compute as the compensation of employees over the value added. In Figure 6, we compare the average labor income share between the manufacturing and the service sector across 16 developed economies for the period from 1970 to 2007.

**Figure 6: Average Sectoral Labor Income Share for 16 Developed Countries, 1970–2007**
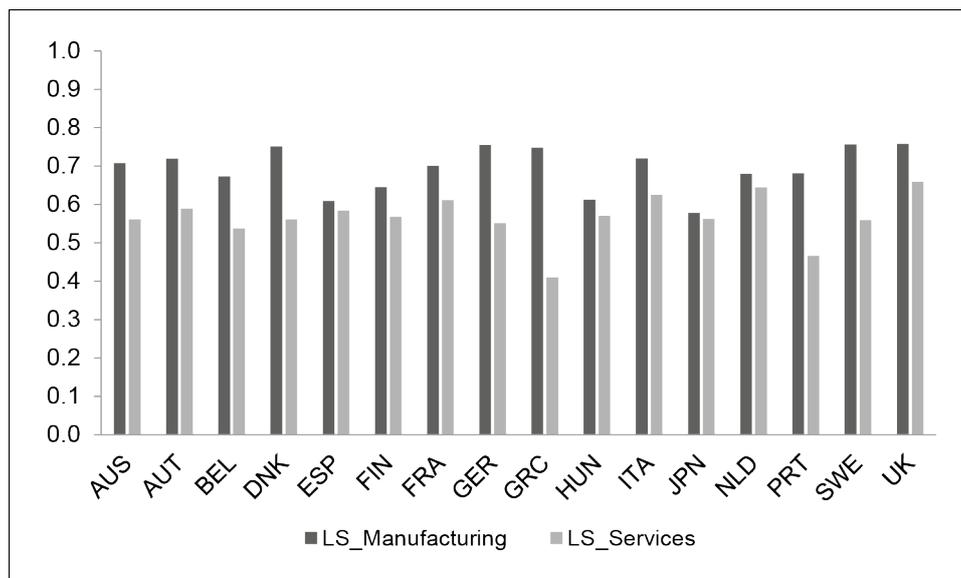
On average, the labor income share in the manufacturing sectors is larger than that in the service sectors. In countries like Hungary, Japan, and Spain, the sectoral gap in the labor income share between manufacturing and services is less than 3 percentage points, whereas, in countries like Greece, Denmark, and Portugal, the gap is more than 15 percentage points. As the next step, we investigate how changes in the sectoral labor income share are related to the observed global decline in the aggregate labor income share. This also helps us to understand better the role of structural transformation in the decline of the labor income share. Figure 7 shows a scatterplot of 16 countries between changes in the labor income shares in manufacturing and changes in the labor income share in services. We find 4 categories of countries. Belgium is the only country that shows an increase in the labor income share in both sectors. The next category consists of Greece, Hungary, Denmark, and Portugal, where the labor income share declines only in the manufacturing sector.

Spain, France, and the UK make up the next group of countries, which experience a drop in the labor income share only in services. Finally, the largest group of countries (Australia, Austria, Finland, Japan, Italy, Germany, Sweden, and the Netherlands) shows a declining labor income share in both sectors. These four groups of countries demonstrate heterogeneous relationships between structural transformation and movements in the labor income share. We find the largest decline in the labor income share (in terms of percentage point differences) in services and manufacturing in Japan and Portugal, respectively.

Figure 7: Changes in Labor Income Shares: Manufacturing versus Services, 1970–2007
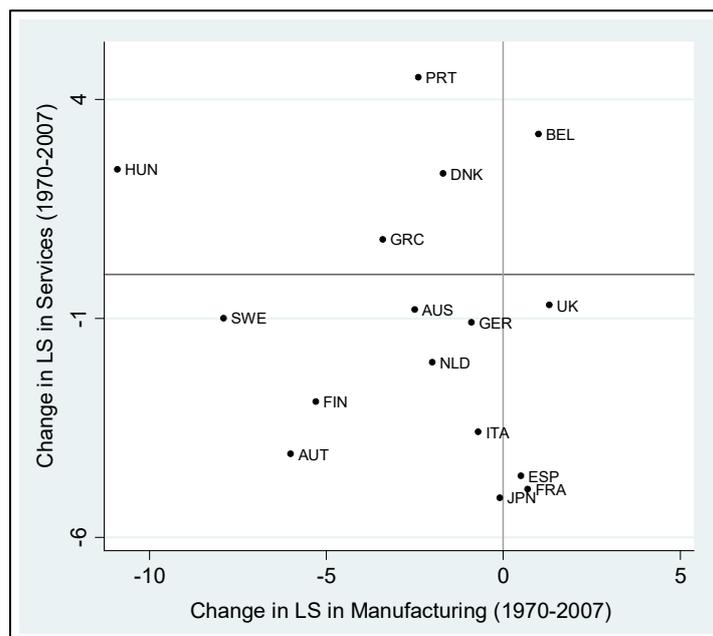
We next derive similar statistics using our newly constructed dataset on 53 countries. Table 5 shows the unweighted regional average of changes in the labor income share for the primary, secondary, and tertiary sectors. The outcomes for the primary sector are mixed; however, in almost all the regions (except the Middle East and North Africa), there is a decline in the labor income share in the secondary sector. It is necessary to note that, since the period of coverage in our data varies considerably across countries, we have no choice but to take the unweighted average changes based on the starting year and the ending year for each country. Overall, the average periodic change in the labor income share in the secondary sector and the primary sector shows a downturn; however, in the tertiary sector, we find exactly the opposite trend. Regional diversity is predominant. For example, in the East Asia and the Pacific region, the labor income share declines in all the sectors, whereas, in the Middle East and North Africa (MEAN) and the Latin America and Caribbean (LAC) region, all the sectors show an increase in the average labor income share.

As the final step, we plot the changes in the labor income share in the secondary sector against the change in the labor income share in the tertiary sector. In the left-hand panel of Figure 8, the scatter plot shows this relation for 27 European and Central Asian countries. It emerges that the average figures in Table 5 are not particularly informative regarding the simultaneous movement in the labor income share in the tertiary and the secondary sector. A glance at the graph suggests a positive correlation between the changes in the 2 sectors across the 27 European and Central Asian countries. Since our data cover a relatively shorter period, we cannot directly compare Figure 8 with Figure 7, even though there are some countries common in both graphs (e.g., AUT and HUN). The average periodic change in the labor income share in the tertiary sector favors laborers the most in Germany and the least in Luxembourg. Similarly, the change in the labor income share in the secondary sector is most favorable in Greece and Lithuania and least favorable in Austria.

Table 5: Changes in Labor Income Shares (Broad Sectors)

	Growth of the Labor Income Share		
	Primary	Secondary	Tertiary
East Asia and the Pacific	–0.163	–0.031	–0.012
Europe and Central Asia	0.001	–0.034	0.001
Latin America and Caribbean	0.000	0.066	0.076
Middle East and North Africa	0.020	0.114	0.068
North America	0.058	–0.147	–0.205
Sub-Saharan Africa	–0.094	–0.072	0.090
All countries	–0.024	–0.015	0.014

Note: In our sample, the data coverage varies considerably across countries; as a result, the average changes are based on the starting year and the ending year for each country.

Source: Authors' own calculations.

Figure 8: Changes in Labor Income Shares: Manufacturing versus Services (Based on Newly Compiled Data)
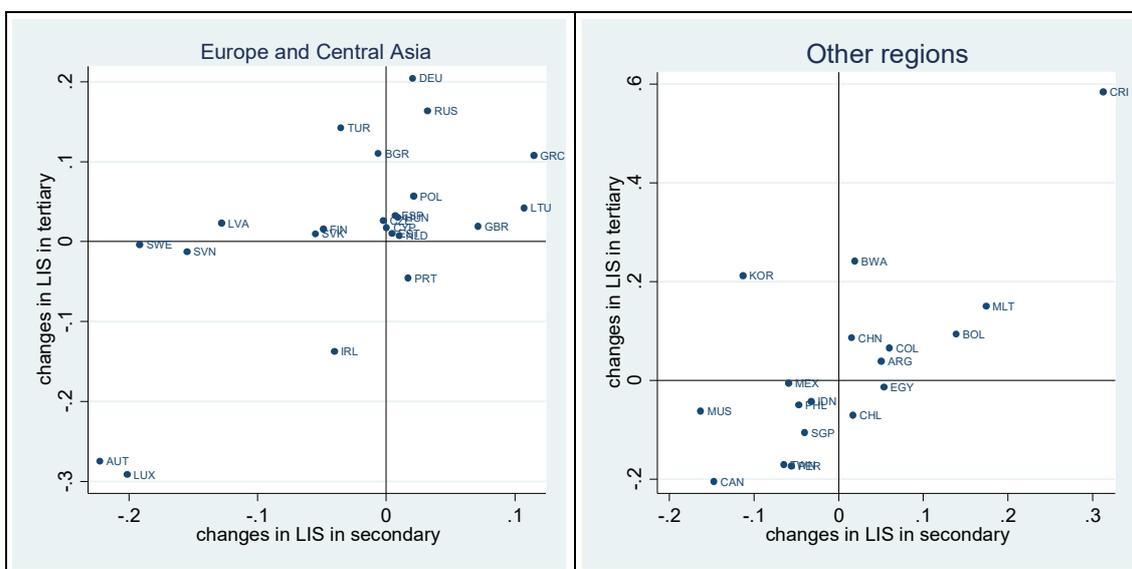
Note: In our sample, the data coverage varies considerably across countries; as a result, the average changes are based on the starting year and the ending year for each country.

Source: Authors' own calculations.

The right-hand panel of Figure 8 shows a scatter plot of the periodic change in the labor income share in the secondary sector against the same in the tertiary sector for countries from other regions, mostly comprising developing countries. Among the developing countries, the change in the labor income share in the tertiary sector is the largest in Costa Rica and the smallest in Peru. At the same time, the change in the labor income share in the secondary sector is the largest in Costa Rica and the smallest in Mauritius. Like the case for countries from the Europe and Central Asia region, we find a correlation between changes in the labor income share between tertiary and secondary sectors for countries from other regions. However, such findings should be interpreted with caution, mainly due to the unbalanced nature of our panel data. We have missing observations for many sectors, and data are available only for a few years for many countries.

5. CONCLUSION

The main contribution of this paper is to reveal a newly constructed dataset on the labor income share at the sectoral level for 53 countries. Of the 53 countries, 20 are developing countries (based on the World Bank classification), and, for a sample of 45 countries, data are available for at least 5 years. The preliminary evidence suggests that, at the disaggregated level, GOV accounts for the largest share of the labor income (46%), followed by AGR, WRT, TRA, and MAN, each in the vicinity of 40%. On the other hand, PU (16%) and MIN (20%) are the sectors with the smallest share of the labor income. We find considerable variation in the labor income share estimates within each region and within each broad category of sectors both at the level and with changes over time. Overall, there is a fall in the average rate of change in the labor income share in the secondary sector and the primary sector and a rise in the same in the tertiary sector. We hope that our novel sectoral labor income share data will help to identify more nuanced channels of the drivers of the labor income share both at the aggregate and at the sectoral level. We leave this scope of research to future studies.

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APPENDIX 1: NOTES ON EMPLOYMENT DATA

Employment by Sex and Economic Activity (thousands)

The employed comprise all persons of working age who, during a specified brief period, were in the following categories: a) paid employment (whether at work or with a job but not at work); or b) self-employment (whether at work or with an enterprise but not at work). The data are disaggregated by economic activity according to the latest version of the International Standard Industrial Classification of All Economic Activities (ISIC) available for that year. Economic activity refers to the main activity of the establishment in which a person worked during the reference period and depends not on the specific duties or functions of the person's job but on the characteristics of the economic unit in which this person worked.

Part 1: Countries Covered by the GGDC 10-sector Database

Argentina
Source: Permanent Household Survey (Urban) [Encuesta Permanente de Hogares (Urban)]
Period: 1991–2010
Notes:

- Methodology revised every year from 1991 to 2002.
- Break in series in 2003.
- Data reference period: annual or annual average in 1991–1995; incomplete years in 1996–2010.
- Age coverage—minimum age: 10 years from 1996 to 2003.
- Notes on total in 2007: "Nonstandard age group: including 10–14."
- The survey covers only metropolitan areas and main cities.
- Warning on the use of statistical series: researchers should use statistical series published after January 2007 and before December 2015 with caution. The INDEC, based on the statement in decrees 181/15 and 55/16, is undertaking the investigations required to ensure the regularity of data collection and processing.

Bolivia
Source: Household Survey [Encuesta de Hogares]
Period: 1999 and 2005–2009
Notes:

- Methodology revised in 2005.
- The data reference period of 1999 is November.
- B in 2008 and 2009 is unreliable according to the ILO's note.
- Q in 2009 is unreliable according to the ILO's note.

Botswana (1/2)
Source: Labor Force Survey
Period: 1996, 1998, 2000, 2003, and 2006
Notes:

- Data reference period: annual or annual average for the years 1996, 1998, 2000, 2003, and 2006.
- Population coverage: including armed forces and/or conscripts in 1996, 1998, 2000, 2003, and 2006.

- Age coverage—minimum age: 12 years in 1996, 1998, 2000, 2003, and 2006.
- Note on A for 1996, 1998, 2000, 2003, and 2006: "Nonstandard economic activity: excluding B."

Botswana (2/2)
Source: Botswana Core Welfare Indicators (Poverty) Survey
Period: 2009
- Q in 2009 is unreliable according to the ILO's note.

Brazil (1/2)
Source: Annual Labor Force Survey [Pesquisa Nacional por Amostra de Domicílios]
Period: 1995–1999, 2001–2009, and 2011
Note:
- Q in 1996, 1999, 2002, 2006–2009, and 2011 is unreliable according to the ILO's notes.

c.f. Another source, the "Monthly Employment Survey" [Pesquisa Mensal de Emprego], is available for the years 2004–2013. This covers only metropolitan areas and main cities.

Chile (1/3)
Source: Population census [Censos de población]
Period: 2002
Note:
- The reference period is April.

Chile (2/3)
Source: National Survey on Socio-Economic Conditions [Encuesta de Caracterización Socioeconómica Nacional]
Period: 2011 (2013 is available)

Chile (3/3)
Source: National Employment Survey [Encuesta Nacional de Empleo]
Period: 2009 and 2010 (2011–2013 are also available)
Note:
- B-I in 2009 is quite different from that in 2010.

The People's Republic of China
Source: Employment and wage statistics based on enterprises' reports
Period: 1986–2008
Notes:
- The reference period is annual or the annual average in 1995, 1996, and 1998–2008.
- The definition of "working time" is "hours actually worked" in 1995, 1996, and 1998–2008.
- Note on A for 1986–2008: "Nonstandard economic activity: including B."
- Note on C for 1986–2008: "Nonstandard economic activity: mining only."
- Note on G for 1986–2002 and 2005–2008: "Nonstandard economic activity: including H."
- Note on I for 2003: "Nonstandard economic activity: excluding communication."

- Note on L for 1986–2008: "Nonstandard economic activity: state organs, social organizations."
- Note on L for 1986–2002: "Nonstandard economic activity: including sporting activities and activities of membership organizations not elsewhere classified."

Colombia
Source: Integrated Household Survey [Gran Encuesta Integrada de Hogares]
Period: 2002–2011 (2012 and 2013 are available)
Notes:

- Methodology revised in 2010.
- Age coverage—minimum age: 10 years in rural areas and 12 years in urban areas in 2004, 2008, and 2009.
- Data reference period: annual or annual average in 2009.
- Population coverage: excluding both institutional population and armed forces and/or conscripts in 2009.
- Note on A for 2004 and 2008: "Nonstandard economic activity: including B."
- Note on G for 2004 and 2008: "Nonstandard economic activity: including H."
- Note on L for 2004 and 2008: "Nonstandard economic activity: including M-O."

Costa Rica
Source: National Household Survey [Encuesta Nacional de Hogares]
Period: 1996–2008 (the ILO's metadata description is available from 1997)
Notes:

- The reference period is July in 1997–2008.
- Age coverage—minimum age: 12 years in 1997–2008.
- Note on L for 1996–2000: "Nonstandard economic activity: including O."

Denmark
Source: EU Labour Force Survey
Period: 1992–2007
Notes:

- Methodology revised in 2005.
- Data reference period: annual or annual average.
- B in 1996–2007 is unreliable according to the ILO's notes.
- C in 1992–2004 is unreliable according to the ILO's notes.
- P in 1995 and 1997–2006 is unreliable according to the ILO's notes.
- Q in 1993, 1999, 2000, 2003, 2006, and 2007 is unreliable according to the ILO's notes.
- X in 1995, 1996, 1998, 2001–2005, 2006, and 2007 is unreliable according to the ILO's notes.

Egypt (1/2)
Source: Population Census
Period: 1996
Note:

- The reference period is November.
- Note on A for 1996: "Nonstandard economic activity: including B."
- Note on J for 1996: "Nonstandard economic activity: including K."
- Note on O for 1996: "Nonstandard economic activity: including P-Q."

Egypt (2/2)
Source: Labour Force Sample Survey
Period: 1997–2008
Notes:
- Data reference periods: incomplete year.
- Population coverage: excluding armed forces and/or conscripts.
- Age coverage—maximum age: 64 years.
- Q in 2008 is unreliable according to the ILO's note.

Ethiopia
Source: National Labor Force Survey
Period: 1999 and 2005

France
Source: EU Labour Force Survey
Period: 1992–2007
Notes:
- The methodology changed in 2003 and 2005.
- Data reference period: annual or annual average.
- B in 2004 and 2007 is unreliable according to the ILO's note.
- C in 2004 is unreliable according to the ILO's note.
- Q in 1992–2002, 2004, 2006, and 2007 is unreliable according to the ILO's note.
- X in 1994–2002 is unreliable according to the ILO's note.

Ghana
Source: Living Standards Survey [Déclaration annuelle de Données Sociales]
Period: 2006

India
Source: National Sample Survey
Period: 2000, 2005, and 2010
Notes:
- Data reference period: non-calendar year.
- Q in 2000 and 2005 is unreliable according to the ILO's note.

c.f. Another resource, the "Employment–Unemployment Survey," is available for 2005 and 2010. The values are larger than those of the National Sample Survey, especially for activity A-E.

Indonesia
Source: National Labour Force Survey
Period: 2000–2010
Notes:
- Methodology revised in 2000.
- Q in 2003, 2005, and 2010 is unreliable according to the ILO's note.

Italy
Source: EU Labour Force Survey
Period: 1992–2007
Note:
- The methodology changed in 1992 and 2005.
- Unemployment definition: two criteria (not in employment and seeking).
- Data reference period: annual or annual average.

Japan
Source: Labour Force Survey
Period: 2003, 2004, and 2007
Note:
- Data reference period: annual or annual average in 2003 and 2004.

Kenya
c.f. A labor force survey is available in 1999.

Republic of Korea
Source: Economically Active Population Survey
Period: 1992–2008
Note:
- Break in series in 1999.

c.f. Another source, "Population Census," is available for the year 2000. Its reference period is November.

Malaysia
Source: Labor Force Survey
Period: 2001–2009
Notes:
- Data reference period: annual or annual average.
- Population coverage: excluding armed forces and/or conscripts.

Mauritius (1/2)
Source: Continuous Multi-Purpose Household Survey
Period: 1995 and 2001–2010
Notes:
- The methodology changed in 2001 and 2003.
- Data reference period: annual or annual average in 1995.
- Population coverage: excluding armed forces and/or conscripts in 1995.
- Age coverage—minimum age: 12 years in 1995 and 16 years after 2001.
- Note on A for 1995: "Nonstandard economic activity: including B."
- Note on J for 1995: "Nonstandard economic activity: including K."
- Note on M for 1995: "Nonstandard economic activity: including N."
- Note on O for 1995: "Nonstandard economic activity: including P-Q."
- C in 2002, 2004, 2005, and 2010 is unreliable according to the ILO's note.
- Q in 2004–2010 is unreliable according to the ILO's note.
- X in 2002 is unreliable according to the ILO's note.

Mauritius (2/2)
Source: Population Census
Period: 2000
Notes:

- Data reference period: July.
- Age coverage—minimum age: 12 years.

c.f. Another source, "Official Estimation," is available for the years 2000–2008. Its data reference period is annual or annual average.

Mexico
Source: National Occupation and Employment Survey [Encuesta Nacional de Ocupación y Empleo]
Period: 1991, 1993, and 1995–2004
Note:

- The methodology changed in 1991, 1993, and 2004.

c.f. Another source, the Population Census [Censos de población], is available for 2000. Its data reference period is February and its lowest age coverage is 12 years.

Morocco
c.f. The National Employment Survey [Enquête nationale sur l'emploi] is available for the years 2000, 2002–2008, and 2011–2013.

The Netherlands
Source: EU Labour Force Survey
Period: 1992–2007
Notes:

- Methodology revised in 2005.
- B in 1992–1996 and 1998–2007 is unreliable according to the ILO's note.
- P in 2000–2002 and 2004 is unreliable according to the ILO's note.
- Q in 1992, 1994–1999, 2002–2004, and 2005–2007 is unreliable according to the ILO's note.

Nigeria
c.f. Official estimates are available for the years 2005–2009.

Peru
Source: National Household Survey [Encuesta Nacional de Hogares]
Period: 2002–2011 (2012 and 2013 are also available)
c.f. An alternative source, the Permanent Employment Survey (Urban) [Encuesta permanente de Empleo (Urban)], is available for the period 1996–2009, though it covers only main cities or metropolitan areas.

The Philippines (1/2)
Source: Employment, Hours, and Earnings Survey
Period: 1996–1999, 2001, 2003, 2005, 2006, and 2008
Notes:

- Break in series: unspecified type of break in 1999.
- Establishment size coverage: all establishments with at least 10 employees in 1996–1998 and at least 20 employees in 1999, 2001, 2003, 2005, 2006, and 2008.

- Data reference period: annual or annual average in 1996–1999, 2001, 2003, 2005, 2006, and 2008.
- Note on M for 1996–1999, 2001, 2003, 2005, 2006, and 2008: "Nonstandard economic activity: private education only."
- Note on N for 1996–1999, 2001, 2003, 2005, 2006, and 2008: "Nonstandard economic activity: excluding public medical, dental and other health services."

The Philippines (2/2)
Source: Labour Force Survey
Period: 2002
Notes:

- Data reference period: annual or annual average.
- Population coverage: excluding armed forces and/or conscripts.
- The values are quite different (sometimes values are more than 10 times bigger than those of source (1/2))

Senegal
c.f. The Survey to Monitor Poverty in Senegal [Enquête de Suivi de la Pauvreté au Sénégal] is available for the year 2006.

Singapore
Source: Comprehensive Labour Force Survey
Period: 1985–1989, 1991–1999, and 2001–2005
Notes:

- Methodology revised in 2001.
- Data reference period: June for 1994–2005.
- Population coverage: nationals and residents for 1994–2005.
- Notes on A for 1985–1989 and 1991–1996: "Nonstandard economic activity: including B"; 1997–1999 and 2001–2005: "Including B-C, E, X."
- Note on G for 1997: "Nonstandard economic activity: including H."
- Note on J for 1997: "Nonstandard economic activity: including K."
- Notes on L for 1997: "Nonstandard economic activity: including M-Q"; for 1998, 1999, and 2001–2005: "Including M."
- Note on M for 1985–1989 and 1991–1996: "Nonstandard economic activity: including N."

c.f. An alternative source, "Population Census," is available in 2000.

South Africa
c.f. The Quarterly Labour Force Survey is available from 2000 to 2013.

Spain
Source: EU Labor Force Survey
Period: 1992–2007
Notes:

- Methodology revised in 1993, 2001, and 2005.
- Data reference period: annual or annual average.
- Q in 1992, 1994–1996, 1998–2000, 2003, and 2007 is unreliable according to the ILO's note.

Sweden
Source: EU Labour Force Survey
Period: 1995–2007
Notes:
- Methodology revised in 2005.
- Data reference period: annual or annual average.
- B is unreliable in 1995–2004, 2006, and 2007 according to the ILO's note.
- C is unreliable in 1995, 1996, and 1999 according to the ILO's note.
- P is unreliable in 1998, 1999, 2001, and 2005–2007 according to the ILO's note.
- Q is unreliable in 2001–2002, 2004, and 2006–2007.
- X is unreliable in 1996–2000, 2004, and 2005.

c.f. The Labour Force Survey is available in 1987–1989.

Tanzania
Source: Labour Force Survey
Period: 2006
Note:
- Methodology revised in 2006.

Thailand
Source: Labour Force Survey
Period: 2002–2010
Notes:
- Methodology revised in 2010.
- Data reference period: third quarter in the years 2002 and 2003.
- Population coverage: excluding armed forces and/or conscripts in 2002 and 2003.
- Nonstandard economic activity: including repair and installation services for all activities in 2004–2008.

United Kingdom
Source: EU Labour Force Survey
Period: 1992–2007
Notes:
- Methodology revised in 2005.
- Data reference period: annual or annual average for the years 1992–2007.
- B in the years 1995–1997, 1999–2001, 2003, and 2004 is unreliable according to the ILO's note.
- Q in the years 1999, 2003, and 2004 is unreliable according to the ILO's note.

c.f. An alternative source, "Official Estimates," is available from 1996 to 2005.

Part 2: Countries covered by the Socio-Economic Account

Australia
Source: Labour Force Survey
Period: 1990–2008
Note:
- Break in series in 1994 and 2006.

Austria

Source: EU Labour Force Survey
Period: 1995–2007
Notes:

- Break in series in 2005.
- Data reference period: annual or annual average.
- B in 1998, 2000, and 2004–2007 is unreliable according to the ILO's note.
- Q in 1994–2004 is unreliable according to the ILO's note.

Belgium
Source: EU Labour Force Survey
Period: 1992–2007
Note:

- Break in series in 1999, 2001, and 2005.
- Data reference period: annual or annual average.
- B in 1992, 1994, 1996, 1997, 2006, and 2007 is unreliable according to the ILO's note.
- Q in 2002 and 2003 is unreliable according to the ILO's note.

c.f. Another source, "Official Estimates [Estimations officielles]," is available for 1994–1999.

Bulgaria
Source: EU Labour Force Survey
Period: 2000–2007
Notes:

- Break in series in 2001, 2003, and 2005.
- Data reference period: annual or annual average.
- B in 1992, 1994, 1996, 1997, 2006, and 2007 is unreliable according to the ILO's note.
- P in 2000, 2002, 2004, 2006, and 2007 is unreliable according to the ILO's note.
- Q in 2004, 2006, and 2007 is unreliable according to the ILO's note.
- X in 2002 and 2004 is unreliable according to the ILO's note.

c.f. Another source, "Official Estimates," is available for 1996–2006. (The number of employees in the agriculture sector has the largest difference among all the sectors. The number reported here is almost double to triple to that of the EU LFS). In addition, the Population Census is available for 2001.

Canada
Source: Labour Force Survey
Period: 2016

Cyprus
Source: EU Labour Force Survey
Period: 2000–2007
Notes:

- Break in series in 2005.
- B in 2001–2004 and 2006–2007 is unreliable according to the ILO's note.
- C in 2001–2004 and 2006–2007 is unreliable according to the ILO's note.

Czech Republic
Source: EU Labour Force Survey

Period: 1993–2007
Notes:

- Break in series in 2005.
- Data reference period: annual or annual average.
- B in 1997 to 2004 is unreliable according to the ILO's note.
- P in 1997 to 2004 and 2007 is unreliable according to the ILO's note.
- Q in 1997 to 2004, 2006, and 2007 is unreliable according to the ILO's note.
- X in 1997 to 2001, 2004, 2006, and 2007 is unreliable according to the ILO's note.

Estonia (1/2)
Source: Labour Force Survey
Period: 1989–1996
Notes:

- Data reference period: annual or annual average.
- Population coverage: including armed forces and/or conscripts.
- Age coverage—maximum age: 69 years.

Estonia (2/2)
Source: EU Labour Force Survey
Period: 1997–2007
Notes:

- Break in series in 2001 and 2005.
- Data reference period: annual or annual average.
- B in 1997, 1999, 2000, 2002–2004, 2006, and 2007 is unreliable according to the ILO's note.
- C in 1997, 2000, and 2002–2004 is unreliable according to the ILO's note.
- J in 1997, 2000, and 2002–2004 is unreliable according to the ILO's note.
- P in 1997–1999 and 2004–2006 is unreliable according to the ILO's note.
- Q in 2007 is unreliable according to the ILO's note.
- X in 2005–2007 is unreliable according to the ILO's note.

Finland (1/2)
Source: Labour Force Survey
Period: 1989
Note:

- Data reference period: annual or annual average.

Finland (2/2)
Source: EU Labour Force Survey
Period: 1990–2007
Notes:

- Break in series in 2000 and 2005.
- Data reference period: annual or annual average.
- B in 1995, 1996, 1998, 1999, 2001–2004, 2006, and 2007 is unreliable according to the ILO's note.
- C in 1997 and 2001 is unreliable according to the ILO's note.

- P in 1995, 1996, 2004, 2006, and 2007 is unreliable according to the ILO's note.
- X in 1995 is unreliable according to the ILO's note.

Germany
Source: EU Labour Force Survey
Period: 1992–2007
Notes:
- Break in series in 2005.
- Data reference period: annual or annual average.
- B in 1997, 2003, and 2004 is unreliable according to the ILO's note.

Greece
Source: EU Labour Force Survey
Period: 1992–2007
Notes:
- Methodology revised in 1998, 2001, 2004, and 2005.
- Q in 1992–1997, 1999, 2002, 2006, and 2007 is unreliable according to the ILO's note.

Hungary (1/2)
Source: Labour Force Survey
Period: 1992–1995
Note:
- Data reference period: annual or annual average.
- Population coverage: excluding armed forces and/or conscripts.
- Age coverage—maximum age: 74 years.
- Note on A for 1992–1995: "Nonstandard economic activity: including B."

Hungary (2/2)
Source: EU Labour Force Survey
Period: 1996–2007
Notes:
- Methodology change in 2001 and 2005.
- Data reference period: annual or annual average.
- B in 1996–2000, 2002–2004, 2006, and 2007 is unreliable according to the ILO's note.
- P in 1996–2000, 2002–2004, 2006, and 2007 is unreliable according to the ILO's note.
- Q in 1996–2000, 2002–2004, 2006, and 2007 is unreliable according to the ILO's note.

Ireland
Source: EU Labour Force Survey
Period: 1992–2007
Notes:
- Methodology change in 2005.
- Data reference period: annual or annual average.
- B in 1998–2004, 2006, and 2007 is unreliable according to the ILO's note.
- Q in 1992–1997, 2006, and 2007 is unreliable according to the ILO's note.
- X in 1992, 1993, 1997, and 2004 is unreliable according to the ILO's note.

Latvia (1/2)

Source: Labour Force Survey
Period: 1996 and 1997
Notes:

- Data reference period: annual or annual average.
- Population coverage: excluding armed forces and/or conscripts.

Latvia (2/2)
Source: EU Labour Force Survey
Period: 1998–2007
Notes:

- Methodology revised in 2002 and 2005.
- Data reference period: annual or annual average.
- B in 1998, 2000, 2001, 2003, 2004, and 2006 is unreliable according to the ILO's note.
- C in 1998–2001, 2003, and 2004 is unreliable according to the ILO's note.
- J in 2001 and 2003 is unreliable according to the ILO's note.
- Q in 1998–2001, 2003, and 2004 is unreliable according to the ILO's note.
- X in 2006 and 2007 is unreliable according to the ILO's note.

Lithuania (1/2)
Source: Labour Force Survey
Period: 1997
Notes:

- Data reference period: annual or annual average.
- Population coverage: excluding armed forces and/or conscripts.
- Age coverage—minimum age: 14 years.
- Note on A for 1997: "Nonstandard economic activity: including B."

Lithuania (2/2)
Source: EU Labour Force Survey
Period: 1998–2007
Notes:

- Methodology change in 2002 and 2005.
- Data reference period: annual or annual average.
- B in 1998–2001, 2003–2004, 2006, and 2007 is unreliable according to the ILO's note.
- C in 1998–2001, 2003–2004, 2006, and 2007 is unreliable according to the ILO's note.
- J in 2001 and 2003–2007 is unreliable according to the ILO's note.
- P in 1998–2001, 2003–2004, 2006, and 2007 is unreliable according to the ILO's note.

c.f. Another source, the "Population Census," is available in 2001.

Luxembourg
Source: EU Labour Force Survey
Period: 1992–2007
Notes:

- Methodology revised in 2003, 2005, and 2007.
- Data reference period: annual or annual average.
- C in 1992–1999, 2004, and 2006 is unreliable according to the ILO's note.
- E in 1993–2002 and 2004 is unreliable according to the ILO's note.

- K in 1992 is unreliable according to the ILO's note.
- X in 1993–2002, 2004, and 2006 is unreliable according to the ILO's note.

c.f. Another resource, "Official Estimates [Estimations officielles]," is available for 1995–2008. The total employment is almost 30% higher than that of the EU Labour Force Survey. Note that its data reference period is annual or annual average. The geographical coverage is nonstandard. The population coverage includes armed forces and/or conscripts. The institutional sector coverage is nonstandard.

Malta
Source: EU Labour Force Survey
Period: 2000–2007
Notes:
- Methodology revised in 2005.
- Data reference period: annual or annual average.
- A in 2000–2002 and 2004 is unreliable according to the ILO's note.
- B in 2000–2004, 2006, and 2007 is unreliable according to the ILO's note.
- E in 2000 and 2002 is unreliable according to the ILO's note.
- P in 2006 and 2007 is unreliable according to the ILO's note.
- Q in 2002, 2006, and 2007 is unreliable according to the ILO's note.

Poland (1/2)
Source: Labour Force Survey
Period: 1995–1996
Notes:
- Data reference period: annual or annual average.
- Population coverage: excluding armed forces and/or conscripts.

Poland (2/2)
Source: EU Labour Force Survey
Period: 2000–2007
Notes:
- Methodology revised in 2005.
- Data reference period: annual or annual average.
- B in 2000–2004, 2006, and 2007 is unreliable according to the ILO's note.
- P in 2000–2004 and 2006 is unreliable according to the ILO's note.
- X in 2006 and 2007 is unreliable according to the ILO's note.

c.f. Another source, "Population Census," is available for 2002. Its data reference period is May.

Portugal
Source: EU Labour Force Survey
Period: 1992–2007
Notes:
- Methodology revised in 2005.
- Data reference period: annual or annual average.
- B is unreliable in 2000–2004, 2006, and 2007 according to the ILO's note.
- P is unreliable in 2000–2004 and 2006 according to the ILO's note.
- X in 2006 and 2007 is unreliable according to the ILO's note.

c.f. Another data source, Population censuses [Recensements de population], is available in 2001. Its reference period is March.

Romania (1/2)
Source: Household Labour Force Survey
Period: 1994–1996
Notes:
- Data reference period: March.
- Age coverage—minimum age: 14 years.
- Note on O for 1994–1996: "Nonstandard economic activity: including P-Q."

Romania (2/2)
Source: EU Labour Force Survey
Period: 1997–2007
Notes:
- Methodology revised in 2002, 2003, and 2005.
- Data reference period: annual or annual average.
- B in 1997–2001, 2004, 2006, and 2007 is unreliable according to the ILO's note.
- Q in 2004, 2006, and 2007 is unreliable according to the ILO's note.

Russian Federation (1/2)
Source: Official Estimates
Period: 1990–1997 (2005, 2012, and 2013 are also available)
Notes:
- Data reference period: annual or annual average.
- Note on G for 1990–1996: "Nonstandard economic activity: including H."
- Note on J for 1990–1996: "Nonstandard economic activity: including K."
- Note on P for 1990–1996: "Nonstandard economic activity: including P and X."

Russian Federation (2/2)
Source: Population Survey on Employment Problems
Period: 1998–2016
Notes:
- Methodology revised in 2010.
- Data reference period: annual or annual average in 1997–2009.
- Geographical coverage: total national, excluding some areas in 1997–2009.
- Population coverage: excluding institutional population in 1997–2009.
- Age coverage—maximum age: 72 years in 1997–2009.
- Q in 2011, 2013, and 2014 is unreliable according to the ILO's note.
- A, J, L, O, and P show a huge difference between (1/2) and (2/2).

Slovakia
Source: EU Labour Force Survey
Period: 1994–2007
Notes:
- Methodology change in 2005.
- B in 2004, 2006, and 2007 is unreliable according to the ILO's note.
- P in 1998–2001 is unreliable according to the ILO's note.

- Q in 2003, 2006, and 2007 is unreliable according to the ILO's note.
- X in 2003, 2006, and 2007 is unreliable according to the ILO's note.

c.f. Another source, "Labour Costs," is available in 2001. Its data reference period is May.

Slovenia (1/2)
Source: Labour Force Survey
Period: 1993–1995
Note:
- Data reference period: May.

Slovenia (2/2)
Source: EU Labour Force Survey
Period: 1996–2007
Notes:
- Methodology revised in 2005.
- Data reference period: annual or annual average.
- B in 1998, 1999, 2004, 2006, and 2007 is unreliable according to the ILO's note.
- C in 1996–2004 is unreliable according to the ILO's note.
- E in 1998–2000, 2003, and 2004 is unreliable according to the ILO's note.
- P in 1996–1999, 2001, 2002, 2004, 2006, and 2007 is unreliable according to the ILO's note.
- Q in 2007 is unreliable according to the ILO's note.
- X in 1996–2004 is unreliable according to the ILO's note.

Turkey
Source: EU Labour Force Survey
Period: 2006–2007
Note:
- Data reference period: annual or annual average.

APPENDIX 2: NOTES ON EARNINGS DATA

Part 1: Countries Covered by the GGDC 10-sector Database

Argentina
Source: Permanent Household Survey (Urban) [Encuesta Permanente de Hogares (Urban)]
Period: 2004–2006 and 2008–2010
Notes:
- The survey covers only metropolitan areas and main cities.
- Warning on the use of statistical series: researchers should use the statistical series published after January 2007 and before December 2015 with caution. The INDEC, based on the statement in decrees 181/15 and 55/16, is undertaking the investigations required to ensure the regularity of data collection and processing.

Bolivia
Source: Household Survey [Encuesta de Hogares]
Period: 2005–2009
Note:
- B in 2006 is unreliable according to the ILO's note.

Botswana
Source: Survey of Employment and Employees
Period: 1997–2011
Notes:
- The reference period is March in 1998, 2003, and 2005; September in 1999–2002, 2004, and 2006–2008; and annual or annual average in 2009–2011.
- The population coverage in 1999–2005 is nationals and residents.
- The definition of the "working time" concept used in 1999–2011 is "hours actually worked."
- Note on A for 1997–2005: "Nonstandard economic activity: including B."
- Note on A for 2006–2008: "Nonstandard economic activity: excluding hunting and forestry."
- Note on E for 2006–2008: "Nonstandard economic activity: excluding gas."
- Note on total: "Nonstandard economic activity: public sector only."

Brazil
Source: Other administrative records and related sources [Otros registros administrativos y fuentes relacionadas]
Period: 1994–2002
Notes:
- Break in series: new or revalued currency in 1995.
- Working time concept: hours actually worked in 1995 and 1998–2002.
- Data reference period: December for the years 1998–2002.
- Note on A for 1994–2002: "Nonstandard economic activity: including B."
- Note on I for 1994–2002: "Nonstandard economic activity: services."

c.f. The Annual Labour Force Survey [Pesquisa Nacional por Amostra de Domicílios] is available for 2003–2009 (and for 1995–1999, 2001–2009, and 2011). However, the data require careful handling, as the differences among sectors are substantial. For

example, the values of B in 2005 and 2006 and X in 2005 are three digits, Q in 2004, 2005, 2007, and 2008 is four digits, while other values are 9–11 digits.

Chile (1/2)
Source: Index for Remuneration and Labour Cost [Índice de Remuneraciones y Costo de la Mano de Obra]
Period: 2006–2008
Notes:
- The reference period is April.
- The definition of "working time" is "hours actually worked."
- Note on C for 2006–2008: "Nonstandard economic activity: including D-Q."

Chile (2/2)
Source: National Survey on Socio-Economic Conditions [Encuesta de Caracterización Socioeconómica Nacional]
Period: 2011 (2013 is available)

The People's Republic of China
Source: Employment and wage statistics based on enterprises' reports
Period: 1986–2008
Notes:
- The reference period is annual or annual average in 1995, 1996, and 1998–2008.
- The definition of "working time" is "hours actually worked" in 1995, 1996, and 1998–2008.
- Note on A for 1986–2008: "Nonstandard economic activity: including B."
- Note on C for 1986–2008: "Nonstandard economic activity: mining only."
- Note on G for 1986–2002 and 2005–2008: "Nonstandard economic activity: including H."
- Note on I for 2003: "Nonstandard economic activity: excluding communication."
- Note on L for 1986–2008: "Nonstandard economic activity: state organs, social organizations."
- Note on L for 1986–2002: "Nonstandard economic activity: including sporting activities and activities of membership organizations not elsewhere classified."

Colombia
Source: Integrated Household Survey [Gran Encuesta Integrada de Hogares]
Period: 2002–2007, 2010, 2011 (2012 and 2013 are available)
Notes:
- Methodology revised in 2010.
- The data reference period of 2002–2007 is the fourth quarter.
- Population coverage: excluding armed forces and/or conscripts.
- Age coverage—minimum age: 10 years.
- The definition of "working time" is "hours actually worked" in 2002–2007.
- Note on C for 2002–2007: "Nonstandard economic activity: including D-Q."

Costa Rica
Source: National Household Survey [Encuesta Nacional de Hogares]
Period: 1998–2001, 2004, 2005, and 2008
Notes:
- Methodology revised in 2008.
- The reference period is July in 1998–2001, 2004, 2005, and 2008.
- Job coverage: the main job currently held in 1998–2001, 2004, 2005, and 2008.
- The definition of "working time" is "hours actually worked" in 1998–2001, 2004, 2005, and 2008.
- Note on A for 1998–2001, 2004, 2005, and 2008: "Nonstandard economic activity: including B."
- Note on C for 1998–2001, 2004, 2005, and 2008: "Nonstandard economic activity: including D-Q."

Denmark
Source: Monthly Survey of Industrial Employment and Labour Costs
Period: 1995–2007 and 2009–2011 (2012 and 2013 are available)
Notes:
- Methodology revised in 2007.
- Time unit: per hour in 1995–2007 and 2009–2011.
- Data reference period: annual or annual average in 1995–2007 and 2009–2011.
- Institutional sector coverage: private sector only in 1995–2007 and 2009–2011.
- Age coverage—minimum age: nonstandard minimum age in 1996–2006.
- Working time concept: hours actually worked in 1995–2007 and 2009–2011.
- Note on C for 1995–2007: "Nonstandard economic activity: including D-Q."

Denmark—Weekly Working Hours
Source: EU Labour Force Survey
Period: 1992–2007
Notes:
- Methodology revised in 2005.
- B in 1994–2004, 2006, and 2007 is unreliable according to the ILO's note.
- C in 1992–2004, 2006, and 2007 is unreliable according to the ILO's note.
- P in 1995, 1997–2004, and 2007 is unreliable according to the ILO's note.
- Q in 1993, 1999, 2000, 2003, 2004, and 2007 is unreliable according to the ILO's note.
- X in 1995, 1996, 1998, 2001–2004, 2006, and 2007 is unreliable according to the ILO's note.

Egypt (1/2)
Source: Employment, Wages, and Hours of Work Survey
Period: 1996–2007
Notes:
- Time unit: per week.
- The definition of "working time" is "hours actually worked."
- The reference period is October.
- Reference group coverage: wage earners/blue collar/production workers.
- Establishment size coverage: all establishments with at least 10 employees.
- Note on A for 1996–2007: "Nonstandard economic activity: including B."

- Note on C for 1996–2007: "Nonstandard economic activity: including D-Q."

- E and F in 2000 and A in 2004 have hikes.

Egypt (2/2)
Source: Labour Force Sample Survey
Period: 2008
Notes:

- Q in 2008 is unreliable according to the ILO's note.
- The values are smaller than the weekly payment in source (1/2).

Ethiopia
Source: National Labor Force Survey
Period: 2005
Note:

- B in 2005 is unreliable according to the ILO's note.

France
Source: Employment Survey [Enquête Emploi]
Period: 1999–2002
Notes:

- Data reference period: annual or annual average.
- Working time concept: hours actually worked.
- Note on C for 1999–2002: "Nonstandard economic activity: including D-Q."

cf. Alternatively, the Quarterly Survey on the Economic Activity and Working Conditions of the Labour Force [Enquête trimestrielle sur l'activité et les conditions d'emploi de la main-d'oeuvre (ACEMO)] is available for the years 1997–1998 and the Annual Statement of Social Data [Déclaration annuelle de Données Sociales] for the years 2005–2006. However, the value of the former source is almost 10 times and the latter is about 40–70% of that of the Employment Survey.

Ghana
Source: Living Standards Survey [Déclaration annuelle de Données Sociales]
Period: 2006
Note:

- Denomination in 2007: 1 new Ghana cedi=1/10000 cedi.

Indonesia
Source: National Labour Force Survey
Period: 2000–2010
Notes:

- Methodology revised in 2000.
- Q in 2003, 2005, and 2010 is unreliable according to the ILO's note.
- X in 2004–2006 is unreliable according to the ILO's note.

Italy
Source: Labour-Related Establishment Survey
Period: 1995
Note:

- Data reference period: annual or annual average.

Republic of Korea
Source: Survey on Labor Conditions by Employment Type
Period: 1993–1996 and 1999–2008
Notes:
- Data reference period: annual or annual average.
- Establishment size coverage in 1993–1996: all establishments with at least 10 employees.
- Establishment size coverage in 1999–2008: all establishments with at least 5 employees.
- Working time concept: hours actually worked in 1993–1996 and 1999–2008.

Malaysia
Source: Survey of Manufacturing Industries
Period: 2000–2001
Note:
- The survey covers only D.

Mauritius (1/2)
Source: Survey of Employment and Earnings
Period: 1999–2008
Notes:
- Note on A for 1999–2008: "Nonstandard economic activity: including B."
- Note on C for 1999–2008: "Nonstandard economic activity: including D-Q."

Mauritius (2/2)
Source: Continuous Multi-Purpose Household Survey
Period: 2009–2010 (2001–2008 are also available)
Notes:
- C in 2010 is unreliable according to the ILO's note.
- Q in 2009–2010 is unreliable according to the ILO's note.
- The ILO notes that most of the values in C and Q are unreliable.
- Break in series in 2001 and 2003.

Mexico
Source: National Occupation and Employment Survey [Encuesta Nacional de Ocupación y Empleo]
Period: 1991, 1993, and 1995–2004
Notes:
- Methodology change in 1995.
- Data reference period: second quarter in 1991, 1993, and 1995–2004.
- Age coverage—minimum age: 14 years for 1995–2004.
- Working time concept: hours actually worked for 1991, 1993, and 1995–2004.
- Note on A for 1991, 1993, and 1995–2004: "Nonstandard economic activity: including B."
- Note on C for 1991, 1993, and 1995–2004: "Nonstandard economic activity: including D-Q."

The Netherlands
Source: Annual Earnings Survey
Period: 1994–2005
Notes:
- Break in series: new or revalued currency in 2001.
- The reference period is October in 1994 and December in 1995–2005.
- Working time arrangement coverage: full-time workers in 1994–2005.
- Working time concept: hours actually worked in 1994–2005.
- Note on A for 2001–2005: "Nonstandard economic activity: including B."
- Note on C for 2001–2005: "Nonstandard economic activity: including D-Q."

Peru
Source: National Household Survey [Encuesta Nacional de Hogares]
Period: 2002–2011 (2012 and 2013 are also available)
Note:
- The values in 2002 and 2003 are very high, especially for C in 2003.

c.f. An alternative source, "Permanent Employment Survey (Urban) [Encuesta permanente de Empleo (Urban)]" is available from 2003 to 2009, though it covers only main cities or metropolitan areas.

The Philippines
Source: Employment, Hours, and Earnings Survey
Period: 1996–1999, 2001, 2003, 2005, 2006, and 2008
Notes:
- Break in series: unspecified type of break in 1999.
- Establishment size coverage: all establishments with at least 10 employees in 1996–1998.
- Establishment size coverage: all establishments with at least 20 employees in 1999, 2001, 2003, 2005, 2006, and 2008.
- Working time concept: hours actually worked in 1996–1999, 2001, 2003, 2005, 2006, and 2008.
- Data reference period: annual or annual average in 1996–1999, 2001, 2003, 2005, 2006, and 2008.
- Note on A for 1996–1999, 2001, 2003, 2005, 2006, and 2008: "Nonstandard economic activity: including B."
- Note on C for 1996–1999, 2001, 2003, 2005, 2006, and 2008: "Nonstandard economic activity: including D-Q."

c.f. An alternative data source, the "Integrated Survey," is available for 1998–2000. It has a break in series in 2000.

Singapore
Source: Records of the Central Provident Fund
Period: 1998–2008
Notes:
- Methodology revised in 2005.
- Working time concept: hours actually worked.
- Note on L for 1998–2008: "Nonstandard economic activity: including M-Q."

Spain
Source: Survey of Wages in Industry and the Services [Encuesta de Salarios en la Industria y los Servicios]
Period: 1999–2008
Notes:
- Time unit: per hour.
- Working time concept: hours actually worked.
- Data reference period: annual or annual average.
- Note on C for 1999: "Nonstandard economic activity: including D-Q and excluding L-Q."
- Note on C for 2000–2008: "Nonstandard economic activity: including D-Q."

Spain—Weekly Working Hours
Source: EU Labour Force Survey
Period: 1992–2007
Notes:
- Methodology revised in 1993, 2001, and 2005.
- Q in 1992, 1994, 1999, 2000, 2002, 2003, and 2007 is unreliable according to the ILO's note.

Sweden
Source: Survey of Wages and Employment in Mining, Quarrying, and Manufacturing
Period: 1993–2007
Notes:
- Time unit: per hour in 1994–2007.
- Break in series in 1997: unspecified type of break.
- Data reference period: September for 1994–2007.
- Institutional sector coverage: private sector only in 1994–2007.
- Reference group coverage: adults in 1994–2007.
- Reference group coverage: wage earners/blue collar/production workers in 1994–2007.
- Notes on A for 1993–2007: "Nonstandard economic activity: including B."
- No notes exist on 1993 but most of the descriptions also apply to 1993.

Sweden—Weekly Working Hours
Source: EU Labour Force Survey
Period: 1995–2007
Notes:
- Methodology revised in 2005.
- B in 1995–1999, 2001–2004, 2006, and 2007 is unreliable according to the ILO's note.
- C in 1995, 1996, and 1998–2000 is unreliable according to the ILO's note.
- P in 1997–2001, 2006, and 2007 is unreliable according to the ILO's note.

Taipei,China
Source: Labour-Related Establishment Survey
Period: 1983–1985 and 2004–2008
Notes:
- Data reference period: annual or annual average for the years 2004–2008.
- Working time concept: hours actually worked for the years 2004–2008.

- Notes on C for 1983–1985 and 2004–2008: "Nonstandard economic activity: including D-Q."
- Notes on E for 1983–1985 and 2004–2008: "Nonstandard economic activity: excluding water supply."
- Notes on I for 1983–1985 and 2004–2008: "Nonstandard economic activity: excluding communications."
- Notes on K for 1983–1985 and 2004–2008: "Nonstandard economic activity: excluding business services."

Tanzania
Source: Labour Force Survey
Period: 2006
Note:
- Methodology revised in 2006.

Thailand
Source: Labour Force Survey
Period: 2010
Note:
- Methodology revised in 2010.

United Kingdom
Source: Labour Force Survey
Period: 1995–2008
Notes:
- Time unit: per week.
- Working time arrangement coverage: full-time workers.
- Working time concept: hours actually worked.
- Data reference period: annual or annual average.
- Notes on A for 1995–2008: "Nonstandard economic activity: including B."
- Notes on C for 1995–2008: "Nonstandard economic activity: including E."
- Notes on G for 1995–2008: "Nonstandard economic activity: including H."
- Notes on J for 1995–2008: "Nonstandard economic activity: including K."
- Notes on L for 1995–2008: "Nonstandard economic activity: including M-N."
- Notes on O for 1995–2008: "Nonstandard economic activity: including P-Q."

c.f. An alternative source, Short-Term (Monthly and Quarterly) Employment Statistics, is available for 1998–2007. The unit of the term is weeks, converted into monthly figures through multiplication by 4.33. Its reference period is April. It covers full-time workers.

United States
Source: Current Population Survey
Period: 1969–1970, 2000–2003, and 2005–2008
Notes:
- Time unit: per week.
- Central tendency measure: median.
- Working time concept: hours actually worked.
- Data reference period: annual or annual average.
- The values in 1969 and 1970 are very small (less than 1/90 of the ones after 2000).

Part 2: Countries covered by the Socio-Economic Account

Australia (1/2)
Source: Labour Force Survey
Period: 1985–1995 and 1997–2000
Notes:
- Time unit: per week for the years 1997–2000.
- Job coverage: main job currently held for the years 1997–2000.
- Working time concept: hours actually worked for the years 1997–2000.
- Data reference period: annual or annual average for the years 1997–2000.
- Note on A for 1985–2000: "Nonstandard economic activity: including D-Q."
- Note on A: "Nonstandard economic activity: including B."
- The first to fourth notes only apply to the years 1997–2000, but they seem to be applicable to the data for 1985–1995.

Australia (2/2)
Source: Survey of Employee Earnings and Hours
Period: 1996, 1998, 2000, 2002, 2004, and 2006
Notes:
- Time unit: per hour.
- Working time arrangement coverage: full-time workers.
- Working time concept: hours actually worked.
- Data reference period: May.
- Reference group coverage: adults.
- Age coverage—minimum age: adults.
- Note on C for 1996, 1998, 2000, 2002, 2004, and 2006: "Nonstandard economic activity: including D-Q."

Australia—Weekly Working Hours
Source: Labour Force Survey
Period: 1987–1990
Notes:
- Note on A for 1987–1990: "Nonstandard economic activity: including B."
- Note on C for 1987–1990: "Nonstandard economic activity: including D-Q."
- The ILO provides no full data description.

Austria (1/2)
Source: Insurance Records
Period: 1995–2003
- New currency introduced in 2000.
- Working time concept: hours actually worked.
- Note on C for 2001–2003: "Nonstandard economic activity: including D-Q."

Austria (2/2)
Source: Industrial Production Statistics
Period: 2004–2007 (1996–1998 and 2001–2003 are also available)
- Time unit: per hour.
- New currency introduced in 2000.
- Working time concept: hours actually worked.
- Note on D for 2001–2003: "Nonstandard economic activity: including C."

Austria—Weekly Working Hours
Source: EU Labour Force Survey
Period: 1995–2007
Notes:

- Methodology revised in 2005.
- Job coverage: main and second job currently held in 1995–2007.
- Data reference period: annual or annual average in 1995–2007.
- B in 2002 and 2003 is unreliable according to the ILO's note.
- C in 2003–2005 is unreliable according to the ILO's note.
- X in 2004 is unreliable according to the ILO's note.
- B in 1995-2001, 2004-2007 are missing.
- X in 1995–2003, 2005=2007 are missing.

Belgium
Source: Labour Cost Survey
Period: 1995–2007

- New currency introduced in 1999.
- Unspecified type of break of the series in 1998.
- Data reference period: October 1995–2007.
- Reference group coverage: salaried employed/white collar/office workers in 1995–1998.

Bulgaria
Source: Employed Persons and Wage and Salary Census
Period: 1996–2008
Notes:

- New currency introduced in 1999.
- Note on A for 1996–2008: "Nonstandard economic activity: including B."
- Note on C for 1996–2008: "Nonstandard economic activity: including D-Q."

Canada
Source: Survey of Employment, Payrolls, and Hours
Period:
Note:

- Time unit: per week 1994–2008.
- Methodology revised in 1991.
- Working time concept: hours actually worked from 1994 to 2008.
- Data reference period: annual or annual average.
- Note on A: "Nonstandard economic activity: excluding 11."
- Note on C for 1999–2008: "Nonstandard economic activity: including D-Q."
- According to the ILO's note, the time unit is per week only for 1994–2008, but this also seems to be applicable to the prior years.

Cyprus
Source: Employment Survey
Period: 1998–2006
Notes:

- Data reference period: October.
- Reference group coverage: adults.
- Reference group coverage: salaried employed/white collar/office workers.
- Age coverage—minimum age: adults.

- Working time concept: hours actually worked.
- Note on A for 2001–2006: "Nonstandard economic activity: including B."
- Note on C for 2001–2006: "Nonstandard economic activity: including D-Q."

The Czech Republic
Source: Report on Employment and Wages
Period: 1996–2007
Notes:

- Data reference period: annual or annual average.
- Working time concept: hours actually worked.
- Note on A for 1996–2007: "Nonstandard economic activity: including B."
- Note on C for 1996–2007: "Nonstandard economic activity: including D-Q."
- Note on D for 1996–2007: "Nonstandard economic activity: including C, E."
- The values in the year 2007 are estimates.

Germany
Source: Establishment Survey
Period: 1996–2008
Notes:

- Time unit: per hour.
- New currency introduced from 2001.
- Unspecified break in series in 2006.
- Working time concept: hours actually worked.
- Data reference period: annual or annual average.
- Reference group coverage: wage earners/blue collar/production workers in 1996–2006.

Germany—Weekly Working Hours
Source: EU Labour Force Survey
Period: 1995–2007
Notes:

- Change in methodologies in 2005.
- Data reference period: annual or annual average.
- B in 1997, 2001, 2003, 2004, and 2007 is unreliable according to the ILO's note.

Estonia
Source: Survey of Wages and Salaries
Period: 1992–2008
Notes:

- New or revalued currency from 1992.
- Data reference period: annual or annual average.
- Working time concept: hours actually worked.
- Note on A for 1992–2005: "Nonstandard economic activity: including B."
- Note on C for 1992–2005: "Nonstandard economic activity: including D-Q."

Finland
Source: Survey on Wages of Industrial Workers and Salaries of Industrial Employees
Period: 1996–2008
Notes:
- New currency in 2001.
- Data reference period: fourth quarter.
- Working time arrangement coverage: full-time workers.
- Working time concept: hours actually worked.
- Excluding overtime and/or irregular bonuses in 2002–2008.
- Working time concept: hours actually worked in 2002–2008.
- Note on C: "Nonstandard economic activity: including D-Q."

Greece
Source: Quarterly Payroll Survey in Selected Industries
Period: 2000, 2002, and 2006

Hungary
Source: Employment and Earnings Survey
Period: 1992–2008
Notes:
- Unspecified break in series in 1999.
- Note on A for 1992–2008: "Nonstandard economic activity: including B."
- Note on C for 1992–2008: "Nonstandard economic activity: including D-Q."

Ireland
Source: Earnings Hours and Employment Costs Survey
Period: 1996–2006
Notes:
- Time unit: per week.
- Working time concept: hours actually worked.
- Data reference period: annual or annual average.
- Establishment size coverage: all establishments with at least 10 employees.

Latvia
Source: Survey of Economically Active Commercial Companies, Individual Merchants, Peasant or Fishermen Farms, Budgetary Institutions, Foundations, Associations, or Funds, as well as Administrative Data
Period: 1990–2008
Notes:
- Data reference period: first quarter.
- Working time concept: hours actually worked.
- Note on A, C, D, E, G, H, I, J, K, L, N, O, and total in 1990 and 1991: "Nonstandard economic activity: private sector only."
- Note on A in 1995–2008: "Nonstandard economic activity: including B."
- Note on C in 1995–2008: "Nonstandard economic activity: including D-Q."
- Significant differences exist between 1991 and 1992.

Lithuania
Source: Monthly Earnings Survey
Period: 1993–2008
Notes:
- Working time arrangement coverage: full-time workers in 1993–1996.
- Working time concept: hours actually worked in 1993–2008.
- Data reference period: annual or annual average in 1993 and 1997–2008; July in 1994 and 1995; and April in 1996.
- Establishment size coverage: all establishments with at least two employees in 1993.
- Note on A: "Nonstandard economic activity: including B" in 1993–2008.
- Notes on C: "Nonstandard economic activity: including D-Q" in 1993–2008; "Nonstandard economic activity: excluding mining and quarrying" in 1993–1996.

Luxembourg
Source: Semi-annual survey of earnings and average hours of work offered [Enquête semestrielle sur les gains et la durée moyenne du travail offerte]
Period: 1995–2008
Notes:
- Break in series: new or revalued currency in 1999.
- Data reference period: October 1995–2008.
- Reference group coverage: salaried employed/white collar/office workers in 1997–2008.
- Working time concept: hours actually worked in 1995–2008.

Malta
Source: Labour Force Survey
Period: 2000–2008
Notes:
- Time unit: per hour in 2000–2008.
- Break in series: new or revalued currency in 2008.
- Working time concept: hours actually worked.
- Data reference period: annual or annual average.
- Note on A: "Nonstandard economic activity: including B" in 2000 and 2004–2008.
- Note on C: "Nonstandard economic activity: including D-Q" in 2000–2006 and 2008.

Malta—Weekly Working Hours
Source: EU Labour Force Survey
Period: 1995–2007
Notes:
- Methodologies are revised in 2005.
- Data reference period: annual or annual average.
- Job coverage: main and second job currently held.
- A in 2000–2002 and 2004 is unreliable according to the ILO's note.
- B in 2000–2004 is unreliable according to the ILO's note.
- C in 2000–2003, 2006, and 2007 is unreliable according to the ILO's note.
- E in 2000 and 2002 is unreliable according to the ILO's note.

Poland
Source: Establishment Statistical Surveys
Period: 1993–2006
Notes:
- Revalued currency in 1993.
- Data reference period: annual or annual average in 1993–2006.
- Working time concept: hours actually worked in 1993–2006.
- Note on A for 1993–2004: "Nonstandard economic activity: including B."
- Note on C for 1993–2006: "Nonstandard economic activity: including D-Q."

Portugal
Source: [Enquête sur les Gains et la Durée du Travail]
Period: 1998–2008
Notes:
- New currency introduced in 2002.
- Data reference period: annual or annual average in 1998–2008.
- Working time concept: hours actually worked in 1998–2008.
- Note on C: "Nonstandard economic activity: including D-Q."

Romania
Source: [Enquête sur le Coût de la Main-d'oeuvre]
Period: 1992–2007
Notes:
- Revaluation of the currency in 2005.
- Data reference period: annual or annual average in 1992–2007.
- Working time concept: hours actually worked in 1992–2007.
- Note on A: "Nonstandard economic activity: including B."
- Note on C: "Nonstandard economic activity: including D-Q."

Russian Federation
Source: Establishment Sample Survey on Employees' Wages by Occupation
Period: 1995–1998 and 2005–2016
Notes:
- Break in series: new or revalued currency in 1997.
- Data reference period: annual or annual average in 1997–1998.
- Data reference period: October in 2005–2016.
- Geographical coverage: total national, excluding some areas in 2005–2016.
- Working time concept: hours actually worked in 1997, 1998, and 2005–2016.
- Central tendency measure: weighted mean in 2005–2016.
- Job coverage: main job currently held in 2005–2016.
- Working time arrangement coverage: full-time workers in 2005–2016.
- Note on A for 1995–1998, 2005, and 2006: "Nonstandard economic activity: including B."
- Note on C for 1995–1998, 2005, and 2006: "Nonstandard economic activity: including D-Q."

Slovakia
Source: Labour-Related Establishment Survey
Period: 1991–2008
Notes:

- Break in series: other or unspecified type of break in 1997.
- Data reference period: annual or annual average.
- Establishment size coverage: all establishments with at least 25 employees in 1991–1996 and 20 employees in 1997–2008.
- Working time concept: hours actually worked.
- Note on A for 1991–2008: "Nonstandard economic activity: including B."

Slovenia
Source: Monthly Reporting on Earnings and Persons in Paid Employment in Enterprises, Companies, and Organizations
Period: 1985–2008
Notes:

- New currency introduced in 2007.
- Methodology revised in 2005.
- Data reference period: annual or annual average in 1994–2008.
- Working time concept: hours actually worked in 1994–2008.
- Components of earnings/wages: nonstandard components of earnings or wages in 2005–2008.

Turkey
Source: Annual Survey of Manufacturing Industry
Period: 1983–1989 and 1993–2005
Notes:

- Unspecified break in series in 1989.
- Introduction of new currency in 2005.
- Data reference period: first semester in 1983–2001; annual or annual average in 2002–2005.
- Establishment size coverage: nonstandard establishment size coverage from 1983–1988; and all establishments with at least 10 employees in 1989 and 1993–2001.
- Working time concept: hours actually worked in 1983–1989 and 1993–2005.
- Note on C for 2002–2005: "Nonstandard economic activity: including D-Q."

Description of Weekly Working Hours

Indicator:	Mean weekly hours worked per employed person by sex and economic activity
Description:	We present data on hours of work, whenever possible, on the basis of the mean number of hours of work per week and with reference to hours worked in all jobs of employed persons and in all types of working time arrangements (e.g., full time and part time). Hours actually worked include (a) direct hours or the time spent carrying out the tasks and duties of a job; (b) related hours or the time spent maintaining, facilitating, or enhancing productive activities; (c) down time or time when a person in a job cannot work due to machinery or process breakdown, accident, lack of supplies or power or Internet access; and (d) resting time or time spent in short periods of rest, relief, or refreshment, including tea, coffee, or prayer breaks, generally practiced by custom or contract according to established norms and/or national circumstances. Hours actually worked exclude time not worked during activities such as: (a) annual leave, public holidays, sick leave, parental leave or maternity/paternity leave, and other leave for personal or family reasons or civic duty; (b) commuting time between work and home when no productive activity for the job is performed; for paid employment, even when paid by the employer; (c) time spent on certain educational activities; for paid employment, even when authorized, paid, or provided by the employer; and (d) longer breaks distinguished from short resting time when no productive activity is performed (such as meal breaks or natural repose during long trips); for paid employment, even when paid by the employer. The employed comprise all persons of working age who, during a specified brief period, were in the following categories: a) paid employment (whether at work or with a job but not at work); or b) self-employment (whether at work or with an enterprise but not at work). Data are disaggregated by economic activity according to the latest version of the International Standard Industrial Classification of All Economic Activities (ISIC) available for that year. Economic activity refers to the main activity of the establishment in which a person worked during the reference period and depends not on the specific duties or functions of the person's job but on the characteristics of the economic unit in which this person works.

APPENDIX 3: AMBIGUOUS AND UNAMBIGUOUS LABOR INCOME SHARE

Assume that *"ambiguous" income (Y^a)*, which consists of proprietors' income and indirect taxes less subsidies, is allocated to capital and labor in the same ratio as that of the rest of the sector; then, we decompose *total labor income* (Y^l) as follows:

$$Y^l = Y^{ul} + \text{LIS} \times Y^a$$

where

Y^{ul}: Unambiguous labor income (compensation of employees)
LIS: Labor income share

We express the above equation using *national income* (Y):

$$Y^l = \text{LIS} \times Y = \text{LIS} \times (Y^{ul} + Y^{uk} + Y^{al})$$

where

Y^{uk}: Unambiguous capital income (corporate profits, rental income, net interest income, and depreciation)

The above two equations enable us to express LIS using unambiguous elements:

$$\text{LIS} = \frac{Y^{ul}}{Y^{ul} + Y^{uk}}$$

APPENDIX 4: AGGREGATION SCHEME

Broad Sector	GGDC 10 Sector	ILO STAT	SEA[a] 35-Sector Code	ASD[b] Sector Name	ISIC Rev. 3.1 Description for the GGDC 10 Classification
Primary	AGR	AtB	AtB	Agriculture	Agriculture, hunting and forestry, fishing
Primary	MIN	C	C	Mining	Mining and quarrying
Secondary	MAN	D	15t16, 17t18, 19, 20, 21t22, 23, 24, 25, 26, 27t28, 29, 30t33, 34t35, 36t37	Manufacturing	Manufacturing
Tertiary	PU	E	E	Utilities	Electricity, gas, and water supply
Secondary	CON	F	F	Construction	Construction
Tertiary	WRT	G, H	50,51,52, H	Trade services	Wholesale and retail trade; repair of motor vehicles, motorcycles, and personal and household goods; hotels and restaurants
Tertiary	TRA	I	60, 61, 62, 63, 64	Transport services	Transport, storage, and communications
Tertiary	FIRE	J, K	J, 70, 71t74	Business services	Financial intermediation, renting, and business activities (excluding owner-occupied rents)
(Tertiary[c])	GOV	L, M, N	L, M, N	Government services	Public administration and defense, education, health, and social work
(Tertiary[d])	OTH	O, P	O, P	Personal services	Other community, social, and personal service activities and activities of private households

[a] Socio-Economic Account.

[b] Africa Sector Database.

[c] Excluded in the alternative definition.

[d] Excluded in the alternative definition.

APPENDIX 5: CURRENCY ADJUSTMENT FOR REVALUATION AND INTRODUCTION OF NEW CURRENCY

County	Old Currency		New Currency		Year	Rate	
Austria	Austrian schilling	(ATS)	Euro	(EUR)	1999	13.7603	ATS/1EUR
Belgium	Belgian franc	(BEF)	Euro	(EUR)	1999	40.3399	BEF/1EUR
Brazil	Cruzeiro	(BRE)	Cruzeiro real	(BRR)	1993	1,000	BRE/1BRR
Brazil	Cruzeiro real	(BRR)	Brazilian real	(BRL)	1994	2,750	BRR/1BRL
Bulgaria	(Third) Bulgarian lev	(BGL)	(Fourth) Bulgarian lev	(BGN)	1999	1,000	BGL/1BGN
Estonia	Estonian kroon	(EEK)	Euro	(EUR)	2011	15.6466	EEK/1EUR
Finland	Finnish markka	(FIM)	Euro	(EUR)	1999	5.94573	FIM/1EUR
France	French franc	(FRF)	Euro	(EUR)	1999	6.55957	FRF/1EUR
Germany	German mark	(DEM)	Euro	(EUR)	1999	1.95583	DEM/1EUR
Ghana	(Second) Ghanaian cedi	(GHC)	(Third) Ghanaian cedi	(GHS)	2007	10,000	GHC/1GHS
Italy	Italian lira	(ITL)	Euro	(EUR)	1999	1,936.27	ITL/1EUR
Luxembourg	Luxembourgian franc	(LUF)	Euro	(EUR)	1999	40.3399	LUF/1EUR
Malta	Maltese lira	(MTL)	Euro	(EUR)	2008	0.4293	MTL/1EUR
Netherlands	Dutch guilder	(NLG)	Euro	(EUR)	1999	2.20371	NLG/1EUR
Portugal	Portuguese escudo	(PTE)	Euro	(EUR)	1999	200.482	PTE/1EUR
Romania	(Third) Romanian leu	(ROL)	(Fourth) Romanian leu	(RON)	2005	10,000	ROL/1RON
Russian Federation	(First) Russian ruble	(RUR)	(Second) Russian ruble	(RUB)	1998	1,000	RUR/1RUB
Slovakia	Slovak koruna	(SKK)	Euro	(EUR)	2009	30.126	SKK/1EUR
Slovenia	Slovenian tolar	(SIT)	Euro	(EUR)	2007	239.64	SIT/1EUR
Turkey	(First) Turkish lira	(TRL)	(Third) Turkish lira	(TRY)	2005	1,000,000	TRL/1TRY