Has Globalization Eroded Labor's Share? Some Cross-Country Evidence

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UC Berkeley and NBER

October 2002

Abstract

In recent years, economists and other social scientists have devoted extensive research efforts to understanding the widening wage gap between high-skill and low-skill workers. This paper focuses on a slightly different question: how has globalization affected the relative share of income going to capital and labor? Using a panel of over one hundred countries, this paper analyses trends in labor shares and examines the relationship between shares and measures of globalization. Contrary to recent literature, the evidence suggests that labor shares are not constant over time. Over the 1960 to 1997 period, labor shares in poor countries fell, while shares in rich countries rose. These changes in labor shares are driven by changes in factor endowments and government spending, as well as by traditional measures of globalization, such as trade shares, exchange rate crises, movements in foreign investment, and capital controls. In particular, the results suggest that rising trade shares and exchange rate crises reduce labor's share, while capital controls and government spending increase labor's share.

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"The widening of inequalities of income distribution in the 1990's is without precedent in the post-World War II history of the U.S. economy. The share of national income going to the owners of capital through corporate profits is surging. The share going to compensation is falling. This is not the way a democracy is supposed to work...."

Stephen Roach of Morgan Stanley, as interviewed in
The New York Times, February 4, 1996.

I. Introduction

In recent years, economists and other social scientists have devoted extensive research efforts to understanding the widening wage gap between high-skill and low-skill workers. The increasing wage gap between the Ahaves@ and the Ahave-nots@ has been well-documented not only in the United States but also in many other developed and developing countries. Much of this research effort has focused on trying to identify the importance of factors such as immigration, the supply of different kinds of workers, skill-biased technical change, and globalization. Globalization has been broadly defined to include everything from falling prices for goods which use low skill labor (such as garments) to increasing outsourcing by multinationals.

This paper focuses on a slightly different question: how has globalization affected the relative share of income going to capital and labor? Numerous reports in the popular press describe a struggle between capital and labor, with owners of capital winning at the expense of labor. These accounts typically present owners of capital as having greater bargaining power compared to labor, ostensibly because capital is footloose and can quickly relocate to wherever it can find the highest returns. Rodrik, (1997), in his book Has Globalization Gone Too Far, describes a similar type of bargaining game between capital and labor. Despite these claims, however, there have been almost no efforts to test the relationship between globalization and labor's share.

This paper begins by examining long run changes in the distribution of income between owners of capital and labor. Several macroeconomists have reported that the share of GDP accounted by capital income (profits) has increased, while labor=s share of GDP (wages) has declined. Blanchard (1996) documents these changes for a number of European countries, while Poterba (1997) examines trends in

the United States. In Europe, the change is enormous: labor=s share of aggregate income has declined as much as ten percentage points of GDP. In the United States, the trend is still discernable but much smaller: labor=s share in national income has declined by several percentage points in GDP. Anthony Atkinson, reviewing the evidence presented by Poterba and others, concludes that in the majority of the G-7 countries there has been a shift toward nonlabor income since 1980 (Atkinson (1997)).

The macro-economists who have examined this trend have explored in some detail the role of labor supply and labor demand shifts, the role of technological change, and other factors, but have not focused on international competition as a potential explanation. But a number of trade economists, such as Rodrik (1997), Slaughter (1996), and Richardson and Khripounova (1996) have argued that globalization is affecting labor by increasing the elasticity of labor demand. Slaughter (1996) presents convincing evidence that the elasticity of demand for labor is rising, and relates it to measures of globalization. Although he finds that labor demand within US manufacturing is becoming more elastic, there is no strong relationship between changes in labor elasticity and globalization. In another study, Budd and Slaughter (2000) show that union wage determination in Canada is affected by changing profits in both Canada and the United States. Their work suggests that globalization does affect union wages, although they do not test the impact on labor shares. Diwan (1999) shows that financial crises have systemically led to a decline in labor's share relative to capital, but does not address the role of globalization directly.

This paper begins by outlining a framework which shows how globalization could account for changes in the share of labor income in GDP. In this imperfectly competitive framework, firms and workers bargain over excess profits, and whoever has the stronger bargaining position receives a larger share of the profits. Bargaining strength depends on a number of factors, including the fixed costs of relocating and the alternative return available elsewhere. To the extent that the fixed costs of relocating are much larger for workers than for capital, this could lead capital's share of national income to rise relative to labor.

The empirical section of the paper begins by examining the stylized facts on labor shares in the United States and in other countries. The dataset, constructed using United Nations national account data, provides information on the share of labor compensation in national income or GDP across over 100 countries and over 40 years. The results show that labor and capital shares have fluctuated significantly in the last 30 years, contrary to the assumptions of constant factor shares embedded in any models which use a Cobb-Douglas production technology. Across poor and middle income countries, the share of GDP going to wages and benefits is declining. However, the global trend masks major differences across countries. In the United States, capital and labor shares have remained fairly constant over the last 35 years, while in Japan labor's share in GDP has consistently increased. The perception of falling labor shares in high income countries is driven primarily by the European experience. In Europe, many countries exhibit a dramatic fall in labor shares. Overall, the results suggest that labor's share is rising in rich countries, and falling in poor countries. Contrary to the evidence presented by Gollin (2002), who claims that labor shares are relatively constant across countries, this new dataset clearly shows enormous changes across countries and over time. While Gollin only had access to cross-country data for a small set of countries at one point in time, this paper presents results using three times as many countries and includes variation over time.

The remaining part of the paper explores the relationship between labor shares and its determinants. The results suggest that changing labor shares are driven by changes in factor endowments and government spending, as well as by traditional measures of globalization, such as movements in trade shares, exchange rate crises, movements in foreign investment, and capital controls. In particular, rising trade shares and exchange rate crises reduce labor's share, while capital controls and government spending increase labor's share. Section II outlines the theoretical framework for estimation. Section III discusses estimation issues, while Section IV discusses the empirical results. Section V concludes.

II. Theoretical Framework for Estimation

The framework is similar to that used by a number of researchers to explore factors accounting for increasing wage inequality. These researchers typically transform equations for determining the quantity of a firm=s revenue into an equation where labor=s share in revenues is a function of both final goods prices and changing factor inputs. Intuitively, the share of payments to workers in either a firm=s total revenues or in National Income will depend on product prices as well as the quantity of capital or labor available. Most previous analyses have assumed that product and factor markets are perfectly competitive. In our model, we will relax that assumption, introducing the possibility that firms make excess profits. We will then allow the rents to be divided between firms and employees on the basis of bargaining strength. This approach will differ from previous work by Borjas and Ramey (1995), who examine the link between rising wage inequality and falling industry rents. They assume that the fraction of rents allocated between workers and owners is constant; what changes is the extent of rents as global conditions become more competitive. Most previous analyses, including Borjas and Ramey (1995) and Abowd and Lemieux (1993), assume that bargaining power is fixed; in this paper, bargaining power is the parameter which is endogeneously determined. The framework also differs from Rodrik (1997) and Slaughter (1996), who argue that rising labor demand elasticities could shift the incidence of nonwage costs, costs associated with the implementation of labor standards, and government taxes towards labor. In the framework below, the fraction of rents going to workers will vary with bargaining strength, which in turn will vary with global market conditions. Of course, it is possible that the increasingly competitive conditions for low-wage workers reflect <u>both</u> the impact of globalization on falling prices (which reduces the amount of the rents available to previously protected sectors) as well as the share going to labor. This framework could incorporate both effects.

There are only two factors of production, labor and capital. The representative firm uses a vector **v** of inputs, with v_L units of labor and v_K units of capital. The competitive return to factors is given by the vector $\mathbf{w_0} = (w_{L0}\ w_{K0})$. The wage under perfect competition would be w_{L0}, and the competitive return to

capital is given by w_{K0}. Excess returns are denoted by the vector $\mathbf{w} = (w_L\ w_K)$. The utility functions for labor and capital are denoted by:

(1a) $U_L = (w_L - w_{L0})v_L$

(1b) $U_K = (w_K - w_{K0})v_K$

The revenue function is denoted by $G(\mathbf{P},\mathbf{v})$. The price vector P, in turn, can be writen as a function of the production function $\mathbf{Y}(\mathbf{v})$, so we have $\mathbf{P}(\mathbf{Y}(\mathbf{v}))$. Under imperfect competition, excess profits are equal to:

(2) $G(\mathbf{P}(\mathbf{Y}(\mathbf{v})),\mathbf{v}) - \mathbf{w_0 v}$

Firms and workers first choose the profit maximizing level of output, and then bargain over the rents. Maximizing (2) with respect to **v** yields the following first order condition:

(3) $(\delta\mathbf{Y}/\delta\mathbf{v})\mathbf{P} = \mu\mathbf{w_0}$ where $\mu = (1/\varepsilon + 1)^{-1}$

We can implicitly define the optimal choice of v as $\mathbf{v}^* = \mathbf{R}(\mathbf{P},\mu,\mathbf{w_0})$. So the excess rents given by (2) can be rewritten as:

(4) Rents $= G(\mathbf{R}) - \mathbf{w_0 R}$

Labor and capital bargain over their share of the rents, as defined in (4). Let λ be a column vector of shares, where λ_L and λ_K (=1 - λ_L) are the shares that each factor gets of the total rents. The outcome of that bargaining, if we assume Nash bargaining, can be derived from finding the solution to maximizing—over λ_L—the following:

$$[\lambda_L(G(R) - w_0R) - U_{L0}]*[(1 - \lambda_L)(G(R) - w_0R) - U_{K0}]$$

Before we can solve for λ_L, we need to define the threat points. We assume that if bargaining breaks down, capital or labor has the option to leave the country, incur a fixed cost F_L or F_K, and receive alternative returns w_L* or w_K*. This means that:

(5a) $U_{L0} = (w_L* - w_{L0})v_L - F_L$

(5b) $U_{K0} = (w_K* - w_{K0})v_K - F_K$

We will assume that fixed costs are proportional to total revenues, so that we can write $F_i = f_iG(R)$. We can also write w_i* as equal to what the factor would have received under perfect competition at home, plus a premium above the home competitive return derived from relocating abroad: $w_i* = w_{i0} + \phi_i$. We rewrite (5a) and (5b) as:

(6a) $U_{L0} = \phi_L v_L - f_L G(R)$

(6b) $U_{K0} = \phi_K v_K - f_K G(R)$

So our maximization problem becomes:

Maximize $\{\lambda_L [G(R) - w_0R] - \phi_L v_L + f_L G(R) \} \times \{ (1-\lambda_L) [G(R) - w_0R] - \phi_K v_K + f_k G(R) \}$

over λ_L

Solving for λ_L yields:

(7) $\lambda_L = 1/2[1 +(\phi_L v_L - f_L G(R) - \phi_K v_K + f_K G(R))/(G(R) – w_0 R)]$

Total returns to each factor can be written as the sum of the return under perfect competition plus the fraction of total rents accruing to that factor:

(8) $w_i v_i = w_{0i} v_i + \lambda_i (G(R) - w_0 R)$

Combining (7) and (8), and dividing both sides by total revenue G(R), yields the following expression for labor share S_L:

(8) $w_L v_L/G(R) = S_L =$

$1/2[(w_{0L} v_L – w_{0K} v_K)/G(R)] + 1/2 + 1/2(\phi_L v_L/G(R) - \phi_K v_K/G(R)) + (f_K - f_L)/2$

If both parties have equal bargaining strengths, then it is easy to see that factor shares depend only on $1/2[(w_{0L} v_L – w_{0K} v_K)/G(R)] + ½$. In this case, the factors each receive their competitive share $w_{0i} v_i$ for i=L,K and then divide equally the excess profits between themselves. If, however, fixed costs of relocating or alternative returns to the factors differ, then excess profits will not be split equally across factors. In particular, labor's share will rise if:

(1) the foreign wage premium rises

(2) the foreign premium to capital falls

(3) fixed costs to capital of relocating rise

(4) fixed costs to labor of relocating fall

An example of (3) would be a change in severance pay mandating higher compensation for workers laid off by firms which are relocating abroad. Another example of (3) would be a strengthening of capital account restrictions on outgoing capital flows. An example of (4) would be an easing of immigration laws abroad.

III. Estimation Issues

To transform (9) into an estimating equation, we begin by noting that $w_{0L}v_L/G(R)$ and $w_{0K}v_K/G(R)$, which is simply $w_{0L}v_L/\mathbf{PY(v^*)}$ and $w_{0K}v_K/\mathbf{PY(v^*)}$ can be rewritten as $(dlnY/dlnv_L)/\mu_L$ and $(dlnY/dlnv_K)/\mu_K$, using the first order conditions from (2). To simplify the analysis, we will begin by assuming only one price. We will relax this assumption later, to allow relative prices of labor-and capital-intensive goods to vary. The final estimating equation will depend on which functional form we choose to approximate the production function, Y. We assume that Y can be approximated by a translog function:

(8) $\quad lnY = lnY(v_{it}) = a_{00} + \sum_i b_{oi} lnv_{it} + 1/2 \sum_i \sum_m b_{im} lnv_{it} lnv_{mt}$

Differentiating (10) with respect to each lnv_i yields the following:

(11a) $w_{0L}v_L/PY(v^*) = b_{0L} + \sum_{m=2} b_{Lm} ln(v_{Lt}/v_{1t})$

(11b) $w_{0K}v_K/PY(v^*) = b_{0K} + \sum_{m=2} b_{Km} ln(v_{Kt}/v_{1t})$

Combining (9), (11a) and (11b) yields the following estimating equation for the labor share in GDP:

(12) $\quad S_{Lt} = \gamma_0 + \gamma_1 ln(L_t/K_t) + 1/2(\phi_L v_L/G(R) - \phi_K v_K/G(R)) + (f_K - f_L)/2$

If there were M factors then we could jointly estimate M-1 equations as a system. However, in this case, there are only two factors (labor L and capital K), and consequently we can estimate either the labor share or capital share equation. Future work will attempt to incorporate more factors into the analysis. Although it is possible to obtain information on other input quantities (such as arable land, skilled and unskilled labor) there are no available data over many countries and years which contain information on those factor shares in GDP.

One popular explanation for declining labor shares is that technological change is labor-saving. It is easy enough to augment (12) to allow for either product-specific Hicks neutral technological change or factor-specific technological change. As shown in Harrigan (1997a, 1997b) and Dixit and Norman (1980), a revenue function G(P,v) can be rewritten as G(θP,v) to indicate Hicks-neutral technological change in product j. In this case, technological change for product j has the same impact on factor shares as a product price change for product j. If technical progress is factor-augmenting, we can write the revenue function as G(P,θv). In this case, a change in θ is then formally equivalent to a change in the factor endowment (see Dixit and Norman (1980), page 139). We will assume that technical progress takes the form of factor-augmenting technical change, which allows us to rewrite (12) as:

$$(13)\ S_{Lt} = \gamma_0 + \gamma_1 \ln(L_t/K_t) + \gamma_2 \ln(\theta_{Lt}/\theta_{Kt}) + 1/2(\phi_L v_L/G(R) - \phi_K v_K/G(R)) + (f_K - f_L)/2$$

Clearly, we cannot distinguish between factor-augmenting and product-specific technical change, since these variables could affect the latter as well as the former. If, however, technological change is factor augmenting, then one testable implication is that γ_1 should equal γ_2. It is easy to show that the coefficient γ_1 (and consequently, γ_2) does not need to be positive. The derivative of labor share with respect to ln(L/K) is equal to:

$\partial S_L/\partial \ln(L/K) = \gamma_1 = (1 + 1/\sigma)/[(S_L/S_K)(1 + S_K/S_L)^2]$

In the Cobb-Douglas case, the elasticity of substitution σ is equal to –1, so the derivative of labor share with respect to ln(L/K) is zero and factor shares should be unaffected by changes in endowments. However, the coefficient on L/K could also be positive or negative, depending on whether the elasticity of substitution is high or low.

Data To estimate (12) requires data on labor shares, endowments, returns to factors in excess of the home competitive return if the factor relocates abroad, and measures of the fixed costs of relocating for labor and capital. The United Nations gathers detailed national accounts data across countries from 1950 onwards. Labor share is defined as total compensation to employees divided by either national income or Gross Domestic Product (GDP). The number of years available by country varies; some countries begin in 1950 while others begin in 1990. Compensation includes both wages to employees and other benefits (such as realization of stock options). Since national income also includes payments to unincorporated enterprises, which are typically included as part of operating surplus and classified as payments to capital, this definition of labor share is likely to represent a low estimate of labor's share. Krueger (1999) discusses in detail some of the pitfalls involved in using national accounts data to measure labor income. He argues that the reported labor income share is probably a ceiling. Gollin (2002) argues that at least part of payments to unincorporated enterprises, also known as self-employment income, should be included in labor's share. He argues that including self-employment restores the constancy of labor shares, using a smaller cross-section of the same data source as we do here. Consequently, I also estimate (12) including alternative measures of self-employment in my definition of labor share. However, very few countries actually report self-employment income, which creates a very small (and possibly misrepresentative) sample.

Labor inputs can be captured by the nation's labor force, which is collected and reported by the World Bank. For capital stock I use the series constructed by Nehru et al (1993), updated to include 1997 data. I

assume that the fixed cost of relocating for labor is large (possibly infinite in the short run) and captured by the country and year specific effects. The fixed costs of relocating for capital can be captured by several measures. The nominal exchange rate captures the cost of purchasing new plant and equipment if relocation occurs. We would expect that a depreciated exchange rate would increase the costs of relocating for capital, raising labor's share. I measure the nominal exchange rate as the market rate, period average, as reported by the International Monetary Fund. Other fixed costs of relocating include capital account restrictions such as withholding taxes, which make it difficult for capital to relocate. These can be captured using variables from the International Monetary Fund's annual publication, Trade and Exchange Restrictions. We simply add up the different measures of capital controls (equal to 1 if ther are controls; zero otherwise) to arrive at a composite measure. A country with no capital controls would have a value of zero; a country with all types of controls would have a maximum value of 5.

The independent variables ϕ_L and ϕ_K measure the return to labor and capital in the foreign country, relative to the home competitive return. Unfortunately, these are not directly observed. As a proxy for the return to labor if it relocates in a foreign country, I use the ratio of foreign GDP per worker to GDP per worker at home, lagged one period. As a proxy for the relative return to capital at home versus abroad, I use gross inflows and outflows of foreign direct investment. In future versions of this paper, alternative returns to both factors will also be calculated using the data on capital and labor payments, divided by measures of L and K. For each country, an alternative return to each factor can be calculated using the rest of the world data on factor payments and factor quantities.

The basic specification assumes only one output and no factor-biased technical change. If there were several outputs, then relative prices of labor versus-capital intensive goods would affect relative shares. Similarly, factor-biased technical change could also affect labor shares. A modified estimating equation which includes relative prices as well as factor-biased technical change is given by:

(13) $S_{Lt} = \gamma_0 + \gamma_1 \ln(L_t/K_t) + \gamma_2 \ln(\theta_{Lt}/\theta_{Kt}) + \gamma_3 \ln(P_{Lt}/P_{Kt}) + 1/2(\phi_L v_L/G(R) - \phi_K v_K/G(R)) + (f_K - f_L)/2$

At the aggregate level, prices of labor-intensive and capital-intensive goods are not available. However, relative prices can be proxied in several different ways. Bourguigion and Morrisson (1990) argue that relative prices are a function of relative world supplies of factors. This suggests using world endowments of labor relative to capital as a proxy for relative prices. Another possibility is to include terms of trade interacted with time dummies or labor-to capital ratios. To the extent that a country's terms of trade reflects changing comparative advantage in labor versus capital intensive goods, this could be captured by the interaction with time or labor-to-capital ratios. Factor-biased technical change can be captured by government spending on education versus machinery investment, also available for a limited set of countries from the United Nations national account data.

The estimating equations (12) and (13) embed a number of potential explanations for labor's changing share in GDP. Changes in labor's share could occur primarily due to factors unrelated to globalization, such as changes in endowments of L and K, or factor-biased technological change. These effects are captured by coefficients (γ_1 and γ_2. Another possibility is that globalization affects factor shares through changes in final goods prices. This is the standard effect deriving from a Heckscher-Ohlin (HO) framework. In the HO framework, globalization affects final goods prices, which in turn affect returns to factors used intensively to produce those goods. This effect has been examined in some detail by Harrigan and others (see, for example, Harrigan and Balaban(1997)) and which is captured in our framework by γ_3. To the extent that globalization affects factor shares by altering the bargaining power of labor relative to capital, then other factors should matter as well. These include alternative returns to capital and labor abroad, as well as the fixed costs of relocating.

One factor that we have not discussed is openness per se, as measured either by policies such as tariffs or the outcomes of such policies, typically captured by trade shares. In our framework, barriers to trade affect factor shares through their impact on the prices of labor-intensive relative to capital-intensive goods. To the extent that our measure of relative prices fails to capture the importance of trade restrictions, an ideal variable would be a measure of relative tariffs on labor versus capital. Unfortunately, relative tariffs are not available across countries and over time. Typically, the only available data are trade shares or average tariffs across all goods. However, to the extent that protection is typically imposed to protect labor interests, regardless of a country's comparative advantage, then aggregate measures could provide a useful indication of trends in the prices of labor-intensive goods. Evidence in countries such as the United States suggest that protection is typically focused on labor-intensive sectors. Even in developing countries, such as Mexico or Morocco, Currie and Harrison (1997) and Hanson and Harrison (1999) show that the pattern of protection is also skewed towards protecting labor-intensive goods. Consequently, the empirical analysis will include openness to trade as an independent variable, as an imperfect means of capturing the impact of trade policy on the relative prices of labor and capital intensive goods. To the extent that increases in trade or tariff reductions reflect a fall in the protection of labor-intensive goods, we would expect increasing openness to be associated with a fall in labor shares.

IV. Empirical Results

A. Stylized Facts The United Nations gathers detailed national accounts data across countries from 1950 onwards. As discussed above, labor shares are computed both as the share of wages and benefits in national income and as a fraction of GDP, following Gollin (2002). Table 1 summarizes changes in labor shares across income categories during the entire period, where labor share is defined as wages plus compensation divided by national income. We begin the analysis by focusing on changes in labor's share after 1993, since this has been a topic of recent concern. Countries are defined as rich if they are above the median GDP per

capita in 1985. Raw means, reported in the first two rows and first two columns, indicate a slight increase in labor's share in national income from the 1960s through 1993 to the 1993-96 period. The means also show that labor's share in national income is almost the same in poor and rich countries.

These means, however, hide important within country changes in labor shares. Since the composition of the means may change as countries are added or leave the sample, the last three rows in Table 1 are more informative for indicating within country changes in labor's share. These means show that in poor countries, labor's share fell on average by .1 percentage points per year prior to 1993. The decline in labor's share was more rapid after 1993: labor's share fell on average by .3 percentage points per year. In the rich countries, labor's share grew by .2 percentage points prior to 1993 and fell by .4 percentage points per year after 1993. These means indicate a reversal in the trend for rich countries post-1993, while they indicate a persistent decline in labor's share for poor countries during the entire period.

If we take means for all countries within each subperiod, then look at within country differences, we get a slightly different story. The last row in Table 1 shows again that poor countries on average exhibited a decline in labor share post-1993, if we take within country means before and after 1993 and then take the difference between the two. Using this approach, labor shares in rich countries increased slightly. Overall, the trends suggest a fall in labor shares in the poorer countries, and a slight increase in rich countries post 1993.

The next 5 columns of Table 1 report changes in labor shares by quintiles. The results are similar to those in the first two columns. In general, labor shares rise with income, although the progression is not perfect. Focusing on the last row of Table 1, the mean changes in labor income follow a clear pattern: labor share fell in the poorest countries, changed very little in the upper middle 20 percent of countries, and increased in the richest countries. The progression is quite clear: enormous declines in labor's share in the poorest 20 percent of countries, and significant increases in labor's share in the top 20 percent of all countries.

Chart 1 summarizes the overall trends in labor shares across 53 countries with data for both 1970 and 1990. The results show that for some countries, there have been dramatic changes over the period. The results in Chart 1 are consistent with the results reported in Table 1: those countries which experienced the most significant reductions in labor share are the poorest ones. In Chart 1, we used the World Bank's 1990 category of countries as low income, middle income, or upper income, a definition which is based on GDP per capita. Labor shares in national income fell between 6 and 8 percentage points for the low income countries in our sample. Again, there is a systematic relationship between movements in labor shares and income status. Although middle income countries also experienced a fall in labor's share in income, the reduction was not large, especially for upper middle income countries. For the high income countries, labor's share in national income actually rose. The average increase was almost four percentage points of GDP. The results are unchanged if we compute average changes in labor shares weighted by population: while labor shares in poor countries fell, the share of labor's income in GDP in the high income countries rose by almost 4 percentage points. If we redo the analysis with 1960 as the starting point, the trend is the same: labor shares for the high income countries rose on average during the thirty year period, while labor shares for the poorer countries fell.

One question which naturally arises is how accurate are these data? Since this is the only comprehensive source of national accounts data, a systematic comparison with other data sources is not possible. However, UNIDO does collect manufacturing wages for a select number of countries. For six countries in Figure 0, we calculated changes in labor shares relative to an index using the UNIDO data. For both data sources, we set 1977 equal to 100. Average manufacturing wages, weighted by employment in each subsector, were multiplied by the labor force and then divided by value-added. The movements in labor shares are denoted by lshgol1. Labor shares calculated using the UN data were then plotted on the same graphs, with UN data indicated by lshgol. What is remarkable about these two different data sources is that movements in labor shares are highly correlated, although the manufacturing wage data shows larger year to year fluctuations than the UN data. This is reasonable, since the manufacturing sectors of most

countries only account for a small share in the labor force, and consequently we would expect less fluctuations in the UN data, which includes all sectors of the economy.

Figures 1 through 7 provide time series evidence on labor shares for individual countries in our sample. The first 6 figures show trends in labor shares, measured using labor compensation as a share in national income. Graphs using labor compensation as a share of GDP are not included here, since the time series behavior of both is highly similar. The econometric results that follow also are very similar if we use labor compensation divided by national income or divided by GDP. A number of interesting facts emerge. First, the United States is almost the only country where labor's share in GDP has remained relatively stable. Since the late 1960s, labor's share in national income in the United States has fluctuated by only a couple of percentage points of GDP. This contrasts sharply with almost *all* other countries, which have experienced both large increases as well as declines in labor shares. Among the high-income countries, Canada, Japan, and Switzerland steadily increased their labor shares over more than thirty years. However, a number of European countries have experienced sharp declines in labor shares since the early 1970s. Those countries include Belgium, Denmark, France, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom. Those declines explain the preoccupation by macro-economists such as Olivier Blanchard with falling labor shares in Europe. The results are consistent if we use national income as the denominator or GDP.

Figure 7 shows trends in labor shares if we include self-employment in the numerator with labor compensation. Including self-employment as part of labor's share significantly reduces the cross-country variation in labor's share, as pointed out very clearly in Gollin (2002). However, it is important to note that the sample size is significantly reduced—to less than one third of the original sample. This calls into question how representative a sample can be that only includes a small fraction of all countries. The sample is heavily weighted towards developed countries and a number of the eastern european countries. The second point is that even these measures of labor share vary significantly over time. Contrary to Gollin's point, it is evident that there is no stability in labor shares even when they are measured by making

adjustments for self-employment. Since self-employment has been declining in recent years (in part due to a reduction in agricultural income), this measure of labor's share shows a steady decline in many countries. Nevertheless, the range of change is smaller than if we measure labor's share using the more conventional measures. Again, the only stable country is the United States, where this modified measure of labor's share shows a variation of less than 3 percent of national income over the last 37 years!

This paper focuses primarily on the impact of increasing globalization on labor shares. However, it is worth examining trends in two other measures that could be used to as indicators of the relative strength of capital versus labor: corporate tax rates and the employer share of social security contributions. Rodrik (1997, p. 64) has argued that globalization has made it more difficult to tax capital and has increased labor's share of the tax burden. In theory, this is because it is easier for capital to relocate to low tax regions, while labor finds it more difficult to move.

Figure 7 reports corporate taxes paid by corporations for 17 countries with available data, while Figure 8 reports employer's contributions to social security as a share of total social security contributions. There is no clear trend in corporate tax rates according to Figure 7. While it is certainly true that corporate tax rates in France, the United Kingdom, and the United States have fallen since the mid-1980s, corporate tax rates in Italy, Japan, the Philippines, the Netherlands, and Korea have increased.

There is a much clearer pattern in Figure 8. In two-thirds of the economies which report these data, payment for social security contributions is shifting away from employers and towards employees. Nevertheless, without a fully specified model, it is difficult to interpret this trend. For example, it may be the case that employees are shouldering more of the tax burden but are being compensated with higher wages. Nor, without further analysis, can we link this trend to globalization per se. In the remainder of this paper, we focus exclusively on explaining trends in labor shares.

Before turning to the estimation results, we report trends in labor shares using simple regressions with labor share regressed on time. The results are reported in Table 2 and Appendix Table 1. While Appendix Table 1 reports the coefficients on time by country, Table 2 reports the results across all countries,

as well as across income quintiles based on 1985 GDP per capita. Defining labor shares as either labor compensation divided by national income or GDP, the trends are consistent with those reported in Table 1 and Chart 1. Labor share is rising across all countries, by .1 percentage point per year if labor share is defined as compensation/national income, and by .02 percentage points per year if labor share is defined as compensation/GDP. Across income categories, labor share is falling for the poor countries and rising for the rich countries. Using both definitions of national income, labor share is falling by .2 percentage points per year for countries in the bottom quintile, falling by .1 percentage points per year for the lower middle 20 percent, and falling slightly or rising for the middle and upper middle quintiles. Labor shares are rising for the top quintile, by .2 percentage points per year using either definition of labor share.

We also report results for self-employment. Across the 38 countries with available data, self-employment earnings as a share of GDP are falling, by an average of .3 percentage points per year. Consequently, if we define labor's share to include self-employment, we find that labor's share is falling across all countries with available data, by .2 percentage points per year. Clearly, our perceptions on the trends in labor's share are affected by the definition we use. However, it is also clear from the time trends reported in Tables 1 and 2 and the figures that labor share—however defined—is not constant over time.

B. Estimation Results

Results from estimating (13) using cross-country, annual time series data are reported in Table 3. In the remaining analysis, we chose to report results defining labor share as a percent of GDP, rather than national income. The results are similar if national income is used as the denominator, but the sample size is larger if we use GDP. A number of consistent results emerge across specifications, although with the addition of more independent variables the number of degrees of freedom falls significantly and standard errors become quite large. Across all specifications, the coefficient on relative endowments L/K is negative and significant. This suggests that one important factor driving labor shares is changes in endowments:

increases in the labor force (or declines in the capital stock) lead to a fall in labor shares. This implies that the elasticity of substitution between labor and capital is relatively low. For example, a fall in the capital stock cannot be easily substituted with more labor, leading to a more than proportionate increase in return to capital relative to labor and resulting in a fall in labor's share. This is Poterba's explanation for the observed decline is US labor shares in the early 1990s. As indicated in columns (7) and (8), the results also suggest that capital and labor are less substitutable in rich countries than in poor countries: the coefficient on L/K is larger (and more negative) by a factor of 3 for rich countries relative to poor countries.

The coefficient on relative GDP per capita is generally negative, as predicted by the model. Higher income per person at home, relative to income abroad, weakens labor's bargaining position and leads to lower labor shares. Not surprisingly, however, this result is only true in "rich" countries. In columns (7) and (8), we distinguish between poor countries and rich countries by splitting the sample in two, based on the median GDP per capita in 1985. As the results indicate, the negative coefficient on GDP per capita in columns (2) through (6) are driven by the observations for rich countries.

Across a number of specifications, we find that capital controls are positive and statistically significant. These results are predicted by the model: higher fixed costs of relocating, as proxied by capital controls, weaken capital's bargaining position and lead to higher labor shares. The magnitude of the effect is large: For example, eliminating capital controls would raise labor's share in GDP between 1 and 2 percentage points. However, the significance on the capital control measure is not present in all specifications. In particular, capital controls are only significant if we introduce government spending as a share of GDP as an additional variable. We introduce government spending as an additional variable to investigate whether capital controls are a proxy for general government intervention in the economy. In fact the results suggest the opposite: the stronger effects of capital controls in the last three columns of Table 3 suggest that there is a negative relationship between capital controls and government spending in the data.

In column (3) we introduce the log of the nominal exchange rate. We had hypothesized that a more appreciated exchange rate would lower the fixed costs for capital of relocating abroad, resulting in a positive

relationship between exchange rate depreciation and labor shares. However, the coefficient is the opposite sign (negative) and almost significant for poor countires. One alternative interpretation is that the exchange rate captures the relative price of tradeables relative to non-tradeables. An exchange rate depreciation would indicate a fall in the price of non-tradeables, which could be linked with falling labor shares if non-tradeables are more labor-intensive. This is likely to be the case.

In column (3) we also add the trade share in GDP, defined as exports plus imports divided by GDP. As we indicated earlier, the interpretation of the coefficient on this regressor is somewhat problematic. Nevertheless, the negative coefficient on trade shares is negative and significant, suggesting that an increase in trade shares is associated with a fall in labor shares.

In column (4) we add a measure of relative price, proxied by relative world endowments of labor relative to capital. Relative world endowments should be inversely proportional to prices of labor versus capital-intensive goods. We would expect a negative relationship with labor shares: increases in the relative price of capital-intensive goods (as proxied by endowments of labor relative to capital) should lead to a decline in labor shares if price changes are reflected in returns to factors. Instead, the coefficient on relative price is positive. Decomposing the sample into rich and poor countries in columns (7) and (8) indicates that while poor countries show a consistent negative coefficient on relative prices, the positive coefficient arises from the rich countries. This suggests further work is necessary to find an appropriate measure of relative prices, at least for rich countries. For poor countries, the results indicate that labor shares fall when world endowments of labor relative to capital rise. Other coefficients are relatively unaffected by the addition of a proxy for relative prices.

In a recent paper, Diwan (1999) examines the relationship between labor shares and financial crises. Diwan defines financial crisis broadly, as a year where the nominal exchange rate depreciates by more than 25 percent between the beginning and the end of the calendar year. He finds a significant negative impact of financial crisis on labor shares. This leads him to conclude that labor is bearing disproportionately the burden (relative to capital) from financial crises associated with large swings in the exchange rate. To test

whether our other measures, such as capital restrictions or trade shares, are proxying for such crises, we add Diwan's definition of financial crisis in column (4) of Table 3. Even after controlling for annual exchange rate changes, the crisis variable has a negative and statistically significant coefficient, supporting Diwan's finding that large swings in the exchange rate lead to a fall in labor's share. However, the addition of this variable leaves the other coefficients relatively unchanged. The results also suggest that an exchange rate crisis leads to a larger fall in labor's share in poor relative to rich countries, as indicated by the doubling of the coefficient on the crisis variable for poor relative to rich countries.

In columns (5) and (6) we add DFI inflows and outflows, as well as government spending as additional regressors. We anticipated that DFI inflows would be a good measure of alternative returns to capital elsewhere. Consequently, we expected that an increase in inflows suggests low alternative returns to capital elsewhere, raising labor's share. Instead, the coefficient on DFI inflows is negative and statistically significant, which is puzzling. One possibility is that inflows capture the ease with which investment is able to enter and leave the country. In this case, DFI flows are negative correlated with fixed costs of relocating capital, and the negative coefficient is consistent with the model.

It is possible that the positive and significant impact of capital controls is proxying for general government intervention in an economy, which may increase labor shares through other means. For example, countries with capital controls may also intervene in labor markets, impose higher minimum wages, and take other measures to increase labor's share. To control for this possibility, we add government spending relative to GDP as an additional independent variable. This is a better direct measure of government intervention in the economy. The results suggest that government spending does have a significant redistributive impact. The coefficient on government spending is positive and significant, indicating that an increase in government spending is associated with an increase in labor's share.

One potential problem with the estimates reported in Table 3 is that both labor shares and some of the independent variables are jointly determined. In Table 4 we redo the estimation using instrumental variables (IV). We instrument log(L/K), capital controls, DFI, government spending and trade shares with

lags of all the right-hand side variables. The results reported in Table 4 are robust to the use of IV techniques. Almost all of the point estimates in Table 4 remain very similar in magnitude, with no changes in statistical significance. The IV results continue to point to the following factors to explain a decline in labor's share: a rising labor to capital ratio, a fall in capital controls, increasing relative GDP per capita, and an exchange rate crisis. However, the negative impact of a large exchange rate depreciation on labor's share is restricted to poor countries. Trade shares are also negatively correlated with labor shares, but the results in the IV estimation suggest that in both magnitude and significance trade is more important for poor countries. Inward DFI is again negatively associated with labor's share, but the negative impact is restricted to rich countries. Taken together, the results suggest that rising trade shares are associated with a decline in labor's share in poor countries, while inward DFI is associated with a decline in labor's share in rich countries. Government spending positively affects labor's share in all countries, as do capital controls.

Table 5 reports several extensions on the baseline specification, taken from column (4) in Table 4. In columns (2) and (3) in Table 5 we redefine labor's share to include self-employment. Unfortunately, most countries do not report self-employment income. The results are qualitatively the same, although there are some differences. The coefficient on log (L/K) remains negative, while the coefficient on capital controls remains positive, and more than doubles in magnitude. The coefficient on relative GDP per capita is even larger in magnitude and remains negative. One difference is that the coefficient on both the nominal exchange rate and the crisis variable (reflecting large swings in the nominal exchange rate) is now positive and significant. The coefficient on trade shares is now larger in magnitude, negative, and statistically significant. However, due to the small sample size, it is difficult to make generalizations about these results.

In columns (5) through (7) we explore alternative approaches to measuring the impact of globalization. Column (5) replaces trade shares as a measure of globalization with effective tariffs, where tariffs are defined as tariff revenues divided by imports. This measure has no significant impact on labor share. We also experimented with other specifications which included effective tariffs as an independent variable, with very similar results. In the last two columns, we explore the possibility that measures of

globalization could affect labor shares by affecting the coefficient on L/K. The coefficient on the interaction of trade shares and L/K is generally insignificant, suggesting no effect of globalization through this particular channel. We also experimented with an interaction of effective tariffs and L/K, and obtained the same results.

Table 6 reports the results when the basic specification is redone using both five year averages and long differences. For the five year averages, all variables are averaged over five year intervals, and the OLS estimation is reported in the first three columns of Table 6. For the long differences, all variables are averaged in the first 10 years and the last 10 years of the sample, and then first-differenced. The results are reported in the last five columns of Table 6. What is remarkable about Table 6 is how little these transformations of the data change the basic results, particularly for the five year averages. The coefficient on the labor to capital ratio remains the same in magnitude and significance, with the same differences between rich and poor countries. Although the statistical significance of the coefficient on capital controls is affected by these transformations, the magnitude of the coefficient remains the same. We continue to find that trade shares are associated with a decline in labor shares. The effect is large and statistically significant. Again, increasing government spending is associated with an increase in labor's share, exchange rate crises are associated with a fall in labor's share, and inward DFI is associated with a decline in labor's share. Unfortunately, averaging the sample and taking long differences leads to much smaller sample sizes, and also affects the statistical significance of some coefficients.

Table 7 reports the actual changes in the independent variables between the earlier and later period, where "later" is defined as 1993 through 1996. Combined with the coefficient estimates reported in Table 4, this allows us to decompose the source of actual changes in labor's share. The results, reported in the last two columns, suggest that labor shares have increased in rich countries primarily because the capital stock has grown relative to the labor force. Another significant factor increasing labor's share in rich countries is the increase in government spending in GDP, which can account for a one percentage point increase in labor's share in national income post-1993 in the rich countries and a .3 percentage point decline in labor's

share in the poor countries. In both rich and poor countries, DFI inflows are associated with a decline in labor's share in GDP of between .6 and .7 percentage points.

In the poor countries, although the increase in capital stock relative to the labor force has contributed to an increase in labor's share in national income, that increase has essentially been wiped out by the negative impact of reducing capital controls and depreciating exchange rates. So in the poorer countries, it does appear that globalization has had a detrimental impact on labor's share in national income. The poor countries have also been negatively affected by the larger increase in trade shares, and the fall in government spending.

Overall, the results suggest that quantitatively most important factor driving changes in labor shares are changes in relative endowments of capital relative to labor. However other factors related to liberalization of their economies have reduced labor's share in poor countries. These include reductions in capital controls and increases in trade shares, as well as a reduction in government spending and devaluations. Large nominal exchange rate depreciations reduce the share of national income going to labor, while capital controls increase it. The magnitude of these effects is not small. For example, eliminating capital controls would raise labor's share in GDP in poor countries by up to 5 percentage points.

V. Conclusion

During the 1990s, public attention increasingly focused on the potentially negative consequences of globalization. In particular, economists and other social scientists devoted extensive research efforts to understanding the links beetween trade liberalization and rising wage inequality. However, the focus on wage inequality eclipsed many other important research problems. This paper seeks to address these omissions by analyzing the impact of trade and capital flows on labor's share in national income.

. To test for the impact of different measures of globalization on labor shares, I combine detailed national accounts data from the United Nations with measures of trade openness, capital account restrictions,

and capital flows. These data provide information on the share of labor compensation in national income across over 100 countries and over 40 years. Two interesting stylized facts emerge from the results. Contrary to received wisdom, the evidence suggests that labor shares are not constant over time. Between 1960 and the end of the 1990s, labor shares in poor countries fell, while shares in rich countries rose. Simply documenting these changes in labor's share is important; this is the first effort to show the significant fluctuations in labor's share over time. However, this paper seeks to go further, by testing whether different measures of globalization can explain these observed changes in labor shares.

Overall, the results suggest that changes in factor shares are primarily linked to changes in capital/labor ratios. However, measures of globalization (such as capital controls or direct investment flows) also play a role. Exchange rate crisis lead to declining labor shares, suggesting that labor pays disproportionately the price when there are large swings in exchange rates. Capital controls are associated with an increase in labor's share, suggesting that imposing such controls are beneficial to labor. In addition, increasing trade shares are associated with a fall in labor's share. This result is robust across specifications. Other factors, such as government spending, also matter. Increasing government spending is associated with an increase in labor shares, for both rich and poor countries. Finally, foreign investment inflows are associated with a fall in labor's share. These results point to a systematic negative relationship between various measures of globalization and labor's share.

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Table 1

Changes in Labor Shares: Different Means by Income Category

	Poor	Rich	Bottom 20 %	Bottom Middle 20 %	Middle 20 %	Upper Middle 20 %	Top 20 %
Mean Labor Share, Prior to 1993	.532	.530	.402	.519	.540	.481	.584
Mean Labor Share, 1993-1996	.573	.534	.590	.359	.472	.488	.588
Mean Within Country Change in Labor Share, Prior to 1993	-.001	.002	-.002	-.001	-.001	-.0004	.004
Mean Within Country Change in Labor Share, 1993-1996	-.003	-.004	-.0002	-.022	-.009	.002	-.006
Mean Change in Labor share, taking within country differences of means	-.018	.007	-.045	-.089	-.032	-.007	.020

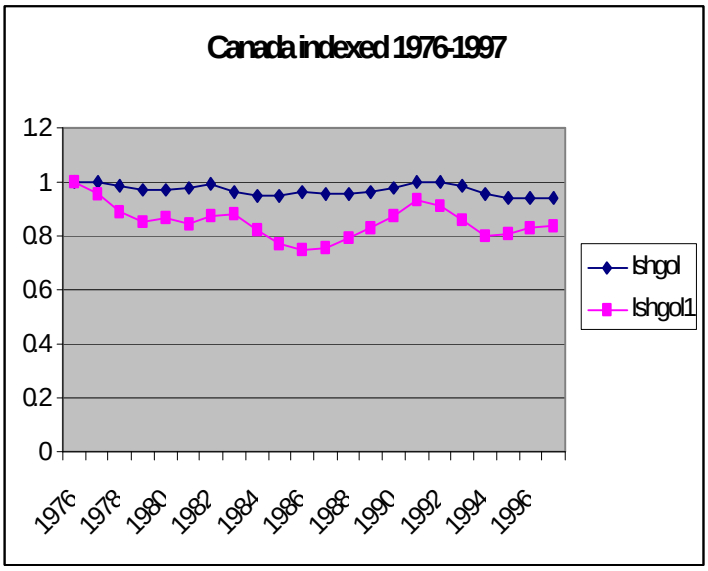
Table 2

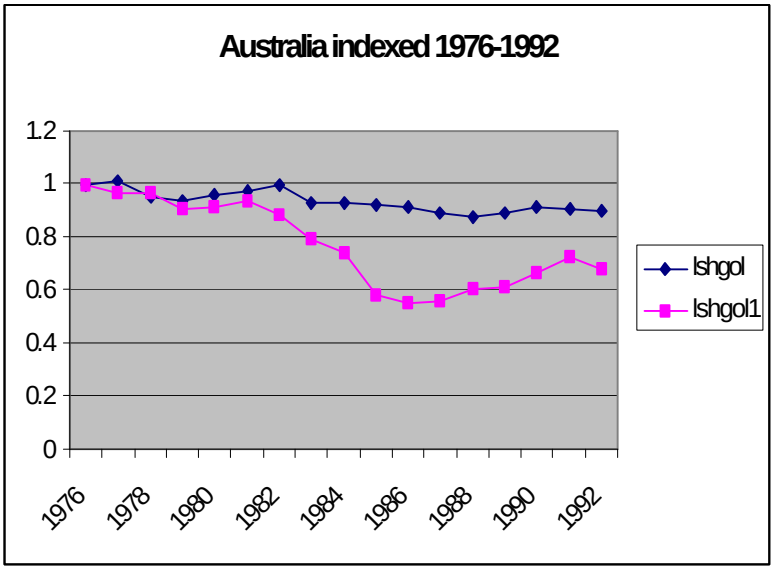
Testing for a Time Trend in Labor Shares

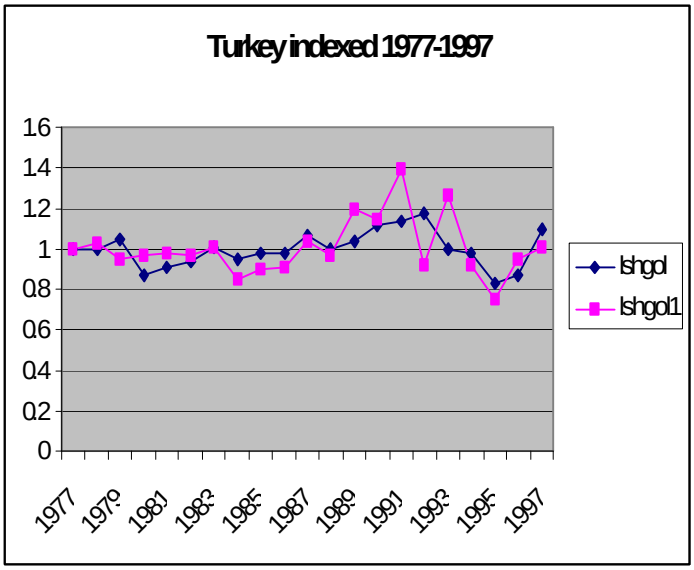
	Coefficient on t (T-value in ())	R-Square	N	Number of Countries
Fixed Effect Estimation (All Countries)				
Labor Compensation/National Income	.001 (11.1)	.05	2687	132
Labor Compensation/GDP	.0002 (2.1)	.002	3076	152
Self-Employed Earnings (OSPUE)/GDP	-.003 (-12.6)	.22	593	38
Labor Compensation + OSPUE/GDP	-.002 (-8.5)	.12	593	38
Labor Compensation/National Income				
Bottom 20 %	-.002 (-4.6)	.08	272	18
Lower Middle 20 %	-.001 (-2.2)	.01	380	18
Middle 20 %	0.000 (1.0)	.003	320	13
Upper Middle 20 %	.001 (2.6)	.02	388	15
Upper 20 %	.002 (14.6)	.29	542	15
Labor Compensation/GDP				
Bottom 20 %	-.002 (-3.4)	.04	302	18
Lower Middle 20 %	-.001 (-5.5)	.07	447	20
Middle 20 %	-.001 (-4.2)	.01	452	17
Upper Middle 20 %	0.000 (1.5)	.01	452	17
Upper 20 %	.002 (10.3)	.17	542	15

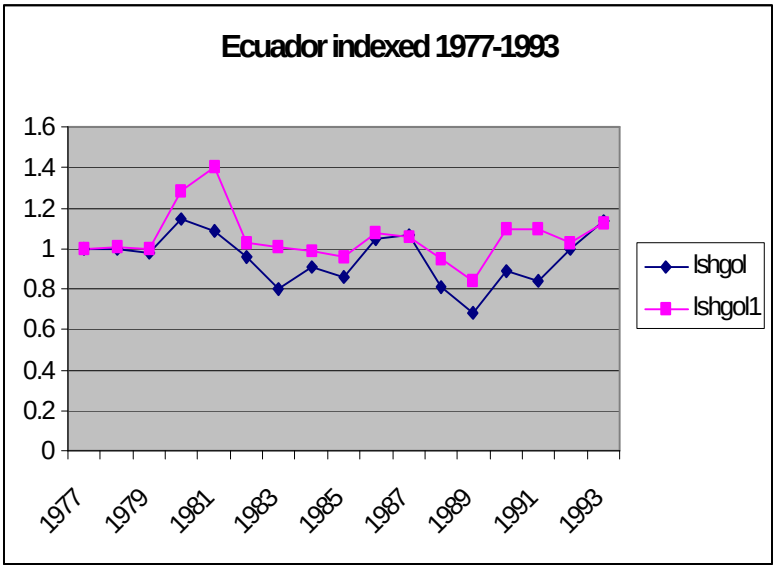
Notes: All specifications include country dummies. Percentiles based on 1985 GDP per capita.

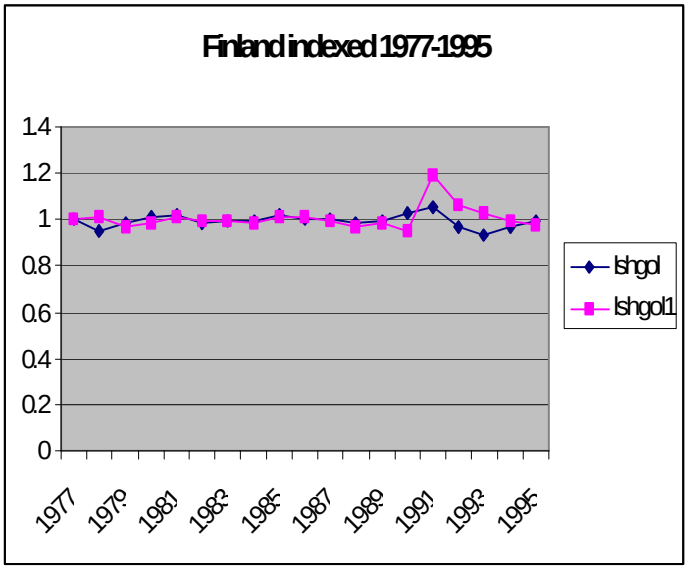
Figure 0: Labor Share Data Comparisons (Select Countries)











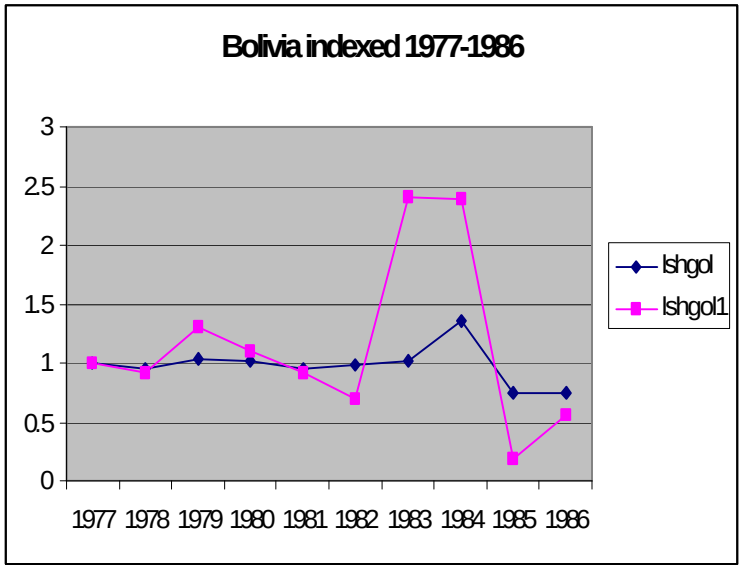


Table 3

OLS Estimation

Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7) Below Median Per Capita GDP in 1985	(8) Above Median Per Capita GDP in 1985
Log (L/K)	-.061 (-14.1)	-.072 (-9.0)	-.068 (-8.7)	-.067 (-8.6)	-.069 (-8.5)	-.069 (-9.0)	-.036 (-3.3)	-.125 (-13.5)
Capital Controls	--	.001 (1.3)	.001 (0.8)	.001 (1.3)	.001 (1.2)	.002 (2.0)	.003 (1.9)	.003 (2.0)
Relative GDP Per Capita	--	-.059 (-0.7)	-.0002 (-0.0)	-.023 (-0.3)	-.023 (-0.3)	0.060 (0.8)	.160 (1.7)	-.375 (-3.6)
Log (Nominal Exchange Rate)	--	--	-.001 (-0.8)	-.001 (-0.9)	-.001 (-0.6)	.001 (0.9)	-.002 (-1.6)	.004 (2.7)
X+M/GDP	--	--	-.065 (-6.8)	-.061 (-6.5)	-.056 (-5.8)	-.045 (-4.6)	-.050 (-3.6)	-.049 (-3.3)
Relative Price	--	--	--	.085 (4.4)	.088 (4.1)	.093 (3.7)	-1.080 (-3.8)	.087 (4.1)
Crisis	--	--	--	-.011 (-2.8)	-.011 (-2.8)	-.012 (-3.3)	-.014 (-3.1)	-.007 (-1.1)
Inward DFI	--	--	--	--	-.0005 (-2.3)	-.001 (-3.2)	-.001 (-1.7)	-.001 (-2.2)
Outward DFI	--	--	--	--	0.0 (0.1)	0.0 (0.1)	.709 (2.1)	0.0 (0.1)
Government Spending/GDP	--	--	--	--	--	.360 (6.3)	.317 (4.5)	.349 (3.9)
N	1692	1299	1290	1290	1221	1221	578	643
R-Square	.94	.94	.95	.95	.95	.95	.97	.90

Notes: T-statistics in (). Estimation allows for arbitrary heteroskedasticity. All estimates include time and country dummies. Dependent variable is labor share, defined as wages and compensation divided by GDP.

Table 4

Instrumental Variable Estimation

Independent Variables	(1)	(2)	(3)	(4)	(5)	(6) Below Median Per Capita GDP in 1985	(7) Above Median Per Capita GDP in 1985
Log (L/K)	-.067 (-15.2)	-.076 (-8.0)	-.075 (-8.0)	-.079 (-7.3)	-.071 (-7.7)	-.035 (-2.5)	-.168 (-11.1)
Capital Controls	--	.002 (1.4)	.002 (1.2)	.002 (1.2)	.003 (1.9)	.005 (1.6)	.007 (2.5)
Relative GDP Per Capita	--	-.099 (-1.1)	-.098 (-1.1)	-.130 (-1.2)	-.003 (-0.0)	.140 (1.0)	-.702 (-3.7)
Log (Nominal Exchange Rate)	--	--	-.001 (-0.6)	-.0001 (-0.1)	.001 (0.5)	-.004 (-1.8)	.008 (4.2)
X+M/GDP	--	--	-.072 (-5.8)	-.062 (-4.7)	-0.052 (-4.0)	-.067 (-3.0)	-.017 (-0.8)
Relative Price	.085 (6.3)	.096 (4.2)	.097 (4.3)	.109 (4.0)	.108 (4.3)	-1.306 (-4.4)	.108 (3.8)
Crisis	--	--	-.012 (-2.7)	-.012 (-2.6)	-.013 (-3.1)	-.017 (-3.3)	-.010 (-1.3)
Inward DFI	--	--	--	-.001 (-2.1)	--	-.001 (-1.4)	-.001 (-2.2)
Outward DFI	--	--	--	0.0 (0.0)	--	0.0 (1.1)	0.0 (1.0)
Government Spending/GDP	--	--	--	--	.316 (3.5)	.297 (1.9)	.426 (2.4)
N	1576	1134	1126	1018	1126	470	548
R-Square	.94	.94	.94	.95	.95	.97	.71

Notes: T-statistics in (). Estimation allows for arbitrary heteroskedasticity. All estimates include time and country dummies. Dependent variable is labor share, defined as wages and compensation divided by GDP. The relative price, the two exchange rate variables, and relative GDP per capita are assumed to be exogenous; all other variables are instrumented with first and second lags.

Table 5

Extensions on the IV Estimation

Independent Variables	'Baseline" Specification	Labor Share Includes Self-Employment		Replacing Trade Shares with Effective Tariffs	Adding Interaction of Trade Shares with Log(L/K)	
	(1)	(2)	(3)	(4)	(5)	(6)
Log (L/K)	-.079	-.027	-.013	-.027	-.069	-.076
	(-7.3)	(-1.4)	(-0.4)	(-1.8)	(-6.7)	(-6.6)
Capital Controls	.002	.008	.005	-.001	.002	.004
	(1.2)	(3.4)	(1.3)	(-0.4)	(1.2)	(1.9)
Relative GDP	-.130	-.440	-.354	.251	-.090	-.021
Per Capita	(-1.2)	(-1.5)	(-0.9)	(1.9)	(-1.0)	(-0.2)
Log (Nominal	-.0001	-.003	0.0	.006	-.001	.002
Ex Rate)	(-0.1)	(-0.6)	(0.0)	(2.5)	(-1.0)	(1.2)
X+M/GDP	-.062	-.100	-.094	--	-.172	-.033
	(-4.7)	(-4.6)	(-3.2)		(-2.7)	(-0.5)
Relative Price	.109	.347	.347	.203	.108	.125
	(4.0)	(4.1)	(1.8)	(3.8)	(4.7)	(3.7)
Crisis	-.012	.001	.013	-.009	-.011	-.014
	(-2.6)	(0.1)	(1.2)	(-1.8)	(-2.5)	(-3.2)
Inward DFI	-.001	--	-.001	--	--	-.001
	(-2.1)		(-1.7)			(-3.1)
Outward DFI	0.0	--	0.0	--	--	0.0
	(0.0)		(0.6)			(-0.2)
Government	--	--	-.579	--	--	.380
Spending/GDP			(-0.9)			(3.5)
Effective Tariffs	--	--	--	.0003	--	--
				(0.4)		
Log(L/K)*	--	--	--	--	-.008	.001
(X+M/GDP)					(-1.6)	(0.2)
N	1018	328	303	812	1125	1018
R-Square	.95	.87	.27	.96	.94	.95

T-statistics in (). Estimation allows for arbitrary heteroskedasticity. All estimates include time and country dummies. Dependent variable is labor share, defined as wages and compensation divided by GDP. The only exception is column (2), where the dependent variable is labor compensation plus self-employment, divided by GDP. The relative price, the two exchange rate variables, and relative GDP per capita are assumed to be exogenous; all other variables are instrumented with first and second lags.

Table 6

Five Year Averages and Long Differences: OLS Estimation

	Five Year Averages				Long Differences			
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7) Below Median Per Capita GDP in 1985	(8) Above Median Per Capita GDP in 1985
Log (L/K)	-.068	-.062	-.071	-.070	-.069	-.071	-.035	-.151
	(-4.0)	(-3.9)	(-4.2)	(-2.8)	(-3.0)	(-2.8)	(-1.5)	(-5.8)
Capital Controls	.003	.003	.004	.008	.007	.008	.009	.022
	(1.1)	(1.2)	(1.5)	(1.4)	(1.4)	(1.4)	(1.0)	(1.3)
Relative GDP Per Capita	.229	.223	.179	-.069	-.092	-.078	.366	-1.171
	(1.1)	(1.2)	(1.0)	(-0.2)	(-0.3)	(-0.3)	(1.0)	(-2.5)
Log (Nominal Exchange Rate)	.002	.004	.004	-.002	-.002	-.002	.001	-.016
	(1.2)	(1.6)	(1.8)	(-0.9)	(-0.9)	(-0.6)	(0.5)	(-2.2)
X+M/GDP	-.096	-.069	-.071	-.097	-.078	-.087	-.114	-.026
	(-4.5)	(-2.9)	(-3.1)	(-2.0)	(-1.5)	(-1.7)	(-2.7)	(-0.3)
Relative Price	.082	-.099	.099	.019	.034	.021	.010	-.013
	(1.4)	(1.7)	(1.4)	(0.7)	(1.5)	(0.8)	(0.2)	(-0.3)
Crisis	-.004	-.008	-.011	-.046	-.048	-.045	-.054	-.088
	(-0.3)	(-0.6)	(-0.9)	(-1.5)	(-1.7)	(-1.5)	(-1.9)	(-0.6)
Inward DFI	-.001	--	-.001	-.0004	--	-.001	-.002	-.001
	(-2.2)		(-2.5)	(-0.4)		(-0.5)	(-1.4)	(-0.3)
Outward DFI	0.0	--	-0.0	.259	--	0.0	0.0	0.0
	(-0.6)		(-0.6)	(3.9)		(1.0)	(1.1)	(0.6)
Government Spending/GDP	--	.486	.498	--	.196	.112	.232	.213
		(3.8)	(4.0)		(2.2)	(0.7)	(0.9)	(0.5)
N	248	248	248	52	52	52	33	19
R-Square	.96	.97	.97	.49	.48	.50	.61	.78

Notes: T-statistics in (). Estimation allows for arbitrary heteroskedasticity. Dependent variable is labor share, defined as wages and compensation divided by GDP.

Table 7

Explaining Changes In Labor's Share, 1993-1996

Independent Variables	Change in Sample Mean, 1960- 1992 to 1993-96		Estimated Coefficient		Effect on Labor Share, Change from earlier period to current period	
	Poor	Rich	Poor	Rich	Poor	Rich
Log (L/K)	-.252	-.396	-.035 (-2.5)	-.168 (-11.1)	.010	.067
Capital Controls	-1.02	-.859	.005 (1.6)	.007 (2.5)	-.005	-.006
Relative GDP Per Capita	.007	.028	.140 (1.0)	-.702 (-3.7)	.001	-0.020
Log (Nominal Exchange Rate)	1.86	1.328	-.004 (-1.8)	.008 (4.2)	-.007	.010
X+M/GDP	.125	.082	-.067 (-3.0)	-.017 (-0.8)	-.008	.001
Crisis	.021	.001	-.017 (-3.3)	-.010 (-1.3)	.000	.000
Government Spending/GDP	-.009	.019	.297 (1.9)	.426 (2.4)	-.003	.012
Inward DFI	5.502	6.805	-.001 (-1.4)	-.001 (-2.2)	-.006	-.007

Notes: Poor defined as below median GDP per capita in 1985. Rich defined as above median GDP per capita in 1985. Change in sample mean calculated by first calculating within country means during 1960-1992 and 1993-1996, taking within country changes in means and then taking means of those changes.

Figure 1: Trends in Labor Compensation/National Income (lshare)

Countries Unclassified Due to Missing Data in 1985

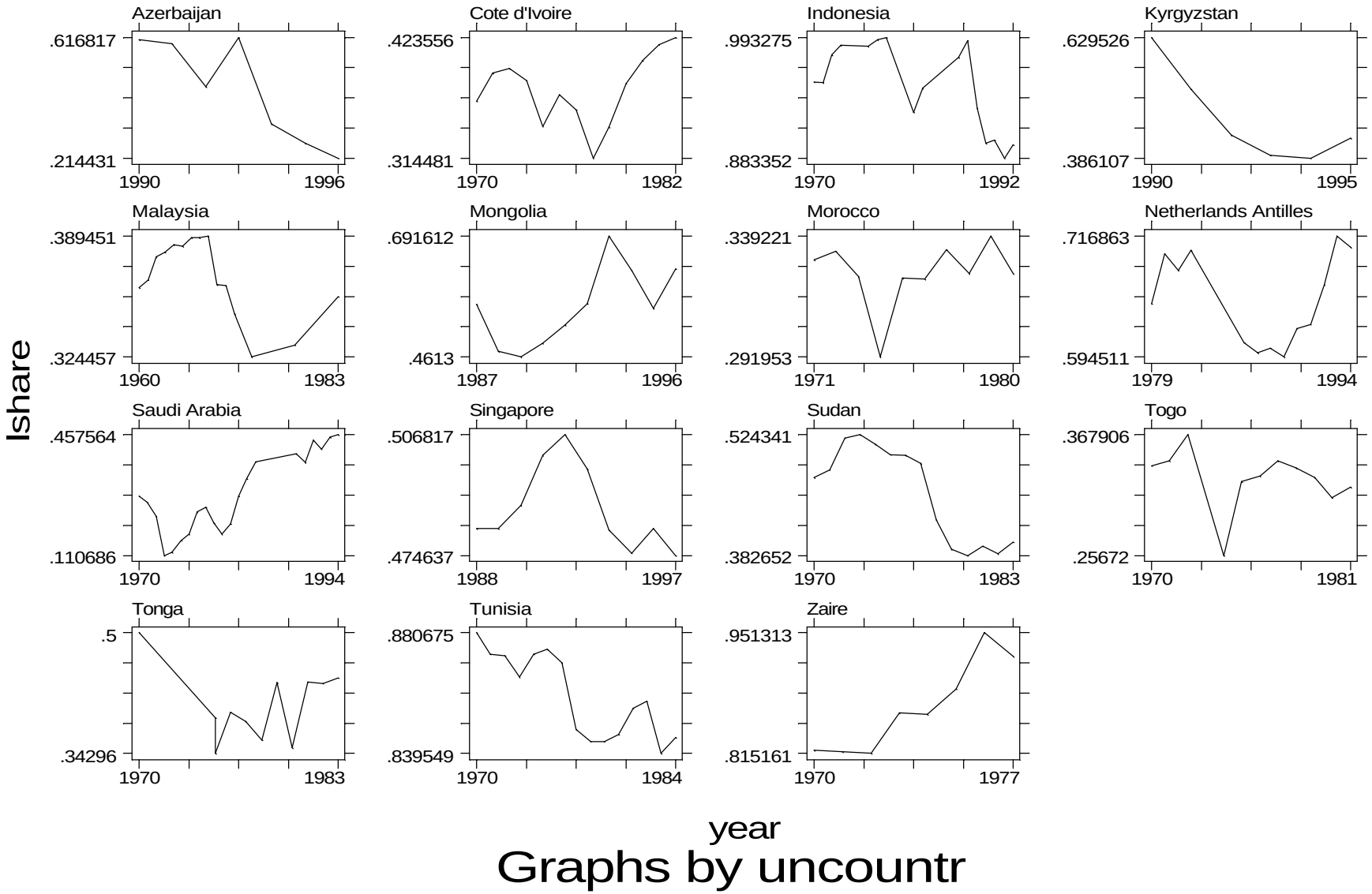


Figure 2: Trends in Labor Compensation/National Income (lshare)

Lower 20 Percent of Countries as Classifed by 1985 Labor Shares

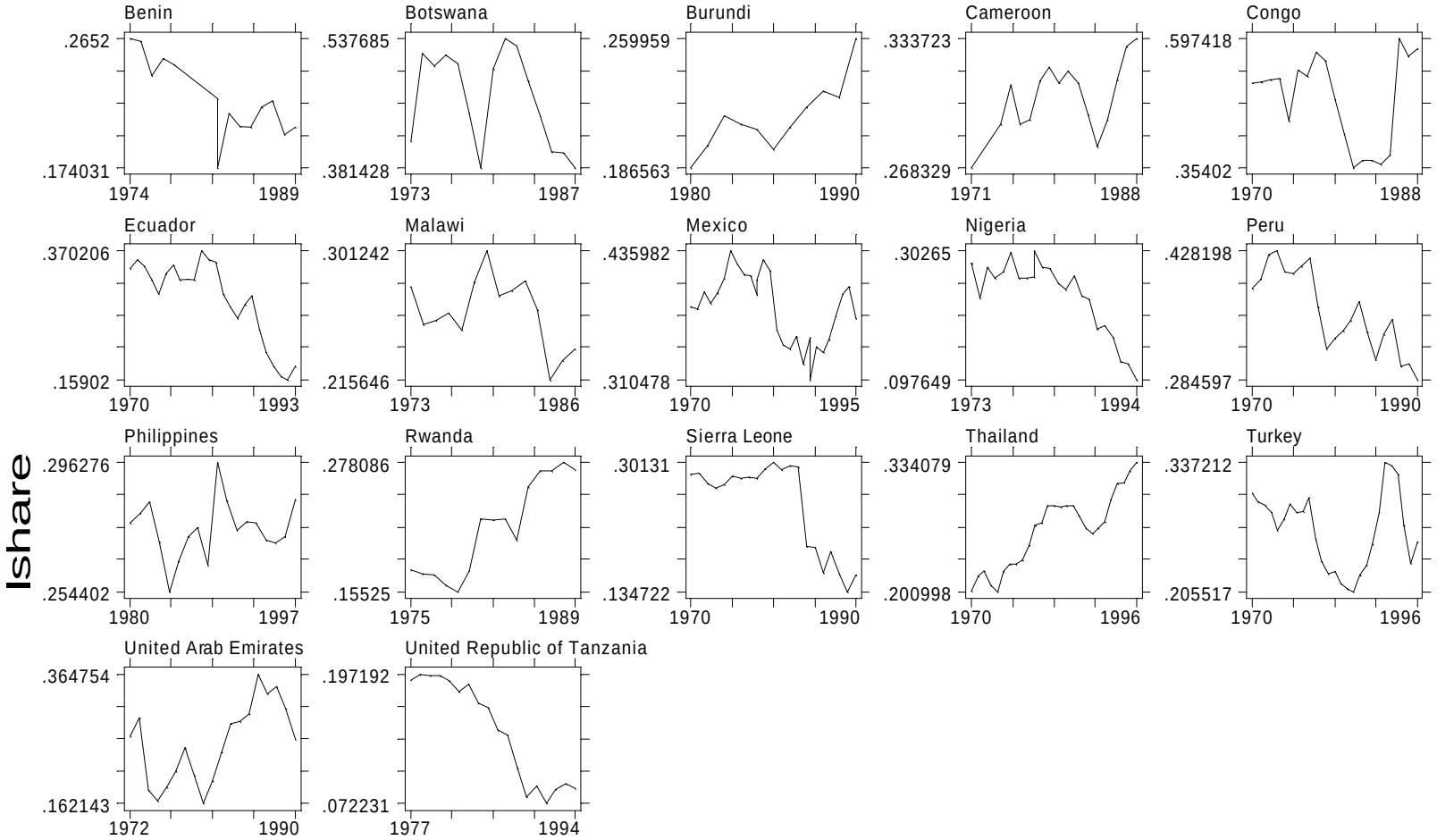


Figure 3: Trends in Labor Compensation/National Income (lshare)

Lower Middle 20 Percent of Countries as Classifed by 1985 Labor Shares

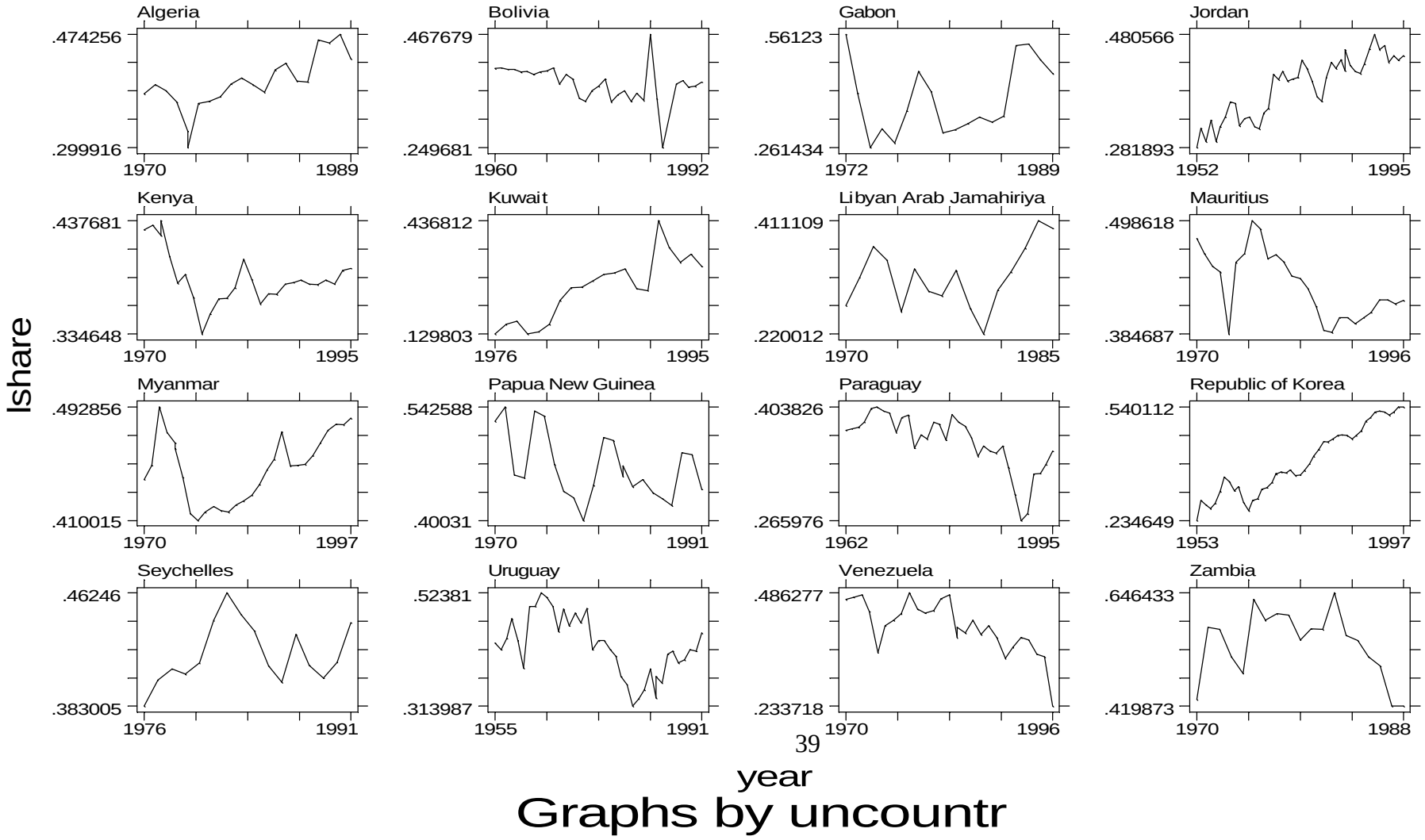


Figure 4: Trends in Labor Compensation/National Income (lshare)

Middle 20 Percent of Countries as Classifed by 1985 Labor Shares

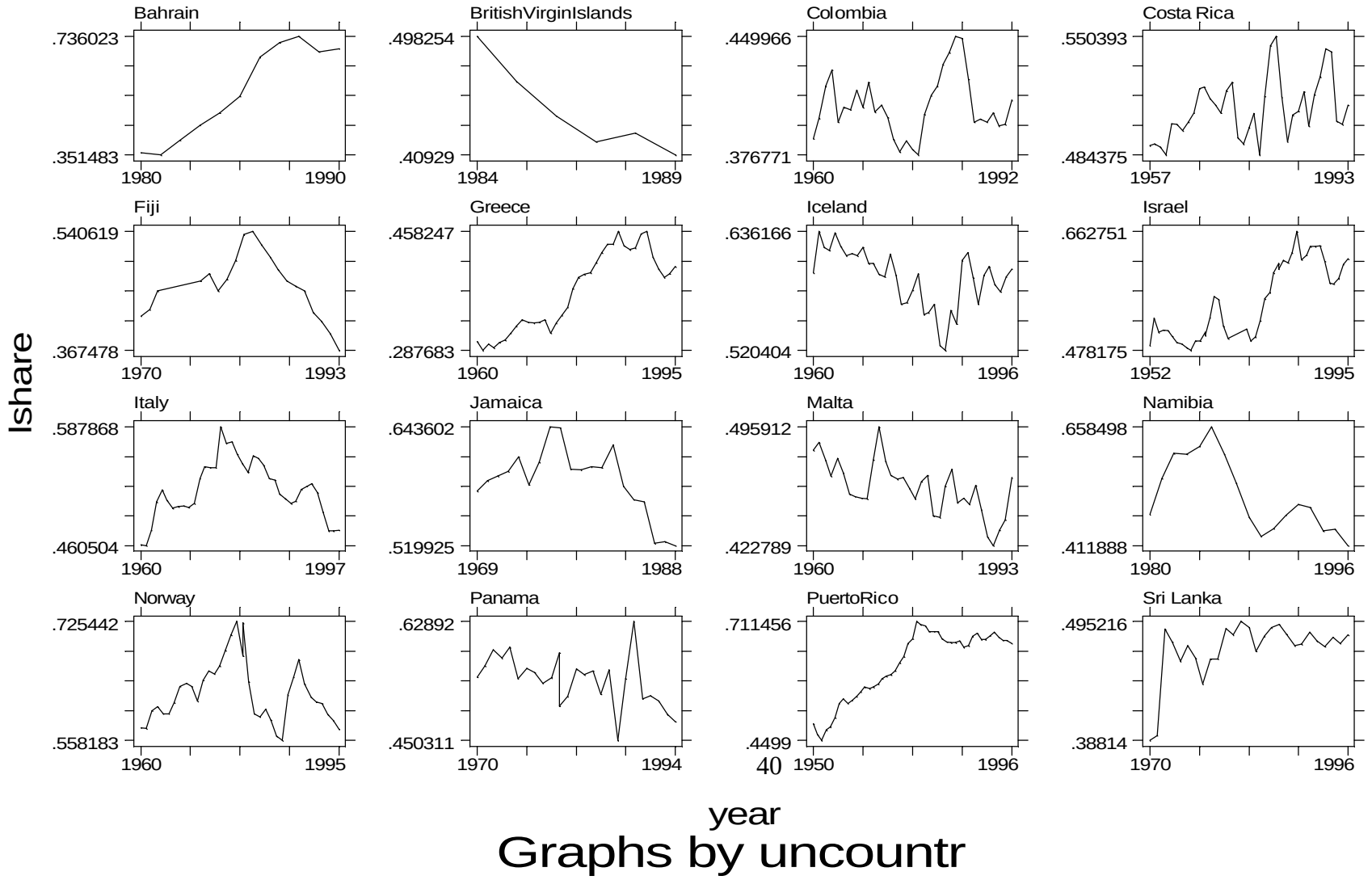


Figure 5: Trends in Labor Compensation/National Income (lshare)

Upper Middle 20 Percent of Countries as Classifed by 1985 Labor Shares

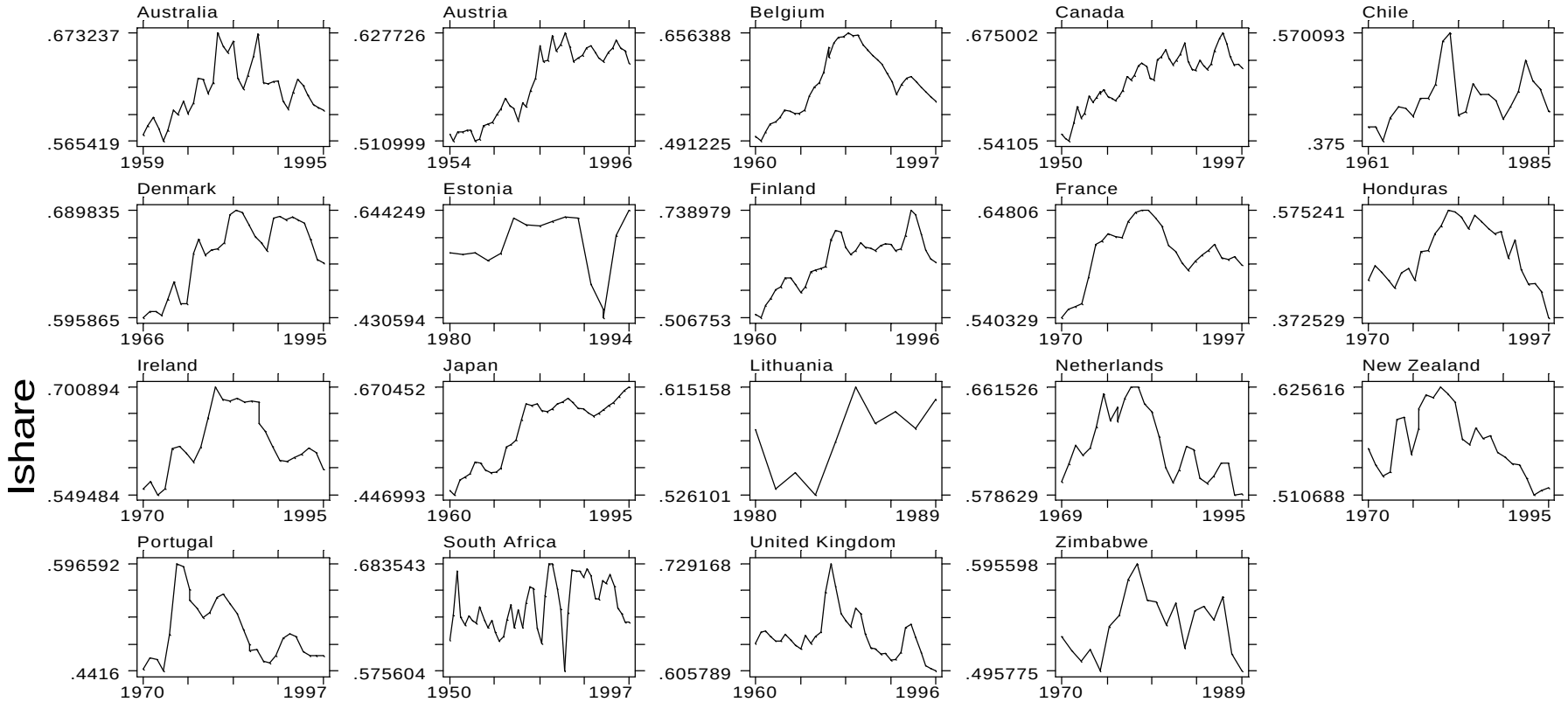


Figure 6: Trends in Labor Compensation/National Income (lshare)

Top 20 Percent of Countries as Classifed by 1985 Labor Shares

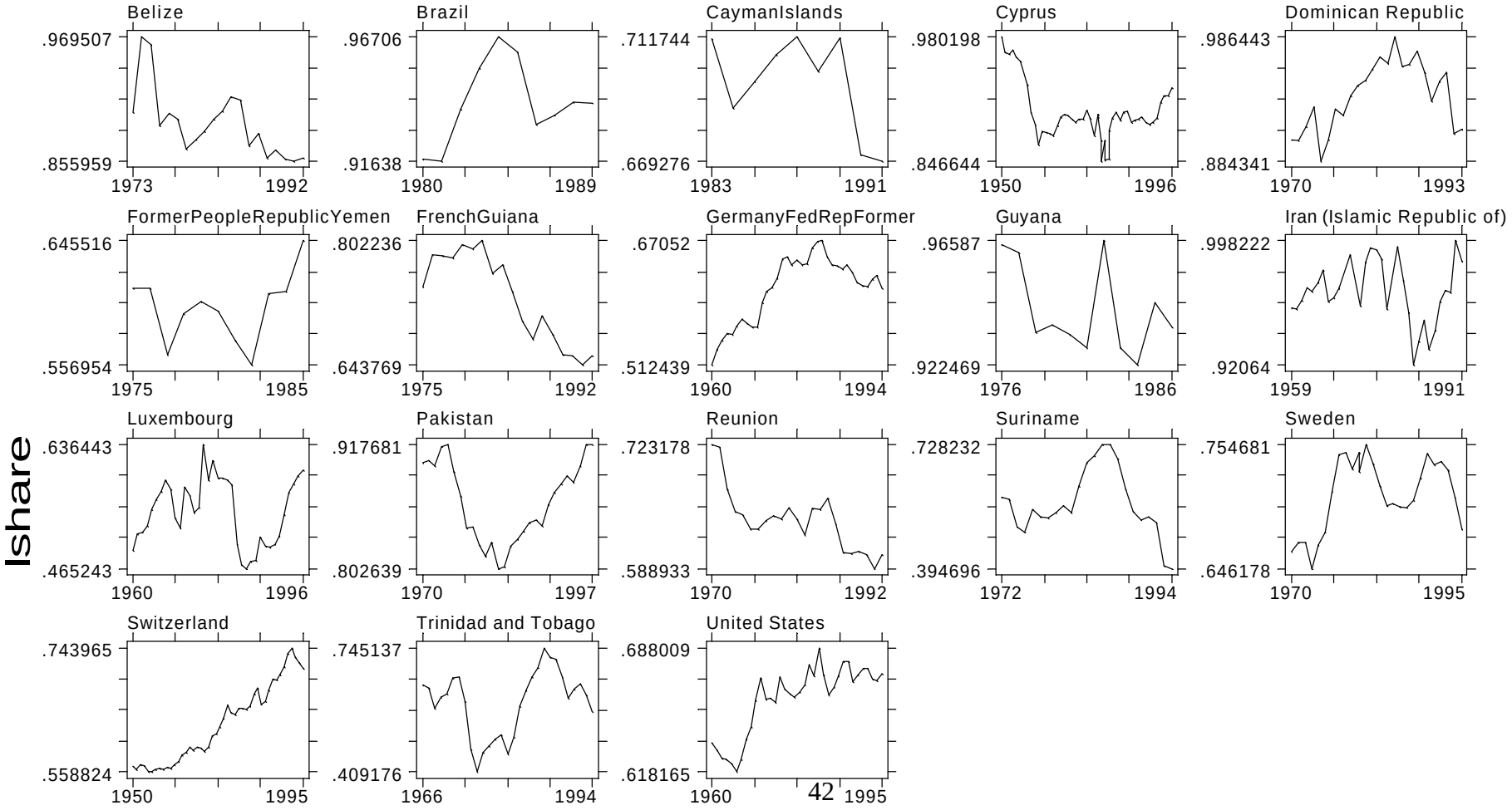
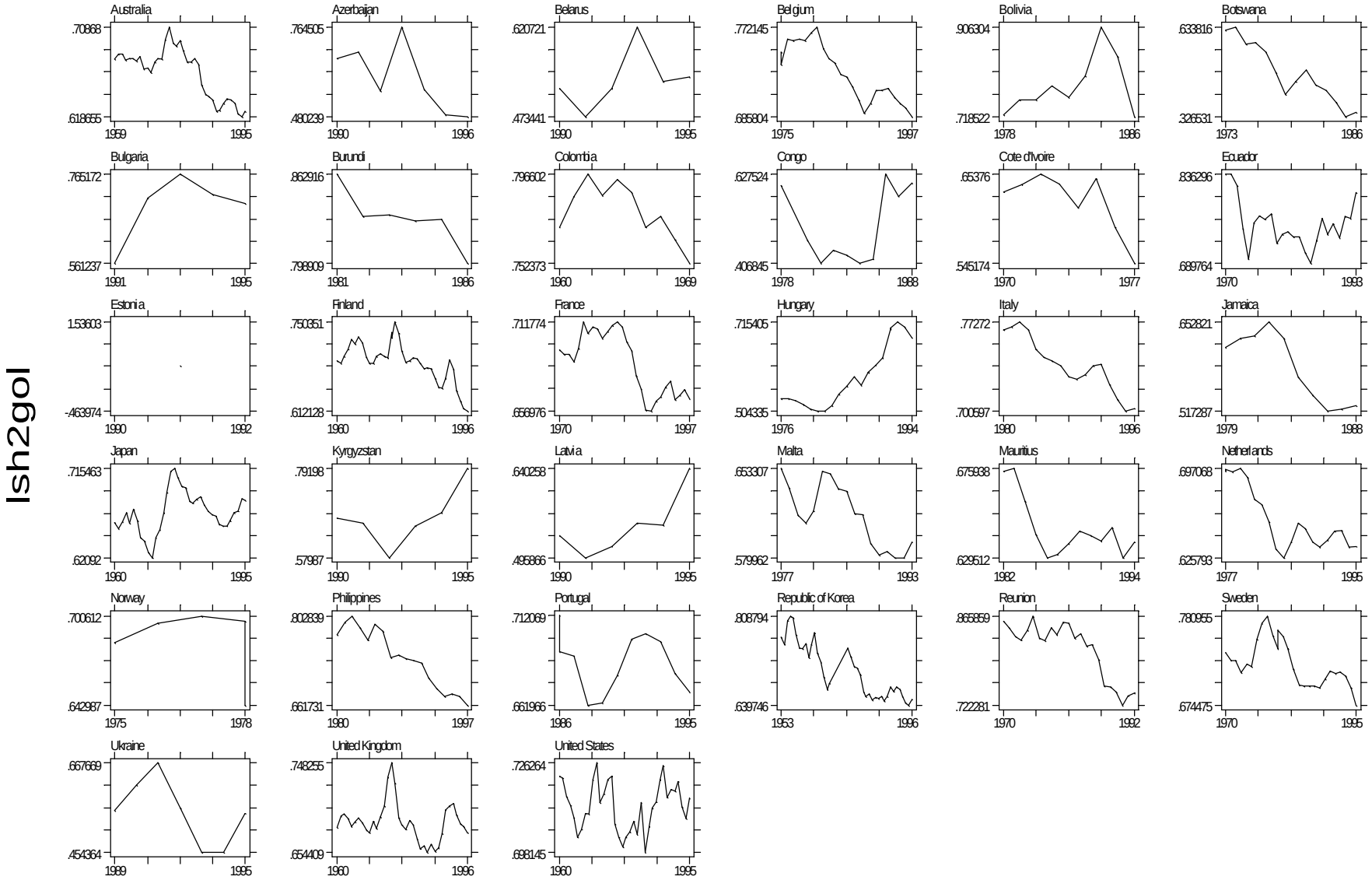


Figure 7: Trends in Labor Share: Labor Share defined as (Labor Compensation + Self-Employment Income)/GDP



APPENDIX
TABLE 1 - Trends in Labor Share (Reported Coefficient on Time)

	Labor Share Defined as Employee Compensation/GDP		Labor Share Defined as Employee Compensation Divided by Nat'l Income		Labor Share Defined as Employee Compensation Plus Self-Employed Income Divided by GDP	
COUNTRY	**coefficient**	**t.value**	**coefficient**	**t.value**	**coefficient**	**t.value**
Albania	0.0066	6.36	*	*	*	*
Algeria	0.0033	3.02	0.0054	4.41	*	*
Angola	-0.0098	-1.18	-0.0017	-0.22	*	*
Australia	-0.0004	-1.31	0.0009	2.42	0.0018	-9.42
Austria	0.0023	13.53	0.0028	15.48	*	*
Azerbaijan	-0.0607	-9.05	-0.0705	-9.68	-0.0340	-4.51
Bahrain	0.0093	5.90	0.4312	8.61	*	*
Belarus	0.0005	0.08	*	*	0.0106	1.46
Belgium	0.0017	3.14	0.0020	3.25	-0.0034	-8.75
Belize	-0.0007	-1.80	-0.0337	-3.64	*	*
Benin	-0.0034	-5.63	-0.0042	-6.79	*	*
Bhutan	-0.0051	-14.74	-0.0138	-4.64	*	*
Bolivia	-0.0011	-2.00	-0.0015	-2.59	0.0097	1.07
Botswana	-0.0036	-3.06	-0.0054	-1.72	-0.0231	-17.59
Brazil	-0.0030	-3.19	0.0017	1.19	*	*
Brit. Virgin Islands	-0.0107	-10.47	-0.0166	5.43	*	*
Bulgaria	-0.0033	-1.73	-0.0253	-1.39	0.0282	1.20
Burkina Faso	0.0063	4.05	0.0120	*	*	*
Burundi	-0.0120	-1.27	0.0049	4.01	-0.0094	-3.29
Cameroon	0.0021	3.90	0.0020	2.44	*	*
Canada	0.0013	7.34	0.0020	9.72	*	*

Cayman Islands	0.0031	1.49	-0.0032	-1.65	*	*
Chile	-0.0018	-3.42	0.0019	2.10	*	*
China/Hong Kong	-0.0004	-0.52	*	*	*	*
Colombia	0.0012	3.31	0.0002	0.72	-0.0029	-1.83
Congo	-0.0070	-3.94	-0.0027	-0.74	0.0088	0.76
Costa Rica	0.0003	1.07	0.0007	3.17	*	*
Cote d'Ivoire	0.0005	1.00	0.0024	1.19	-0.0109	-2.24
Cyprus	-0.0019	-12.68	-0.0011	-2.67	*	*
Denmark	0.0002	0.55	0.0026	5.07	*	*
Djibouti	0.0059	0.75	0.0167	2.94	*	*
Dominican Republic	0.0008	1.27	0.0019	2.23	*	*
Ecuador	-0.0021	-3.51	-0.0078	-7.67	-0.0017	-1.20
Estonia	0.0041	2.63	-0.0014	-0.36	*	*
Fiji	-0.0015	-0.98	-0.0014	-0.82	*	*
Finland	0.0020	3.84	0.0042	6.52	-0.0020	-5.28
Former Federal Republic of Yemen	0.0104	2.61	0.0018	0.65	*	*
France	0.0000	-0.08	0.0010	1.41	-0.0017	-6.37
French Guyana	-0.0109	-5.14	-0.0094	-6.69	*	*
French Polynesia	-0.0105	-10.44	*	*	*	*
Gabon	0.0027	0.86	0.0053	1.01	*	*
Germany	-0.0058	-4.10	0.0026	-1.64	*	*
German Democratic Republic	0.0019	4.24	0.0029	5.63	*	*
Greece	0.0036	9.33	0.0048	10.03	*	*
Guadeloupe	0.0106	18.20	*	*	*	*
Guyana	-0.0091	-3.43	0.0021	0.57	*	*
Honduras	-0.0012	-1.21	0.0009	0.07	*	*
Hungary	0.0059	3.95	*	*	0.0117	7.44
Iceland	-0.0015	-4.21	-0.0013	-3.82	*	*
Indonesia	0.0007	0.23	-0.0034	-2.85	*	*
Iran	-0.0010	-3.86	0.0008	2.00	*	*
Ireland	-0.0032	-3.98	0.0013	1.23	*	*

Israel	0.0015	7.54	0.0037	11.03	*	*
Italy	-0.0008	-1.90	0.0002	0.32	-0.0041	-12.46
Jamaica	-0.0052	-3.25	-0.0033	-2.62	-0.0152	-5.29
Japan	0.0048	13.81	0.0058	15.15	0.0006	2.67
Jordan	0.0022	6.72	0.0037	14.82	*	*
Kazakhstan	-0.0013	-2.09	*	*	*	*
Kenya	*	*	-0.0011	-1.79	*	*
Kuwait	0.0149	5.33	0.0127	7.64	*	*
Kyrgyzstan	0.0339	-2.93	-0.0420	0.02	0.0211	1.40
Latvia	0.0071	0.75	0.0176	1.32	0.0212	2.06
Libyan Arab Jamahirya	0.0060	2.89	0.0039	1.43	*	*
Lithuania	-0.0044	-3.53	0.0064	2.40	*	*
Luxembourg	0.0037	6.30	-0.0002	-0.38	*	*
Malawi	-0.0031	-5.19	-0.0023	-1.85	*	*
Malaysia	-0.0022	-2.96	-0.0019	-2.37	*	*
Mali	0.0058	5.14	0.0140	*	*	*
Malta	-0.0015	-7.14	-0.0011	0.00	-0.0040	-5.62
Martinique	0.0064	7.42	*	*	*	*
Mauritius	-0.0031	-7.05	-0.0027	-4.64	*	*
Mexico	-0.0034	-4.33	-0.0022	-3.04	*	*
Mongolia	0.0216	6.99	0.0161	2.47	*	*
Morocco	0.0000	-0.01	0.0008	0.65	*	*
Mozambique	0.0177	4.51	0.0113	2.92	*	*
Myanmar	-0.0057	-0.86	0.0011	1.92	*	*
Namibia	-0.0020	-0.89	-0.0135	-3.46	*	*
Nepal	-0.0060	-3.42	-0.0020	-0.96	*	*
Netherlands	-0.0025	-5.27	-0.0016	-2.64	-0.0035	-7.81
Netherlands Antilles	-0.0063	-2.47	-0.0006	-0.24	*	*
New Zealand	-0.0034	-4.37	-0.0019	-2.20	*	*
New Caledonia	0.0010	0.50	*	*	*	*
Nicaragua	0.0026	3.10	0.0026	3.39	*	*
Niger	-0.0016	-0.51	0.0002	0.05	*	*

Nigeria	-0.0081	-7.10	-0.0072	-5.89	*	*
Norway	-0.0013	-3.11	-0.0002	-0.35	-0.0056	-0.57
Oman	-0.0012	-0.22	*	*	*	*
Pakistan	-0.0008	-2.73	0.0002	0.19	*	*
Panama	-0.0050	-10.81	-0.0026	-3.03	*	*
Papua New Guinea	-0.0034	-3.17	-0.0029	-2.37	*	*
Paraguay	-0.0026	-6.32	-0.0026	-5.67	*	*
Peru	-0.0069	-6.82	-0.0062	-7.67	*	*
Philippines	0.0010	1.75	0.0002	0.62	-0.0082	-11.19
Portugal	-0.0031	-2.87	-0.0017	-1.53	-0.0010	-0.66
Puerto Rico	-0.0022	-7.09	0.0049	12.57	*	*
Rep of Korea	0.0053	20.33	0.0067	24.37	-0.0033	-13.04
Reunion	0.0014	0.95	-0.0039	-5.13	-0.0056	-7.64
Romania	-0.0182	-6.71	-0.0425	-3.71	*	*
Russian Federation	-0.0259	-3.19	-0.0242	-1.38	*	*
Rwanda	0.0077	8.51	0.0093	9.06	*	*
Saudi Arabia	0.0135	8.54	0.0123	6.36	*	*
Senegal	0.0130	7.53	0.0124	6.01	*	*
Seychelles	0.0000	0.01	0.0012	1.15	*	*
Sierra Leone	-0.0063	-6.73	-0.0073	-6.43	*	*
Singapore	0.0015	1.79	-0.0012	-1.19	*	*
Slovakia	-0.0096	-1.54	*	*	*	*
Slovenia	0.0040	2.01	*	*	*	*
Solomon Islands	0.0112	3.84	0.0157	4.82	*	*
South Africa	0.0001	1.08	0.0007	3.18	*	*
Spain	-0.0010	-1.77	-0.0004	-0.69	*	*
Sri Lanka	0.0014	3.99	0.0018	2.31	*	*
St. Pierre	-0.0119	-5.98	*	*	*	*
Suriname	0.0003	0.11	-0.0016	-0.56	*	*
Swaziland	0.0015	2.06	*	*	*	*
Sweden	-0.0009	-1.43	0.0018	2.28	-0.0021	-4.32
Switzerland	0.0032	20.98	0.0042	21.92	*	*
Thailand	0.0032	11.80	0.0043	12.92	*	*

Togo	-0.0028	-2.07	-0.0018	-1.13	*	*
Tonga	0.0003	0.06	-0.0013	-0.22	*	*
Trinidad and Tobago	0.0022	1.91	0.0027	1.77	*	*
Tunisia	-0.0043	-11.00	-0.0027	-7.76	*	*
Turkey	-0.0011	-1.40	-0.0009	-1.03	*	*
Ukraine	-0.0166	-2.21	-0.0193	-1.74	-0.0196	-1.57
United Arab Emirates	0.0063	4.02	0.0067	2.82	*	*
United Kingdom	-0.0015	-7.58	-0.0007	-2.53	-0.0004	-1.79
United Rep Tanzania	-0.0086	-11.10	-0.0086	-11.23	*	*
United States	0.0007	4.84	0.0015	8.34	0.0000	-0.02
Uruguay	-0.0028	-3.80	-0.0028	-3.93	*	*
Vanuatu	0.0012	0.54	-0.0012	-0.31	*	*
Venezuela	-0.0046	-4.45	-0.0053	-4.54	*	*
Yemen	-0.0032	-0.87	0.0212	3.34	*	*
Zaire	0.0198	5.53	0.0194	5.70	*	*
Zambia	-0.0057	-1.72	-0.0031	-0.91	*	*
Zimbabwe	0.0000	0.00	0.0007	0.60	*	*