Getting Income Shares Right

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ABSTRACT

Many widely used economic models implicitly assume that income shares should be identical across time and space. Although time series data from industrial countries appear consistent with this notion, cross-section data generally appear to contradict the assumption of constant income shares. A commonly used calculation suggests that labor shares of national income vary from about 0.05 to about 0.80 in international cross-section data. This paper suggests, however, that this widely used approach underestimates the labor income of the self-employed and other proprietors. Several adjustments for calculating labor shares are identified and compared. All of them yield data that appear broadly consistent with the hypothesis that labor shares for most countries fall in the range of 0.65 to 0.80.

International data on income shares pose a puzzle for economists.[1] Within most countries, the shares of national income accruing to capital and labor appear to be fairly constant over long periods of time. This is true for many poor countries as well as the United States, United Kingdom, and most rich countries for which data are available. In fact, the long-term stability of factor shares has become enshrined as one of the "stylized facts" of growth (e.g., Kaldor 1958). Across countries, however, there appear to be large differences in income shares. Why should there be such discrepancies between cross-section observations and time series observations? And what do these differences imply for the widespread use of model specifications that imply constant factor shares across countries and over time?

Taken at face value, the discrepancy between the time series data and the cross-section data points to several possible conclusions, none of which is particularly appealing. One explanation would be that countries do not operate the same aggregate technology. A second possibility is that countries share a common aggregate technology, but due to institutional arrangements or fixed factors, income shares simply differ across countries. A third alternative is that some countries might face imperfect factor markets, so that wages are not equated to marginal value products. These possibilities are briefly explored below.

This paper argues, however, for a fourth alternative. Specifically, I suggest that more careful treatment of the data leads to calculated income shares that are approximately constant across countries. I focus on differences in self-employment rates across countries. For a

[1] I will use the terms "income shares" and "factor shares" interchangeably here; both terms refer to the fraction of national income accruing to different factors of production. These shares are reported in a portion of the national income and product accounts often referred to as the "functional distribution of income."

number of reasons, the labor income of the self employed is often treated incorrectly as capital income. When income shares are corrected to reflect this fact, the large differences in income shares between rich and poor countries become much smaller. The variation that remains is not obviously related to levels of economic development.

In spirit and substance, this paper resurrects some of the work of Kravis (1962) concerning the functional distribution of income. Kravis pointed out that entrepreneurial income as a share of GDP was shrinking over time as a result of long-term shifts in the structure of employment — away from agriculture and self employment and into industrial wage labor. In this paper, I argue that the same structural changes account for many of the apparent cross-country differences in the data.

Section 1 of this paper reports data on income shares as they are commonly computed. Section 2 suggests some possible explanations for the patterns observed in the data. Section 3 explores several alternative adjustments. Finally, Section 4 briefly sketches out some of the implications of these findings for current research.

1. Employee compensation shares: patterns and complications

Macroeconomists typically calculate factor shares not from firm-level data but from aggregates in the national income and product accounts. A widely used strategy is to estimate the labor share of national income from the share of employee compensation in GDP. The returns to capital are then taken to be the residual. Such data are readily available for many countries.[2]

Time series data indicate that employee compensation shares of national income have been relatively constant in the United States over long periods of time. Since 1935, the employee compensation share of GDP has remained in the range of 65-75 percent of GDP. Figure 1 shows the time series for the United States and the United Kingdom, dating back to 1935 ((U.S. Department of Commerce 1986, 1990; Mitchell 1988). Similar patterns emerge for other countries for which relatively long time periods are available. The data suggest that the employee compensation share moves very little over time and is quite constant across rich countries.

The stability of the time series data on factor shares have long encouraged economists to look favorably on models that attribute the same aggregate technology to all countries. In particular, these data have frequently been invoked to justify the use of Cobb-Douglas functional forms.[3] Indeed, the eponymous Cobb and Douglas (1928) were among the earliest authors to point out that for the United States, the labor share of income appeared to be roughly constant over time, regardless of changes in factor prices.

[2] One source of data is the United Nations yearbook of national accounts statistics. Appendix 1 shows the definitions used in allocating GDP among its various cost components in the United Nations System of National Accounts.

[3] As is well known to economists, the Cobb-Douglas functional form implies constant factor shares of income; that is to say, if all factors of production are paid their marginal revenue products, then the share of income received by a particular factor is determined entirely by the technological parameters. Factor shares are independent of changes in the prices of inputs and outputs; for all factors, there is a unit elasticity of demand, and there is also a unit elasticity of substitution between factors. There are, of course, many other production functions that would give constant or near-constant labor shares.

In recent years, however, economists have begun to pay closer attention to international cross-section data that include observations on developing countries. The international data appear to show wide disparities in labor shares across countries. For example, employee compensation shares of GDP for 94 countries were available in the 1992 edition of the United Nations *National Accounts Statistics*.[4] These data show enormous variance. The lowest share of employee compensation in GDP was reported in Ghana, with 0.051 of GDP; the highest reported was for Ukraine, with 0.770. Fully 18 of the countries reported employee compensation shares lower than 0.30 of GDP; eight countries reported employee compensation shares of 0.60 or higher.

Moreover, the data appear to show some consistent patterns. Poor countries are more likely than rich countries to have low shares of employee compensation in GDP. Figure 2 shows employee compensation shares plotted against levels of real per capita GDP; the scatter plot shows a clear positive relationship. This suggests that the labor share increases with economic growth. But this pattern runs precisely counter to Kaldor's "stylized facts," and it thus appears to undermine models that generate constant factor shares across time and space.

[4] The countries are: Algeria, Angola, Australia, Austria, Bahamas, Bahrain, Belarus, Belgium, Benin, Bolivia, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Canada, Chile, Colombia, Congo, Costa Rica, Cote d'Ivoire, Denmark, Ecuador, Estonia, Fiji, Finland, France, French Guiana, French Polynesia, Germany, Ghana, Greece, Guadeloupe, Honduras, Hong Kong, Hungary, Iceland, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Kenya, Korea, Latvia, Libya, Lithuania, Luxembourg, Mali, Malta, Martinique, Mauritius, Mexico, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Niger, Nigeria, Norway, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Portugal, Reunion, Romania, Rwanda, Saudi Arabia, Sierra Leone, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Tanzania, Thailand, Trinidad & Tobago, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Viet Nam, Zambia, and Zimbabwe.

2. Possible explanations

There are several possible explanations for why factor shares might differ across countries. One possibility is that factor shares differ across countries because each country in fact faces a different aggregate technology. Differences in technology are perhaps the least appealing explanation, because it is not clear why the relationship between inputs and outputs should suddenly shift at a national frontier.[5] Moreover, it is not clear why production technologies should vary with per capita GDP rather than with geography. Why, for example, would the production technology differ so greatly between the U.S. and neighboring Mexico, while it differs so little between the U.S. and Germany or Japan?[6]

A second possibility is that the aggregate technology displays a non-unitary elasticity of substitution between capital and labor. If this is the case, though, then the time series data pose a puzzle: Why have employee compensation shares remained so stable over time, even as accumulation has changed relative factor prices?

A third possibility is that factor markets are non-competitive in some countries and that factors are not paid their marginal products. In principle, this could certainly account for the data that we observe. Suppose, for example, that capital owners had market power in poor countries. This would tend to increase the share of national income accruing to the owners of

[5] Despite economists' reluctance to see national boundaries as important, much recent work has focused on cross-border differences in country experiences as indications of the importance of policies and institutions (e.g., Olson 1996). Nonetheless, in this case the question is about underlying production technologies. Why should an aggregate technology change across countries?

[6] For instance, Olson (1996) argues that economic performance may differ markedly across borders precisely *because* of differences in institutions.

capital. But it is hard to place much credence in a story like this in a world of increasingly mobile capital.

A fourth possibility is that measurement is poor – or more precisely that employee compensation shares are a poor measure of labor shares. This is the explanation that I will pursue in the remainder of the paper. Following Kravis (1962), we can conceive of two potential sources of variation in the functional distribution of income across countries. First, the disparities in employee compensation shares may reflect changes in the sectoral composition of output. Second, these disparities may reflect changes in the structure of employment – especially in the importance of self employment. Either of these long-term trends could lead us to mismeasure or misinterpret the labor share of GDP.

3. Recalculating labor shares

First, consider how changes in the sectoral composition of output could lead us to misinterpret the data. Suppose all countries have the same technology, but within each country, different sectors face different technologies. Then changes in the composition of output – such as the secular decline in agriculture's importance as economies grow – might lead to differences in factor shares.

Next, consider the possibility that changes in the importance of self employment are responsible for the observed patterns in employee compensation shares. As noted above, it is common practice to use employee compensation as a measure of labor income. From a conceptual perspective, however, employee compensation differs from labor income.

Employee compensation excludes some important forms of non-wage compensation and may include rents accruing to particular skills, including returns to entrepreneurial ability. More important for the purposes of this paper, employee compensation omits the labor income of people who are not employees. In some countries, the self employed account for huge fractions of the workforce. As a result, in these countries, labor income is badly understated by the employee compensation measure.

The two phenomena described above are related but distinct. For example, agriculture generally has very low employee compensation shares – partly because it is dominated almost everywhere by the self employed and by small family businesses. The declining importance of agriculture as economies grow has a double effect on observed factor shares: output moves into sectors that are more labor-intensive, and a larger share of income is earned by workers, as opposed to entrepreneurs. For analytic clarity, however, it is useful to consider the effects of the two phenomena separately.

3.1 Accounting for differences in sectoral composition of output

For 42 countries, the 1992 United Nations *National Account Statistics* include comparable data on the functional distribution of income — the cost components of GDP — by sector. First, we note that across sectors, factor shares vary widely. In the United States, the employee compensation shares of value added in agriculture and mining are, respectively, only 0.212 and 0.361, while the employee compensation share in manufacturing is 0.732 and the share in "community, social, and personal services" is 0.751. Similar patterns are observed for other countries. In general, agriculture and primary commodity production have low employee compensation shares, while manufacturing and services have relatively high employee compensation shares.

Unsurprisingly, the data also reveal substantial differences in the sectoral composition of output. For example, agriculture, hunting, forestry and fishing together account for 0.023 of U.S. GDP, while in Burkina Faso the same sectors account for 0.526 of GDP. Finance, insurance, real estate and business services accounted for 0.27 of U.S. GDP in 1986, while the same sectors accounted for 0.041 of Rwandan GDP. Could changes in the sectoral composition of output account for cross-country differences in employee compensation shares? For example, does the declining importance of agriculture – a sector with generally low employee compensation shares – account for the higher aggregate employee compensation shares found in rich countries? The answer is surprising: Almost certainly, the changing sectoral composition of GDP does *not* account for observed differences in income shares. The evidence comes from the following exercise.

Suppose that all countries had the same sectoral composition of output, differing only in *within-sector* factor shares. Then we could compute overall income shares that would reflect only the *within-sector* differences in factor shares. Table 1 shows the results of this experiment. For the 42 countries for which data were available, employee compensation shares were computed in two ways: first, based on the current sectoral composition of output in each country; and second, re-weighted according to the sectoral composition of output currently prevailing in the United States. The data in Table 1 show that when sectoral composition of output is re-weighted using the sectoral composition of the United States, overall employee compensation shares change very little. For a handful of poor countries — such as Botswana, Libya, and Rwanda — there are significant increases in employee compensation, but these are nowhere near large enough to account for the overall differences among countries.[7]

Clearly, even within sectors, there are important differences across countries in employee compensation shares. For example, employee compensation shares in the manufacturing sector range from 0.749 in Finland to 0.132 in Ecuador. Most likely, this reflects structural changes in the nature of firms and the size and scale of production. Thus, changes in the sectoral composition of output may not be the most important source of disparities in observed income shares.

3.2 Adjusting for self-employment income

Rates of self employment vary widely across countries. Even within sectors, there are large differences across countries, as shown by Gollin (1996). In Ghana, Bangladesh, and Nigeria, for example, 75-80 percent of manufacturing workers were self-employed, compared with fewer than 2 percent in the United States (ILO 1993).[8] Figure 3 shows that rates of self employment differ widely across countries, and that these rates are closely related to real per capita GDP.

According to the United Nations System of National Accounts, adopted in 1953, the income of the self employed is specifically not to be counted as employee compensation.

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[7] Similar results are obtained when we apply the sectoral weights of poor countries to the cross section; the qualitative result is not particularly sensitive to the choice of sectoral weights

[8] The differences in self employment across countries are systematic; the examples given here are fully representative of the data. If we consider the share of entrepreneurs (employers and own-account workers) in the total manufacturing workforce to be an index of self employment, we find that the 20 poorest countries for which data were available had entrepreneur-workforce ratios averaging 0.434; the 20 richest countries had entrepreneur-workforce ratios averaging 0.138.

Instead, this income – typically a mix of capital and labor income, along with rents to certain types of skills – is to be treated as a form of business income. Employee compensation is precisely the total compensation of people who work as employees. (See Appendix 1 for a more formal definition.)

The usual approach of using employee compensation as a measure of labor income is thus explicitly omitting the labor income of the self employed. If this income is mistakenly counted as capital income – as in the usual approach of treating employee compensation as a measure of labor income – then this will tend systematically to underestimate the labor shares of poor countries relative to rich countries. [9] Unfortunately, it is not obvious how to remedy this problem. For most countries, we do not have data on the total income of the self employed — much less on how to allocate this income between labor and capital. [10]

Perhaps the best approach is that of Young (1994), who imputed wages to the self employed in Hong Kong, Singapore, and South Korea on the basis of their sector, sex, age, and education. Based on this set of estimates, Young computed labor shares for both countries. There are problems with this procedure, of course: it is difficult to control for unobservable differences in entrepreneurial ability, and it is difficult to know how to treat returns to

[9] Young (2000) notes, however, that in some countries, national income accountants appear to be imputing labor income to "unpaid workers" in small firms based on the reported output of these firms (though not necessarily to the self employed themselves). This is not strictly consistent with the system of national accounts, but he suggests that it is a natural response in economies where small firms account for a large fraction of GDP. It is unclear how widespread the practice is; clearly it is not occurring in countries like Ghana and Tanzania that report employee compensation shares below 0.10.

[10] An exception is the United States, which in its system of national accounts includes items for proprietors' income and for mixed income of the self-employed.

entrepreneurial ability. Nonetheless, Young's approach gives a plausible way of estimating labor shares in economies with large numbers of self-employed people.[11]

An alternative approach is to make adjustments to the national income and product accounts based on the reported operating surplus of unincorporated enterprises (OSPUE). Most of the income of the self employed will fall into this category. Unless the self employed receive wages from their own enterprises, or unless individuals incorporate their own enterprises, the UN System of National Accounts would in principle treat all the proceeds from an unincorporated enterprise as operating surplus. Particularly in developing countries, almost no self-employed people will be legally incorporated. Thus, essentially all the income from their enterprises – capital income and labor income, as well as any rents or returns to other factors – will be reported as OSPUE.[12] I consider three possible adjustments to national income and product accounts that involve reallocating OSPUE between labor and capital.

The first adjustment would be to treat *all* the operating surplus of private unincorporated enterprises (OSPUE) as labor income.[13] This has the virtue of being a straightforward adjustment, and in many poor countries it could be argued that the self employed are providing almost pure labor services. The disadvantage of this approach is that — even in poor countries — the self employed tend to have substantial amounts of capital in their businesses. Thus, this adjustment overstates the labor share of national income

[11] Young arrives at estimated labor shares of 0.404 for Singapore in 1970-90, 0.680 for South Korea in 1966-90, and 0.628 for Hong Kong in 1966-91.
[12] Again, Young (2000) cautions that some countries may already be making adjustments to their employee compensation figures to account for unpaid workers, contrary to the UN System of National Accounts.
[13] Specifically, the labor share computed using this adjustment is [(Employee Compensation + Operating Surplus of Private Unincorporated Enterprises) ÷ (GDP - Indirect Taxes)]

The second adjustment would be to treat OSPUE as comprising the same mix of labor and capital income as the rest of the economy. Thus, we assume that labor and capital shares are the same in private unincorporated enterprises as they are in large corporations and the government sector.[14] The advantage to this approach is that it is simple and transparent, and it makes sense to assume that OSPUE includes some capital income as well as some labor income. The disadvantage of this approach is that it implicitly assumes that income shares are the same for establishments that differ significantly in size and structure. This might not be a good assumption for several reasons. First, private unincorporated enterprises (PUEs) might be more common in some sectors than in others, and as noted above, income shares differ widely by sector. Second, within a particular sector, PUEs might tend to be more labor-intensive (or perhaps more capital-intensive) than corporations.

A third adjustment focuses on imputing employee compensation for those workers who are self employed. For countries with available data on the composition of the workforce, it is possible to compute average employee compensation by dividing NIPA employee compensation by the number of employees. We can then scale this up for the entire workforce by multiplying average employee compensation by the number of people in the workforce. The result could be thought of as total labor income.[15] The advantage of this approach is that it attempts to take into account the fraction of self-employed people in different countries. Instead

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[14] Specifically, the labor share I computed using this adjustment is [Employee Compensation ÷ (GDP - Indirect Taxes - Operating Surplus of Private Unincorporated Enterprises)]. To the extent that unincorporated enterprises pay *any* formal compensation to employees, this measure actually attributes a higher labor share to unincorporated firms than to other firms. An alternative way to make this adjustment would be simply to use income shares reported by large formal sector firms, but this raises a number of other problems.

of guessing at how to divide up OSPUE between labor and capital, this adjustment uses additional information to estimate the total labor share in the economy. This adjustment will be good to the extent that the self employed command essentially the same wages as people who work as employees. It will be a poor assumption if there are systematic differences in earning ability between employees and the self employed.[16]

All three adjustments will tend to overstate the labor share of national income in countries where officials have already sought to adjust the data for the labor income of the self employed. Young (2000) suggests that such adjustments are made in China and some other countries (e.g., Taiwan and Korea), contrary to the United Nations System of National Accounts. For many of the countries in the data, however, this does not appear to be a problem. And to the extent that output and income from self employment are under-reported in the national income accounts, there may be undercounting of labor income as well.

Table 2 shows the results of the three adjustments for all 31 countries for which data were available on the operating surplus of private unincorporated enterprises. The third adjustment can be computed only for a subset of 19 countries with contemporaneous data on the number of employees in the workforce. Thus, the data do not permit a full comparison with all the countries for which the employee compensation share can be calculated. Nonetheless, the results are suggestive. For the 31 countries, the "naive" calculation, which simply gives the employee compensation share of GDP, yields widely varied results, ranging from 0.201 for

[15] Specifically, the labor share computed using this adjustment is [(Employee Compensation $\div$ Number of Employees) $\times$ Total Workforce] $\div$ GDP.

[16] A potential difficulty with this approach is that it can in principle lead to labor shares greater than 1.0. This problem does not arise, however, with the data used in this paper.

Burundi to 0.770 for Ukraine. The mean is 0.472, with a standard deviation of 0.137. All three of the adjustments give higher mean values for labor shares, with much lower variance across countries. Table 3 summarizes the means and standard deviations for the "naive" calculation and the three proposed adjustments. Since Botswana appears to be an outlier, Table 8 also shows how mean values and standard deviations change when Botswana is omitted.

A quick glance at the data in Tables 2 and 3 reveals that Adjustments 1 and 2 appear to resurrect the hypothesis that factor shares are constant across countries. Using either adjustment, it appears that labor shares are quite stable across countries, regardless of the levels of income per capita. Moreover, these shares cluster in a range from 0.60 to 0.85, depending on which adjustment is used.[17] This is precisely the range in which time series values for the U.S. and U.K. tend to fall, lending some support to the idea that the cross section and time series values are essentially consistent.

We can also examine the pooled cross-section and time series data to ask whether the labor shares are consistent. For all countries and time periods available in the U.N. data, Figures 4 and 5 plot labor shares against real per capita GDP using Adjustments 1 and 2. In contrast to the data for the naive approach, which are shown in Figure 2, the scatter plots for the adjusted data display surprisingly low variance and are relatively flat. The variance is in general higher for poor countries than for rich countries, suggesting perhaps that data quality

[17] Using Adjustment 1, we find only three countries with labor shares below 0.60 and one country with a labor share above 0.85; using Adjustment 2, we find three countries with labor shares below 0.55 and two above 0.80. In contrast, the "naive" calculations give four countries with labor shares below 0.30 and two above 0.65.

may be a problem in the poor countries. Certainly, there is nothing in Figures 4 and 5 to suggest that there are systematic differences between rich and poor countries in factor shares.

Adjustment 3, which computes labor shares based on average employee compensation, also yields relatively flat results, although the data are available for a smaller number of countries. (See Figure 6.) Here, too, the remaining variation in factor shares is not obviously linked to income per capita.

4. Conclusions and implications

The main finding of this paper is that simple and straightforward adjustments to the usual calculations of factor shares give estimates that are remarkably consistent with the claim that factor shares are approximately constant across time and space. The usual "naive" calculation of labor shares — using employee compensation as a fraction of GDP — makes an obvious and important error in failing to account for labor income of the self employed and other entrepreneurs. Labor force data suggest that this error may be particularly important in poor countries, where small enterprises and self employment account for large fractions of the workforce. Three possible corrections are considered. All three adjustments result in greater uniformity of estimated labor shares across countries. In particular, the first two adjustments give estimated labor shares that are essentially flat across countries and over time. This finding has implications for research in trade and growth theory. It has become widely accepted, in recent years, that labor shares are lower in poor countries than in rich countries. This has led to numerous *ad hoc* adjustments in growth models and trade models. This paper suggests that, for many analyses, it is reasonable to use models that give rise to constant factor shares. At a more applied level, country-specific studies — such as applied general equilibrium models used to analyze trade or policy reform — should take care to compute factor shares in ways that take into account the labor income of entrepreneurs and the earnings of the self employed. Estimates of factor shares that do not account for self-employment income will be seriously flawed, especially in poor countries.

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Table 1: Employee compensation share of GDP, 42 countries, at current sectoral composition of output and re-weighted by U.S. sectoral composition of output.

Country	Year	Employee Compensation / (Employee Compensation + Operating Surplus + Consumption of Fixed Capital), all sectors	Weighted by US Sectoral Composition of Output
Australia	1986	0.547	0.538
Benin	1986	0.160	0.188
Botswana	1983	0.301	0.408
Burkina Faso	1984	0.129	0.392
Cameroon	1984	0.228	0.327
Chile	1982	0.367	0.373
Colombia	1984	0.408	0.386
Costa Rica	1984	0.446	*
Denmark	1986	0.526	0.512
Ecuador	1986	0.160	0.270
Fiji	1985	0.436	0.443
Finland	1986	0.644	0.647
France	1984	0.542	0.528
Germany, Fed. Rep.	1985	0.513	0.489
Hungary	1986	0.443	0.441
Iraq	1985	0.203	0.215
Ireland	1985	0.500	*
Jamaica	1986	0.401	0.423
Japan	1986	0.523	0.491
Kenya	1984	0.309	0.426
Korea	1985	0.393	0.423
Libya	1980	0.163	0.314
Malta	1986	0.424	*
Mauritius	1985	0.399	0.358
Netherlands	1984	0.491	0.512
New Zealand	1985	0.454	0.455
Norway	1986	0.516	0.556
Peru	1985	0.197	0.217
Portugal	1981	0.476	*
Rwanda	1985	0.208	0.313
Sierra Leone	1985	0.195	0.270
Spain	1984	0.416	*
Sri Lanka	1986	0.493	0.575
Sudan	1983	0.315	0.313
Swaziland	1983	0.433	0.474
Sweden	1986	0.572	0.556
Trinidad and Tobago	1985	0.495	0.585
United Kingdom	1986	0.544	0.538
United States	1986	0.589	0.588
Venezuela	1985	0.326	0.349
Zimbabwe	1984	0.552	0.528

* Not available because shares cannot be computed for all sectors.

Table 2: Alternative adjustments to "naive" employee compensation share, intended to capture income of self employed and proprietors.

Country	Year	Real per capita GDP	"Naive" calculation: Employee Compensation ÷ Output	Adjustment 1: OSPUE treated as labor income	Adjustment 2: OSPUE treated as divided proportionally between labor and capital income	Adjustment 3: Average employee compensation used to impute compensation for entire workforce	
Australia	1992	14458	0.504	0.719	0.669	0.676	***
Belarus	1992		0.417	0.554	0.514		
Belgium	1992	13484	0.547	0.791	0.743	0.740	*
Bolivia	1988	1670	0.256	0.835	0.627	0.484	**
Botswana	1986	2662	0.302	0.368	0.341	0.484	**
Burundi	1986	551	0.201	0.914	0.728		
Congo	1988	2340	0.372	0.691	0.578		
Cote d'Ivoire	1977	2060	0.287	0.809	0.690		
Ecuador	1986	2885	0.213	0.820	0.571	0.502	*
Estonia	1991		0.469	0.606	0.574		
Finland	1992	12000	0.575	0.765	0.734	0.680	***
France	1992	13918	0.525	0.764	0.717	0.681	**
Hungary	1991	4947	0.585	0.802	0.772	0.675	***
India	1980	882	0.691	0.838	0.828		
Italy	1991	12602	0.451	0.804	0.717	0.707	**
Jamaica	1988	2443	0.427	0.616	0.566		
Japan	1992	15105	0.564	0.727	0.692	0.725	***
Korea	1991	7251	0.472	0.768	0.697	0.796	***
Latvia	1992		0.374	0.550	0.471		
Malta	1990	6627	0.434	0.714	0.632		
Mauritius	1990	5838	0.392	0.767	0.668	0.490	*
Netherlands	1992	13281	0.532	0.721	0.680	0.643	**
Norway	1991	15047	0.519	0.678	0.643	0.569	*
Philippines	1992	1689	0.353	0.800	0.661	0.872	***
Portugal	1990	7478	0.448	0.825	0.748	0.602	***
Reunion	1989	2988	0.595	0.832	0.799		
Sweden	1992	13986	0.613	0.800	0.774	0.723	*
Ukraine	1991		0.770	0.797	0.762		
United Kingdom	1992	12724	0.574	0.815	0.782	0.719	***
United States	1992	17945	0.604	0.773	0.743	0.664	***
Vietnam	1989		0.594	0.835	0.802		

Notes: * Data on employee/workforce ratio are for 1990. ** Data on employee/workforce ratio are for 1991. *** Data on employee/workforce ratio are for 1992.

Sources: Data on real GDP per capita taken from Penn World Tables v. 5.6. Data on employee compensation and adjustments are based on national income and product account data from the United Nations (1992) *National Accounts Statistics*. Adjustment 3 incorporates data from the International Labour Organization (1993) *Yearbook of Labour Statistics* on employees in total workforce.

Table 3: Mean labor shares and standard deviation across countries for "naive" calculation and three adjustments.

	"Naive" calculation: Employee Compensation ÷ Output	Adjustment 1: OSPUE treated as labor income	Adjustment 2: OSPUE treated as divided proportionally between labor and capital income	Adjustment 3: Average employee compensation used to impute compensation for entire workforce
		-- All countries --		
Mean labor share	0.472	0.745	0.675	0.654
Standard deviation	0.137	0.110	0.107	0.109
		--Excluding Botswana --		
Mean labor share	0.479	0.758	0.686	0.664
Standard deviation	0.135	0.087	0.089	0.103

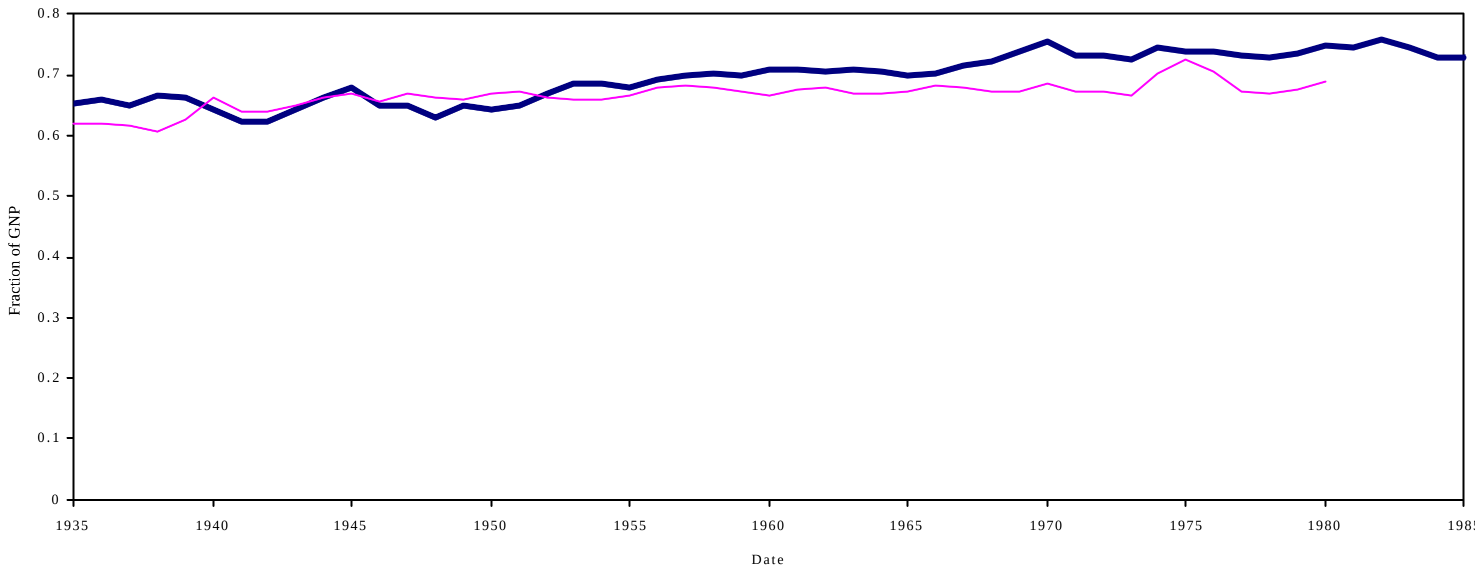
Source: Based on calculations shown in Table 2.

Appendix 1. Cost components and income shares in the United Nations System of National Accounts.

Category of income	Description
Compensation of employees	Includes wages and salaries (cash and in-kind), commissions, bonuses, tips, cost of living adjustments, vacation and sick leave allowances; also includes employer contributions to social security programs and pension schemes, employer contributions to insurance funds, employers' paid and imputed contributions to pensions, family allowances, lay-off and severance pay, health plans, and other benefit packages.
Operating surplus	Defined as a residual: the amount by which value added exceeds the sum of compensation of employees, consumption of fixed capital, and net indirect taxes.
Indirect taxes	Taxes chargeable to the cost of production or sale of goods or services. These include: export and import duties; excise, sales, entertainment and turnover taxes; real estate and land taxes; value added taxes and taxes on the employment of labor; certain fees paid by producers; and operating surplus of certain kinds of government monopolies (e.g., tobacco or alcohol), which is in principle reduced for the "normal" profitsof similar business units.
Subsidies	Grants on current account by the government to private enterprises and public corporations, or to unincorporated public enterprises when clearly intended to compensate for losses associated with government price policies.
Consumption of fixed capital	Includes allowances for normal wear and tear, foreseen obsolescence and predictable unrepairable damage to capital, all valued at current replacement cost.

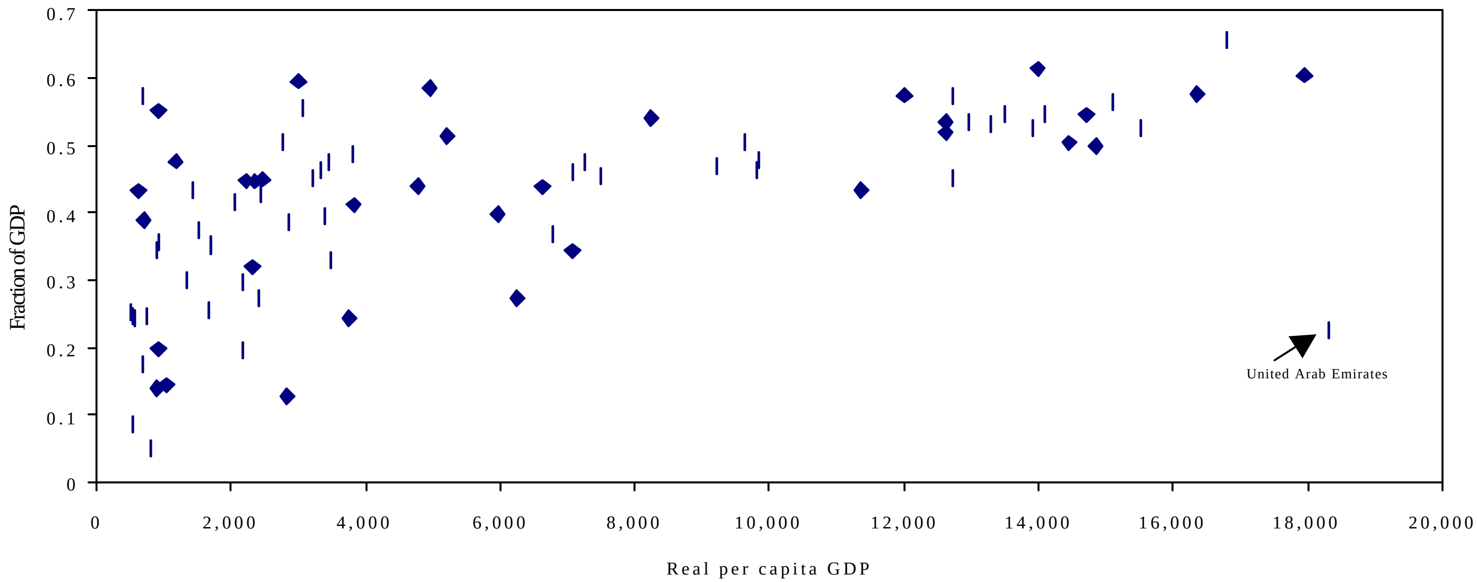
Source: Author's condensation of notes in United Nations, "System of National Accounts," Chapter I in *National Accounts Statistics: Main Aggregates and Detailed Tables* (New York: United Nations, 1992).

Figure 1: Employee compensation share of GNP, United States and Great Britain, 1935-85.



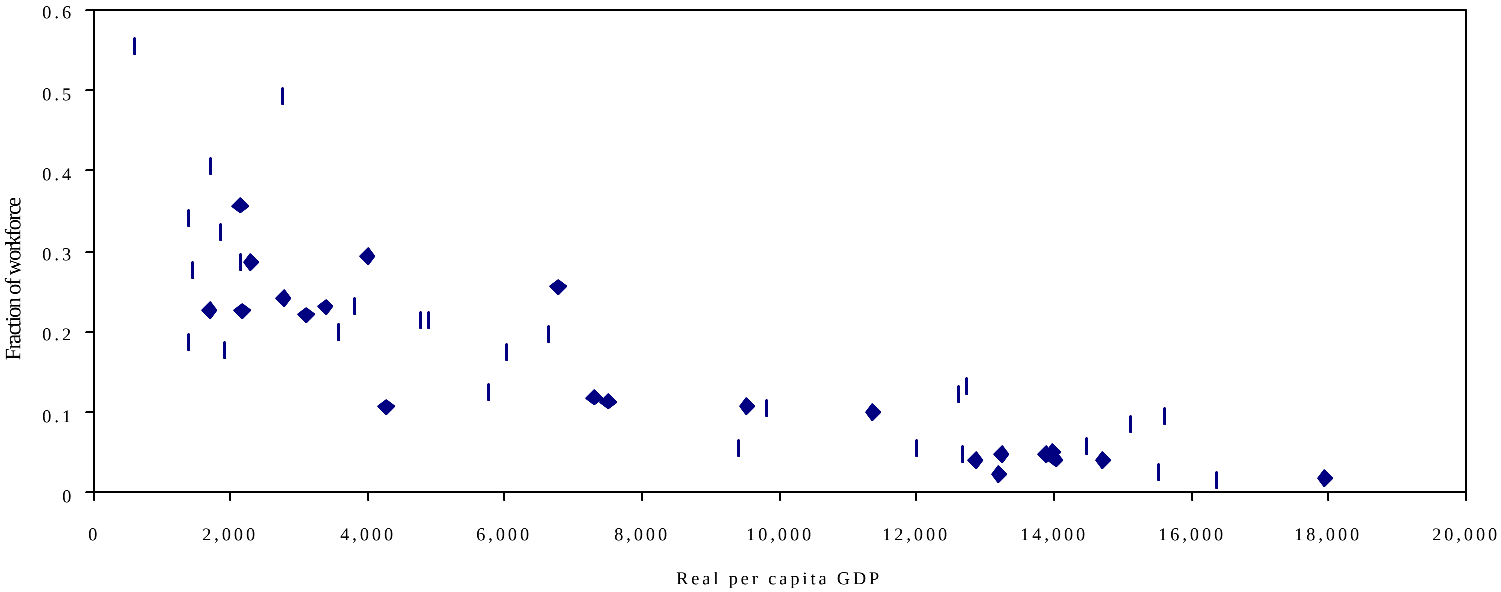
Sources: U.S. Department of Commerce, Bureau of Economic Analysis, *National income and product accounts, 1929-82: Statistical tables* (Washington, DC: US Government Printing Office, 1986) an of Economic Analysis, *National income and product accounts, 1959-88: Statistical tables* (Washington, DC: US Government Printing Office, 1990). British data: B. R. Mitchell, *British historical statis* Press, 1988), pp. 823-825.

Figure 2: Employee compensation share of GDP, 81 countries, most recent years available (1987-1992).



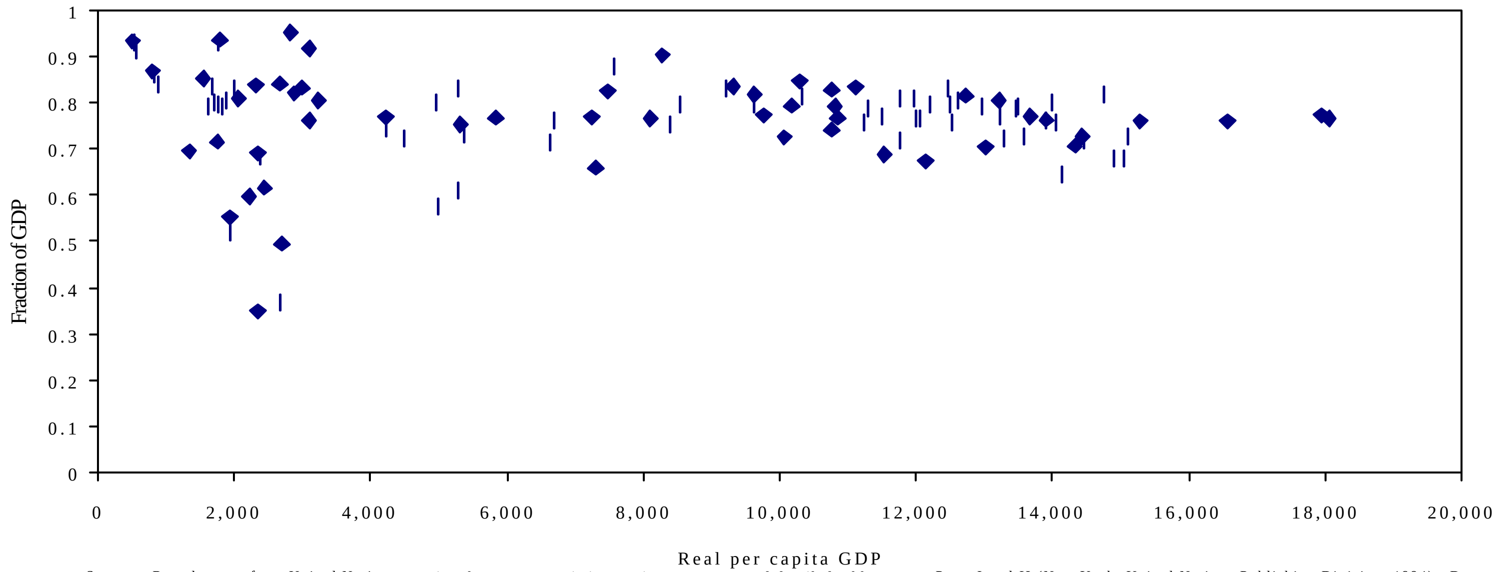
Sources: United Nations, *National accounts statistics: Main aggregates and detailed tables, 1992,* Parts I and II (New York: United Nations Publishing Division, 1994). Data on real per capita GDP ar

Figure 3: Employers and own-account workers as share of total workforce, by real per capita GDP, for all 50 countries with available data (approximately 1992)



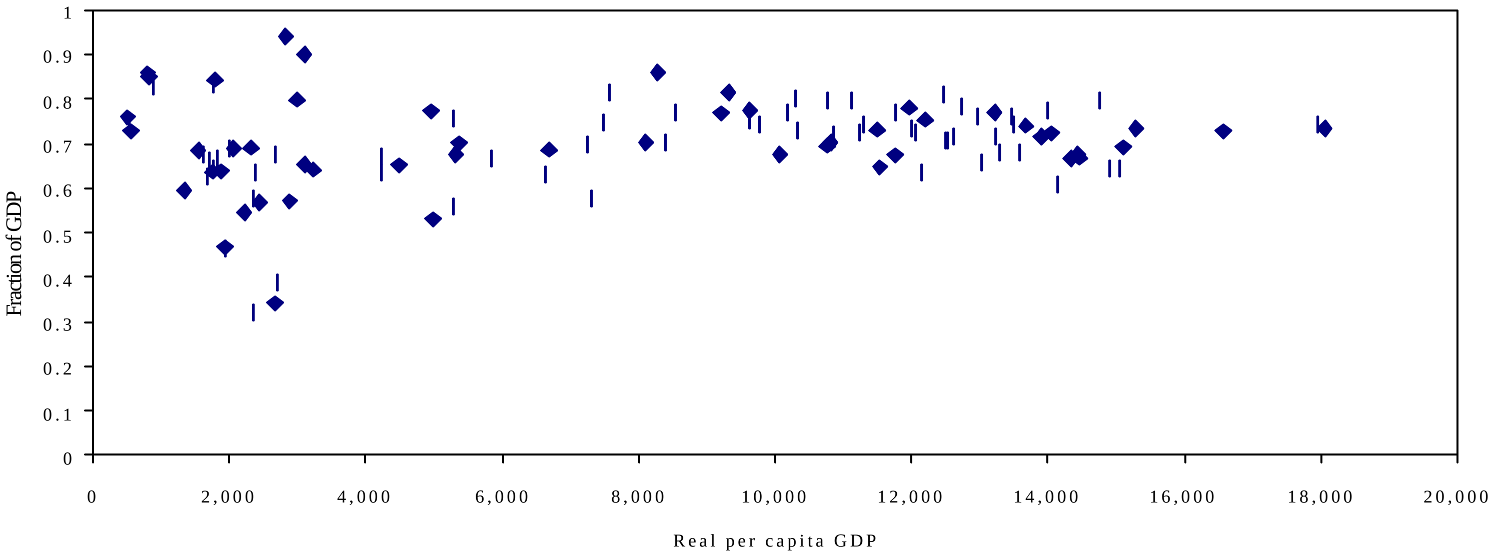
Sources: International Labour Office, *Year book of labour statistics* (Geneva: International Labour Organixation, 1993). Data on real per capita GDP from Penn World Tables v. 5.6.

Figure 4: Estimates of labor share, using Adjustment 1 to account for income of self employed and proprietors, combined cross country and time series data.



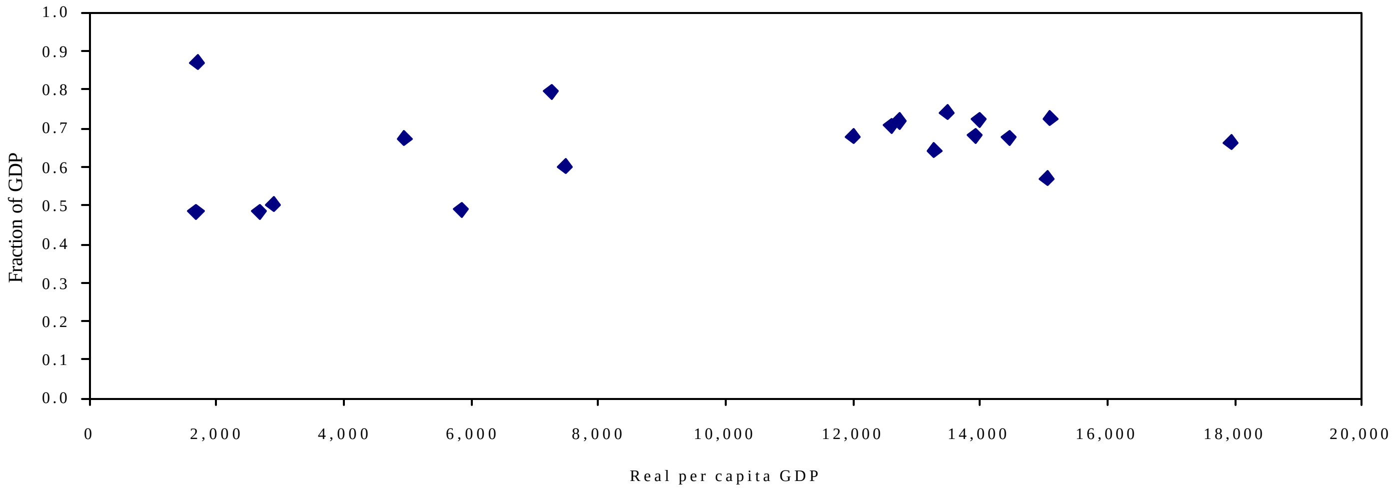
Sources: Raw data are from United Nations, *National accounts statistics: Main aggregates and detailed tables, 1992,* Parts I and II (New York: United Nations Publishing Division, 1994). Data on rea World Tables v. 5.6. Adjustment 1 involves treating as labor income all the operating surplus of private unincorporated enterprises.

Figure 5: Estimates of labor share, using Adjustment 2 to account for income of self employed and proprietors, combined cross country and time series data.



Sources: Raw data are from United Nations, *National accounts statistics: Main aggregates and detailed tables*, 1992, Parts I and II (New York: United Nations Publishing Division, 1994). Data on real pe
5.6. Adjustment 2 involves assigning the operating surplus of private unincorporated enterprises to labor and capital income in the same proportions as other portions of GDP.

Figure 6: Estimates of labor share, using Adjustment 3 to account for income of self employed and proprietors, cross-section data for most recent years available



Source: Raw data are from United Nations, *National accounts statistics: Main aggregates and detailed tables, 1992*, Parts I and II (New York: United Nations Publishing Division, 1994). Data on real p
5.6. Adjustment 3 involves imputing a wage to entrepreneurs and own-account workers in the economy.