

A Cautionary Note on the Interpretation of Unit Labor Costs as an Indicator of Competitiveness, with Reference to the Philippines

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ABSTRACT

This note shows that *unit labor costs*, the most widely used measure of competitiveness, are equivalent to the labor share in output multiplied by a price-adjustment factor. This has three main implications. First, unit labor costs are not just a technical concept. They embody the social relations and institutional arrangements that influence the distribution of income between the social classes. Secondly, lower unit labor costs should not necessarily be interpreted as implying that an economy is more competitive, i.e., that it will grow faster, and vice-versa. An increase in the wage share can accelerate growth through a number of channels. Hence, it is possible to find that countries with fast-growing unit labor costs also show faster growth in exports or in GDP. Third, one can define the concept of *unit capital cost* as a measure of competitiveness and shift the burden of lack of

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growth or loss of market share to capital. In this paper, unit labor and unit capital costs for the Philippines are calculated. It is shown that the decrease in competitiveness (i.e., increase in unit labor costs) in the Philippines is exclusively the result of increases in prices as the labor share has decreased.

INTRODUCTION

During the last decade, competitiveness has taken a center stage in many policy discussions, and has changed the nature of the policymaking game in developing countries.² Policymakers in these countries often make references to the “competitiveness problem” and use different indicators of competitiveness to compare and rank countries. This note analyzes the most widely used measure of competitiveness, that is, unit labor costs (ulcs) or the ratio of nominal wage rate to labor productivity.³ Under this definition, competitiveness becomes a question of costs and productivity, and discussions in many developing countries today (in fact, all over the world) are all about lowering *ulcs*.⁴

Since the late 1980s, when discussions about the meaning and implications of the term *globalization* started flooding the press and academic journals, policymaking in many countries has been dominated by the objective of increasing *competitiveness*. Unfortunately, the ambiguity with which this term is often used (in particular, its meaning at the national level) has led to a great deal of confusion in terms of policy recommendations. Often, concerns about the need to be competitive are translated into wage restraint recommendations. Indeed, the heralded normative goal of competitiveness, at times being pursued with an ideological zeal, has put enormous pressure on workers. The consequence is that a great deal of anxiety is being felt all over the world because the situation is possibly leading to a “race to the bottom,” wherein globalization forces workers to compete to attract capital by accepting lower wages. This way, the concept of competitiveness seems to be driving economic policy in many countries, hence

² In fact, three buzzwords today are globalization, technological progress, and competitiveness. Any analysis of the current economic situation starts with a reference to the first, and takes the latter two as policymaking variables.

³ Other possible measures of competitiveness are export unit values and real effective exchange rates. Karshenas (2007) provides a joint analysis of real exchange rate and unit labor costs.

⁴ During the last few years there has been an attempt at defining competitiveness more broadly. Unit labor costs are sometimes referred to as a measure of price competitiveness. Lall (2001), among others, has forcefully argued that competitiveness goes well beyond price. While this is surely correct (e.g., McCombie and Thirlwall [1994] distinguish between price competitiveness and nonprice competitiveness), in this note I only consider ulcs. Krugman (1996) had very strong words against the use of the term competitiveness at the country level for the purpose of arguing that countries compete against each other: firms compete, countries do not. See also Yap (2004).

the emphasis on costs, productivity, and labor market reform toward achieving greater flexibility in the labor market. Wage restraint and limitations on social expenditures (e.g., reduction and even elimination of workers' benefits, such as unemployment subsidies or minimum wages) are seen as necessary conditions for improved economic performance.

This note discusses some implications of the use of unit labor costs for policy analyses and policymaking with reference to the Philippines. The discussion arises because, as the note shows, unit labor costs are related to the functional distribution of income, as they can be interpreted as (or are equivalent to) labor shares in output. It is argued that, under this view, the standard association between lower unit labor costs and higher competitiveness (i.e., better economic performance) ceases to be a simple one-way road.

The rest of the note is structured as follows. Section 2 reviews the theory that underlies the notion of *ulcs*. Section 3 relates the concept of *ulcs* to the functional distribution of income, namely, the distribution of income between wages (labor) and profits (capital). It is shown that *ulcs* can be written as the product of the labor share in output times a price adjustment factor. The implications of analyzing *ulcs* as labor shares are discussed. The section also introduces the concept of unit capital costs (*ukcs*), defined as the ratio of the nominal profit rate to capital productivity, and argues that as the problem of lowering *ulcs* puts pressure on labor, the concept of *ukcs* shifts the burden of competitiveness on to capital. Suggestive empirical evidence is presented using series of *ulcs* and *ukcs* for the Philippines. Section 4 provides a rationale for Kaldor's paradox, the empirical finding that the countries with the faster growing *ulcs* are the ones registering faster export of gross domestic product or GDP growth (Kaldor 1978). It is argued that in 'wage-led growth' economies, an increase in the wage share leads to an increase in the equilibrium capacity utilization rate, which leads to an increase in the growth rate of the capital stock. Section 5 concludes.

THE THEORY OF UNIT LABOR COSTS

The most commonly held approach to international competitiveness focuses on differences in *ulcs*, and institutions such as the International Monetary Fund (IMF) or the Organization for Economic Development and Cooperation (OECD) construct these indices with a view to analyzing countries' performance. Unit labor costs are defined as the cost of worker compensation and benefits per unit of output. At the most intuitive level, they are used as a measure of competitiveness because wages are a major component of costs and hence of prices. But costs will be reduced if for any given money wage, the level of productivity is higher.

At the theoretical level, there is a connection between competitiveness defined this way and the theory of comparative advantage. In fact, competitive-

ness, in standard analyses, is about comparative advantage. In its simplest way, the Ricardian model states that countries will specialize in the production and export of the product in which they have the lower unit labor requirement. According to this model and contrary to popular fears, international differences in wage rates do not preclude mutually beneficial trade. Overall differences in productivity (absolute advantage) determine wages, while sector-specific differentials in productivity and costs determine trade patterns. To the extent that low wages reflect low labor productivity, any advantage in employing low-wage labor is offset.

The implication, the argument goes, is that an absolute productivity advantage over other countries in producing a good is neither a necessary nor a sufficient condition for having a comparative advantage. Moreover, the competitive advantage of an industry depends not only on its productivity relative to that of the foreign industry, but also on the domestic wage rate relative to the foreign wage rate; in other words, it depends on the *ulcs* in each country.⁵ An implication of this argument is that discussing (foreign) competition based on low wages represents a misconception. A lower foreign wage rate is irrelevant. What matters is the wage rate relative to labor productivity. Whether the lower cost of a good produced by a foreign country is due to high productivity or to a low wage rate does not matter. High-wage countries can compete against low-wage countries due to their higher productivity. This dismisses, therefore, the so-called 'sweatshop labor' argument that foreign competition based on low wages damages one's industries.⁶ The overall implication is that higher growth in *ulcs* decreases exports, increases imports and slows down economic growth.

Algebraically, *ulcs* are defined as the ratio of the nominal wage rate (e.g., dollar per worker) to labor productivity, where the latter is defined as the quantity of output produced per worker (e.g., bushels of corn per worker), that is,

$$ulc^Q = w_n / (Q / L) \quad (1)$$

where w_n denotes the nominal wage rate, Q is physical output and L is employment (e.g., no. workers). Therefore, the theoretical unit of measurement of *ulcs* is \$ per bushel of corn. It is a price (or cost). The standard argument is that the lower the unit labor cost the more competitive is the economy. Hence, *ulcs* are an important variable for policymaking (Fagerberg 1988). In the standard interpretation, if the unit labor cost of a country grows faster than that of its competitor(s), this will

⁵ See Shaikh (2007) for a critique of the theoretical foundations of conventional trade theory.

⁶ Golub (1997) indicates that: "...Most developing countries continue to run trade deficits in manufactures with the industrial countries, which would be unlikely if their *ulcs* in manufacturing were as low, relative to the industrial countries, as their wages." In other words, Golub's argument is that the *ulcs* of developing countries must be at least as high as those of the developed countries.

reduce market shares at home and abroad, negatively affect economic growth, and increase unemployment.

In the context of the analysis of Harrod's multiplier and the balance of payments constraint, Kaldor (1970, 1971) argued that the growth rate of an economy depends on the growth rate of exports, which itself depends on world demand and the international competitiveness of exports. According to Kaldor, *export competitiveness* depends on the dynamic evolution of money wage and of productivity. The evidence on the inverse relationship between output growth and the growth rate of *ulcs* is, paradoxically, inconclusive, because at times researchers have found that the fastest growing countries in terms of exports and GDP in the post-war period have at the same time experienced faster growth in their *ulcs* than other countries, and vice versa. This is referred to as *Kaldor's Paradox* after Nicholas Kaldor (refer to Kaldor 1978, see also Chapter 4 of McCombie and Thirlwall 1994).⁷ In the words of Fagerber: "This... indicates that the popular view of growth in unit labor costs determining international competitiveness is at best too simplified. But why?" (Fagerberg 1988). Fagerberg (1996) revisited this enduring puzzle by analyzing the period 1978–1994 and concluded that the paradox also holds for this period:⁹

At any level of aggregation, however, the quantity of output (a physical magnitude) Q has to be proxied by a deflated value added.¹⁰ Therefore, the definition of unit labor cost becomes:

$$ulc = \frac{w_n}{(VA_n / P) / L} = \left(\frac{w_n L}{VA_n} \right) P \quad (2)$$

⁷ Kaldor's argument was, in fact, a bit more sophisticated. His conclusion of an inverse relationship between output growth and the growth in relative unit labor costs (i.e., the differential between the growth rates of the unit labor costs in two countries) depended on two more equations, one expressing money wages as a function of labor productivity, and Verdoorn's law.

⁸ Kaldor (1978) compared growth in unit labor costs and growth in value in market shares for exports for 12 countries for 1963–1975. He found that for some of these countries, the relation between the two variables was positive. Kaldor concluded that no analysis of international competitiveness could be carried out by merely considering cost factors, and that the inclusion of other circumstance, such as the role of technology, was necessary. See De Benedictis (1998).

⁹ From standard specifications of export and import equations, assuming long-term balanced trade, and that firms set prices by applying a mark-up on *ulcs*, Fagerberg (1988) showed that the growth of output (\hat{y}) can be written as $\hat{y} = \gamma[ulc - ulc^*] + \delta \hat{y}^*$, where the superscript * refers to the rest of the world, \wedge indicates growth rate, and the parameters γ , δ are functions of the price and income elasticities of exports and imports. In this formulation, economic growth is written as a function of the growth in relative unit labor costs and world demand. The variable γ is a function of the export-price and import-price elasticities, and will be negative provided the Marshall-Lerner condition is satisfied (i.e., that the sum of these two elasticities is greater than one).

¹⁰ Published series on *ulcs* refer to aggregates (manufacturing sector or total economy), not to individual firms.

where VA_n is nominal value added and P is the output deflator. One implication is that the ulc is not anymore defined in terms of \$ per bushel of corn; it is a unitless magnitude.¹¹

A concern with expression (2) for purposes of intercountry comparisons is how to translate the costs calculated for individual countries into comparable or common currency units (Hooper and Larin 1989, Golub 1995). The most common method is to multiply country i 's local currency ulc_i by its current nominal exchange rate against the *numeraire* currency, usually the U.S. dollar (or ER , expressed in terms of units of the country's currency per dollar). There is also a problem with output (or productivity) as it is also measured in terms of each country's currency. Therefore, a meaningful comparison of $ulcs$ requires the conversion of both wages (numerator) and output (denominator) into a common currency (e.g., US dollars).

There is a further issue. If one converts the value of domestic output (value added) into dollars using nominal exchange rates, there is the well-known problem that it is not unusual for the price of a particular good to differ substantially across countries when translated into common currency units at market exchange rates. Notice that this problem arises *because* aggregate output is not a physical quantity, but a value magnitude, however deflated. There have been several proposals to deal with this issue (Hooper and Vrankovich 1995). The two most common are the use of unit value ratios (UVR) and the use of purchasing power parities (PPP). The first one estimates local-currency price levels with unit values, computed by dividing the value of manufacturing output at the industry level by measures of the quantities of those outputs (e.g., pairs of shoes) derived from each country's census of manufactures. A PPP exchange rate is the ratio of the local currency price of a particular basket of goods in two different countries, e.g., the number of pesos it takes to buy a hamburger in the Philippines relative to the number of dollars it takes to buy a hamburger in the United States.

Suppose the ulc is expressed in terms of the nominal exchange rate (ER) in the numerator and by the PPP exchange rate in the denominator. This way, the ulc becomes:

$$ulc = \frac{(w_n / ER)}{(VA_n / PPP) / L} = \left(\frac{w_n L}{VA_n} \right) \left(\frac{PPP}{ER} \right) \quad (3)$$

¹¹ It is important to remark that labor productivity is the ratio of output measured in physical terms to the number of workers. The corresponding concept in value (or monetary) terms with aggregate data has to be constructed with the numerator as deflated value added, i.e. in "real" terms, (VA / L) , and not as (VA_n / L) .

where $(w_n L / VA_n)$ can be referred to as the “pure *ulc* effect”, and $xr = PPP / ER$ is the “price adjustment effect.” The term xr measures the extent of under (<1) or over (>1) valuation of the currency against the US dollar. The definition of the can be further refined through a series of adjustments to the PPP exchange rate, such as for distribution margins, indirect taxes and subsidies, and international trade (Hooper and Vrankovich 1995). All these adjustments can be incorporated into the definition without altering the basic structure of formula (2) or (3), that is, the product of the “pure effect” (the labor share) and a series of adjustment factors.

One important implication of this brief discussion is that calculating *ulcs* correctly is a difficult task as it requires good and comparable statistics across countries. Often in empirical applications, researchers do not discuss clearly and openly how *ulcs* are calculated.¹²

How does a firm (country) try to lower its unit labor costs? This issue can be analyzed by looking at the elements of expressions (2) or (3):

- ◆ The first one is the “austerity solution” by keeping nominal wages (w_n) and their growth rate as low as possible. This is something that firms certainly try to do constantly in their bargaining with labor, especially in developing countries, due to the lack of organized labor through unions, and due to the existence of surplus labor, even though there is agreement that this is not a wise long-term strategy (Lall 2001), and nominal wages tend to be rigid downwards.
- ◆ The second option, the one that every firm and country aims for, is to increase labor productivity (VA / L), where $VA = (VA_n / P)$ in expression (1), and $VA = (VA_n / PPP)$ in expression (3). The underlying idea is that economic development is supposed to make the country’s economic activities more competitive, thanks to superior advances in productivity by lowering *ulcs* even if wages rise. There are four mechanisms to achieve increased labor productivity. First, by increasing physical investment, that is, by increasing capital deepening (the capital-labor ratio). This has a triple effect: (a) each worker becomes more productive with a higher amount of capital; (b) the introduction of equipment that brings in more up-to-date production technologies also raises labor productivity; and (c) technological progress often destroys employment (i.e., substitution of capital for labor), at least in the short run. The second mechanism is investment

¹² After reviewing a number of studies calculating *ulcs*, I have concluded that researchers are often sloppy in calculating them, for they take “any” two series of wage rates and labor productivity and divide them without checking if they are consistent with each other.

in human capital. The third mechanism to increase labor productivity is through institutional factors such as change in work rules or the way labor is organized to operate the equipment, and by improving the rules and regulations governing competition. The final mechanism used by firms to increase labor productivity is to increase the unpaid labor time and happens often in developing countries due to lax implementation of labor laws.

- ◆ The third route to lower unit labor costs (in terms of equation 3) is through devaluations of the nominal exchange rate (ER). At the firm level nothing can be done in this area. At the national level, however, authorities can manipulate exchange rates and intervene in the foreign exchange market. Again, the literature argues that this is not a desirable long-run strategy. Often in developing countries the PPP exchange rate is below the nominal exchange rate (ER), which means that <1 . In the developed countries, on the other hand, $xr \cong 1$.

For all practical purposes, firms (countries) try to keep down *ulcs* through the different mechanisms discussed above. Many of these are government policies in the form of labor laws, monetary policy, among others, that affect the different components of the definition of unit labor cost. Nominal wages (w_n) tend to follow labor productivity (VA/L) (with some lag, depending on bargaining power) as the latter is the most important determinant of the former. In this context, the key concern is how gains in labor productivity are passed on to wages in the labor-capital bargaining process. This is discussed below.

UNIT LABOR COSTS AND INCOME DISTRIBUTION

To understand the connection between competitiveness measured in terms of *ulcs*, Kaldor's paradox and the functional distribution of income, consider the National Income and Product Accounts (NIPA) identity that relates nominal value added (VA_n) to the total wage bill (W_n) plus total profits (Π_n), that is:

$$VA_n \equiv P VA \equiv W_n + \Pi_n \equiv w_n L + r_n K \quad (4)$$

where W_n (total wage bill) can be written as the product of the average nominal wage rate (w_n) times employment (L); and Π_n (total profits) as the product of the nominal ex-post profit rate (r_n) times the stock of capital (K). Finally, VA is value added in real terms and P is, as before, the output deflator (i.e., $VA = VA_n / P$). Dividing through by VA_n yields:

$$1 \equiv \frac{W_n}{VA_n} + \frac{\Pi_n}{VA_n} \equiv \left(\frac{w_n L}{VA_n} \right) + \left(\frac{r_n K}{VA_n} \right) \equiv s^L + s^K \quad (5)$$

where $s^L \equiv (W_n / VA_n) \equiv (w_n L / VA_n)$ is the share of labor in value added and $s^K \equiv (\Pi_n / VA_n) \equiv (r_n K / VA_n)$ is the share of capital with $s^L + s^K \equiv 1$. It is important to note that in writing this accounting identity, no assumption about the state of the economy (e.g., whether factor prices equal their respective marginal productivities) or about the degree of returns to scale is made. It simply reflects how data are collected and organized in the NIPA, which is theory-independent.¹³

The obvious point of this discussion is that the defined in expressions (2) and (3) is always the product of the labor share in output (s^L), what I refer to as the "pure *ulc* effect", times a "price adjustment effect." In the case of expression (2) the latter term is the output deflator, and therefore, $ulc = s^L P$; and in the case of expression (3) it is the ratio of purchasing power parity exchange rate to the nominal exchange rate, therefore, $ulc = s^L xr$.¹⁴ Moreover, it is worth noting that both s^L and xr are unitless magnitudes and that $0 \leq s^L \leq 1$.

The previous analysis has three implications.

First, competitiveness, measured or interpreted in terms of *ulcs*, is not just a technical concept. It embodies the "social relations" of production that affect the distribution of income between the social classes. This is because aggregate factor shares are not determined by the technological properties of the aggregate production function, as is commonly argued in orthodox analyses. Refer to the seminal work of Fisher (1971), for example, who showed via simulation analysis that the Cobb-Douglas aggregate production function works when estimated econometrically only when factor shares are constant. This implies that the argument that factor shares are constant because the underlying technology of the economy is Cobb-Douglas is incorrect. Rather, Fisher argued, the Cobb-Douglas works because factor shares are constant.

¹³ The labor share is calculated with the wage rate and value added in nominal terms. Certainly it is possible to express the labor share $s^L \equiv (w_n L / VA_n)$ as $s^L \equiv (wL / VA) \times (P_1 / P_2)$, where w and VA are the wage rate and value added in real terms, and P_1 and P_2 are the corresponding deflators, i.e., $w_n \equiv w \times P_1$ and $VA_n \equiv VA \times P_2$. Equation (3) for the unit labor cost can thus be rewritten as

$$ulc = \left(\frac{wL}{VA} \right) \left(\frac{P_1}{P_2} \right) \left(\frac{PPP}{ER} \right). \text{ The analysis is not affected.}$$

¹⁴ At levels of aggregation below the total economy (e.g., sectors) one could also define the *ulc* in terms of gross output. The accounting identity for gross output includes intermediate materials. Therefore, the labor share would be lower than that in terms of value added.

Second, if the ulc is decreasing (and thus the economy is considered to be more competitive), it means, *ceteris paribus*, that the labor share s^L is decreasing, and thus the capital share s^K is increasing. Glyn (1997, Table 5) documents the existence of an inverse relationship between changes in capital's share and changes in manufacturing relative unit labor costs.¹⁵

Third, it can be argued that the analysis of competitiveness could be equally carried out in terms of what could be defined as the unit capital cost (ukc), defined as the ratio of the nominal profit rate to capital productivity, that is,

$$ukc = \frac{r_n}{(VA_n / P) / K} = \left(\frac{r_n K}{VA_n} \right) P \quad (6)$$

or $ukc = s^K P$ (and similarly, $ukc = s^K xr$), and argue that the lower the ukc the more competitive the economy. Effectively, this means that the lower the capital share the more competitive the economy. The important point is that the notion of ukc shifts the burden of competitiveness on to capital, that is, to become more competitive, capitalists have to accept lower profit rates or increase the productivity of the capital invested. This is certainly an important argument given the pressure to lower $ulcs$. As argued above, at the most simple level, $ulcs$ is used as a measure of competitiveness because wages are a major component of costs. While this may be true in the case of developed countries, evidence indicates that this is not the case in developing countries, where the labor share is a minor component of the cost structure. Gollin (2002) noted that according to the National Accounts Statistics of the United Nations, 18 countries reported employee compensation shares below 0.3 in 1994. Ghana, for example, reported a 0.05 labor share. He also argues that "...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" (Gollin 2002). Harrison (2002) also documents the low labor shares of many developing countries.

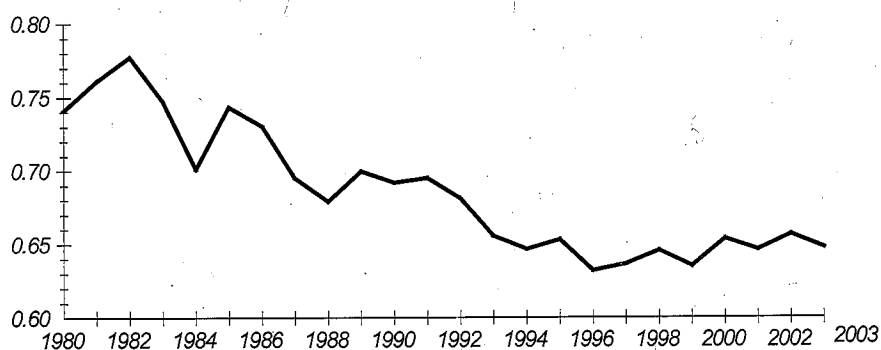
Gollin (2002) argued that a possible reason why developing countries have such low labor shares is that they are most likely underestimated due to the fact that the National Accounts fail to account for the labor income of the self-employed, which appears as profits. Once this is properly accounted for as labor income, the share of labor of these countries increases substantially and is similar to that of the developed countries. While this is true, the fact is that most calcula-

¹⁵ Glyn (1997) recognizes, implicitly, the relationship between unit labor costs and labor share: "If the 'law of one price' held, then there would have to be a one-for-one relationship between RULC [relative unit labor cost] and the wage share." Indeed, this would be the case if $P = ER$ in equation (2) (or $PPP = ER$ in equation 3).

tions do not correct this, and therefore, the calculated unit labor costs are underestimated too. This issue is very important in developing countries where small enterprises and self-employment account for large fractions of the workforce. Once the labor share is adjusted upward by including this component, the labor share of most developing countries turns out to be very similar to that of the developed countries (at around 0.7).^{16 17}

Using data for the Philippines for the period 1980-2003, Figure 1 shows the adjusted labor share following Gollin's procedure (i.e., apportioning as wages an estimate of what is recorded under profits).¹⁸ The capital share is the mirror image, that is, one minus the share of labor. The labor share has decreased from around 0.75 to about 0.65 during the two-decade period considered. This indicates that nominal wages in the Philippines have not kept pace with nominal output per worker and that any loss of competitiveness of the Philippine economy during the last two decades cannot be blamed on increasing wages.

Figure 1. Labor share Philippines



¹⁶ In general, long series of labor shares show that these tend to fluctuate around some value. During periods of crises, labor shares decline. After the crisis, although output tends to recover fast, it takes much longer for the labor share to recover (Onaran 2007). Harrison (2002) finds large variations in labor shares across countries and, in many cases, labor shares have declined during the last decades. Diwan (2001, 2002) also finds a negative trend in labor shares, accentuated in periods of crises. Goldstein (1986) indicates that in the US, for example, *ulcs* typically decline from the initial through to the mid expansion of the business cycle and then increase throughout the remainder of the cycle. This is because *ulcs* are affected and determined by class-conflict in the bargaining process over the distribution of income.

¹⁷ See Thirlwall (1972) for an early discussion of some of these issues and comparisons of labor shares in the UK and the US.

¹⁸ The adjusted labor share shown is the average of two adjusted labor shares estimated following two of Gollin's (2002) three methods. The first one treats all operating surplus of private unincorporated enterprises as labor income. The second treats the operating surplus of unincorporated enterprises as comprising the same mix of labor and capital income as the rest of the economy. See Felipe and Sipin (2004) for details.

Now we multiply labor and capital shares by the GDP deflator to construct the unit labor cost and the unit capital cost according to equations (2) and (6), respectively. Results are shown in Figure 2. The increase in both unit costs is mostly the result of the upward trend of the price deflator. This is even more obvious in the case of the unit labor cost, given that the labor share has decreased (and therefore has not contributed to the increase in the unit labor cost). Figure 2 indicates that the unit labor cost has increased by a factor of 9 during the period under consideration, and that the unit capital cost has indeed increased by a factor of 13. According to this measure of unit labor costs, the loss of competitiveness of the Philippine economy is unrelated to high wages.

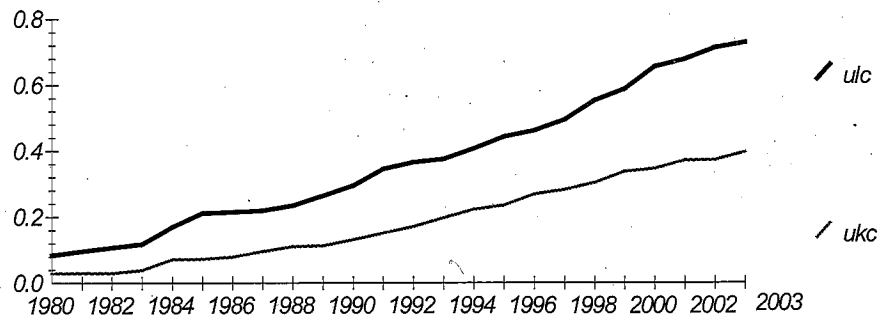
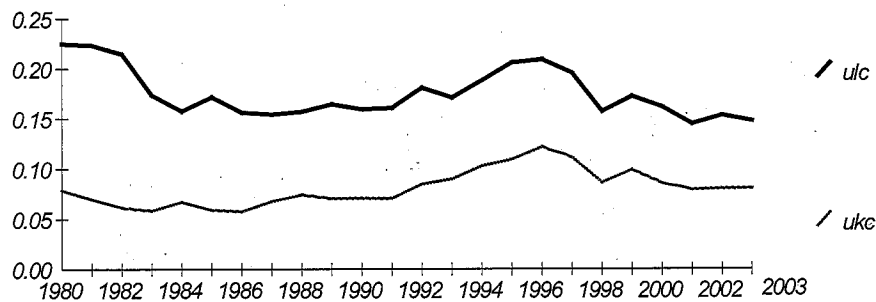
We now show for comparison purposes the *ulc* constructed using equation (3), and the same for the *ukc*, that is, with the ratio of the two exchange rates (*xr*) as the price adjustment factor. This ratio (not shown) declines between 1980 and 1986; then increases until 1996; and then displays a downward trend again.¹⁹ The two unit costs are shown in Figure 3. Given that labor and capital shares display very clear downward and upward trends, respectively, the paths of the two unit costs in Figure 3 are mostly the result of the evolution of *xr*. The path of these two unit costs is very different from that in Figure 2: unit labor cost decreased between 1980 and 1986; then remained stable until 1990; then increased between 1990 and 1996; and again declined. Overall, the path displays a marked downward trend, with the 0.148 value in 2003 significantly below the 0.245 of 1980. On the other hand, the unit capital cost shows a slight increasing trend.

Golub (1997) found that some developing countries (e.g., India) have a *ulc* above that of the US.²⁰ However, this finding is difficult to reconcile with the logic above. This is because as the NIPA (without Gollin's (2002) corrections) tends to show that developed countries' labor shares are substantially higher

¹⁹ As argued above, this variable measures the extent of under (if <1) or over (if >1) valuation of the Philippine peso with respect to the US dollar. The variable took on a value of 0.25 in 1980 and of 0.23 in 2003; and the series has a mean of 0.25, a minimum value of 0.21 in 1986 and a maximum value of 0.33 in 1996. This indicates that the Philippine peso was severely undervalued between 1980 and 2003.

²⁰ Golub (1997, Figure 1; original calculations are in Golub 1995) seems to indicate that the *ulc* of the Philippines for 1990 was around 1.2 times that of the United States. This is difficult to believe given UNIDO's data for the manufacturing sector (the US has a higher labor share). On the other hand, for the total economy, the labor share of the Philippines, calculated without any adjustment for self-employment effects (Gollin 2002), is around 0.28, while that of the US is around 0.7. And the ratio of PPP to the nominal exchange rate in the US is around unity, while for the Philippines is around 0.25 (World Development Indicators). Note that Golub (1995, p.14, equation 4) constructed the *ulc* with respect to the US (i.e., relative unit labor cost) by multiplying the ratio of labor productivities by that of the wage rates (and then adjusting by PPP and the market exchange rate). The discussion following equation 4 in his paper indicates that he used a series of wage rates and labor productivity that do not correspond to the same economic units (and perhaps different for both countries), which might lead to inconsistencies and comparability problems.

Figure 2. Unit Labor Cost (ulc) and Unit Capital Cost (UKC) Philippines

Figure 3. ulc and UKC Philippines with price adjustment effect xr 

than those of developing countries (Gollin 2002), and in general $xr < 1$ in developing countries, and $xr \cong 1$ in the developed ones; one would expect *ulcs* in the developed countries to be higher. Indeed, in the Philippines, for example, the ratio of labor compensation to GDP according to the National Income and Product Accounts for 1980-2003, without Gollin's (2002) adjustments, oscillates around 0.26-0.30 (Figure 4).

If we use the unadjusted labor and capital shares, the resulting unit costs change dramatically. Indeed, as the capital share is higher than the labor share, the unit capital cost is higher too, as shown in Figure 5. According to these unit costs, the lack of competitiveness of the Philippines would now be the result of the high and increasing unit capital costs. And as the unadjusted capital share (the mirror image of the unadjusted labor share) is relatively constant, the increase in unit capital costs must be due to the increase in the price deflator.

If we finally combine the price adjustment effect with the unadjusted factor shares, the resulting unit costs are those shown in Figure 6, which are relatively constant (compared to the ones in Figure 5).

UNIT LABOR COSTS, COMPETITIVENESS, GROWTH AND KALDOR'S PARADOX

Thinking of *ulcs* (and *ukcs*) by introducing the distribution dimension should make one reflect upon the concept of competitiveness in a way that is different from the traditional one. This is because, as indicated above, in standard analyses, an economy is deemed more competitive the lower its *ulc* is. The flip side of this line of reasoning is that an economy is more competitive the lower its labor share is, *ceteris paribus*. Hence, a great deal of policies to lower *ulcs* are, effectively, policies to lower the share of labor in income. The question that this note raises is, therefore, whether economies that are deemed more competitive (i.e., the economies that grow fast and/or gain market share) are those whose labor shares are growing the least or even declining. The answer is that this needs not be the case (see the empirical evidence for Asia presented by Yap 2004). Note that, in the limit, the most competitive economy would be the one with a labor share of zero and a capital share of unity. Presented this way, the argument appears to be disturbing as the mind boggles momentarily at the thought of a zero labor share (or, at least, a constantly dwindling one).²¹ Would it be sensible from a policy perspective to conclude that the lower the labor share the better for the economy? Surely there is something wrong here? The important aspect of this argument is that it may provide a reasonable explanation of Kaldor's paradox.

Indeed, at the theoretical level, a higher labor share need not necessarily lead to a less competitive economy. Kalecki (1991) showed in a very simple income-multiplier model that the level of national income is inversely related to the profit share (Blecker 1999). Likewise, Goodwin's (1972) growth-cycles model locates the source of business cycles in the labor market (the effect of changes in the wage share on accumulation), where real wages and the labor share fluctuate in a cyclical fashion as a result of the impact of capital investment on employment. During an economic boom, the demand for labor rises, and unemployment falls. This causes wages to rise faster than the economy as a whole, and hence leads to a fall in profits. As a result, investment in new capital is cut back, and the economy moves to a downturn. In the slump, unemployment rises, and wages are driven down, thus restoring profitability and leading to a revival of investment. Fluctuations are self-generating. In this model factor shares oscillate between some boundaries in a self-reproducing orbit. All this indicates that the relationship between

²¹ Certainly, a zero labor share is impossible. A decreasing labor share does not imply that the wage rate or that the total wage bill decline. If output grows by 3 percent, employment by 1 percent, and the wage rate by 1 percent, labor share will decline by 1 percent. However, it is dubious that labor, as a class, would accept a constantly dwindling labor share as it implies that the (nominal) wage bill grows constantly at a lower rate than (nominal) value added.

Figure 4. Unadjusted labor share Philippines

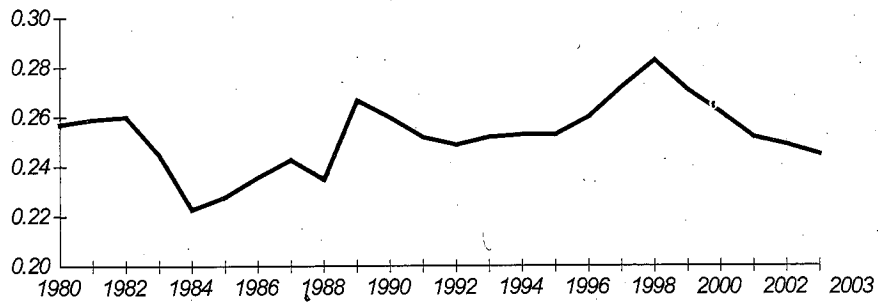


Figure 5. ulc and ukc Philippines with unadjusted factor shares

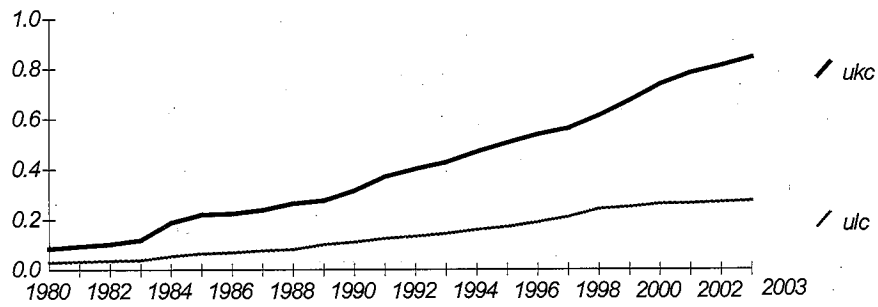
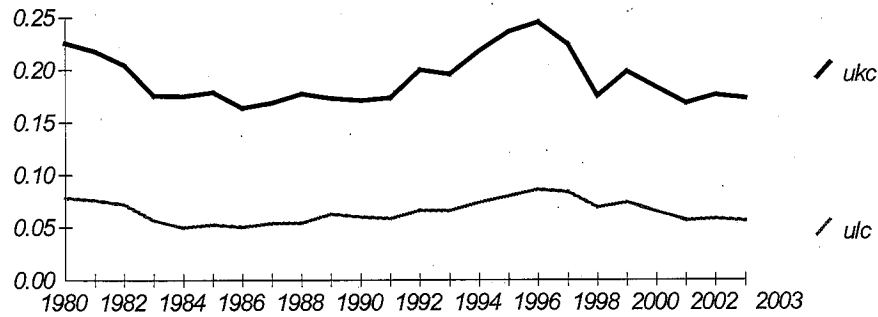


Figure 6. ulc and ukc Philippines with price xr and unadjusted factor shares



labor shares (or *ulcs*) and growth is much more complex, probably nonlinear (implying that the sign of the relationship between the two variables varies over time, and that the value of the elasticity is not constant), than the simple view that lower *ulcs* imply higher growth.²²

As indicated above, Kalecki's simple model shows an inverse relationship between output and profit share. Suppose firms set prices according to a mark-up (μ) on nominal wages (w_n) adjusted by labor productivity (VA/L), that is, unit labor costs,

$$P = (1 + \mu)[w_n / (VA/L)] = (1 + \mu) ulc \quad (7)$$

Equation (7) implies that capital's share (referred to by Kalecki as the *degree of monopoly*) can be written as a function of the mark-up as μ , and the labor share as s^L . Therefore, $s^K = 1 / (1 + \mu)$. It then follows that:

$$ulc = \left(\frac{w_n L}{VA_n} \right) P = s^L P = \left(\frac{1}{1 + \mu} \right) P \quad (8)$$

which indicates that, *ceteris paribus*, as the mark-up increases the *ulc* decreases. It is somewhat paradoxical that as the mark-up increases, typical of *less competitive* economies in the microeconomics terminology, the economy should become *more competitive* under this view. Indeed, expression (8) indicates that countries with lower mark-ups will have higher *ulcs*. Why wouldn't these countries be the ones that grow faster? Under this view, Kaldor's paradox need not be an anomaly.

Let us assume a situation where workers win large wage increases and firms respond by cutting their mark-ups while still raising prices to some extent. Under these circumstances, the profit share s^K will fall. As income is redistributed to workers, that is, s^L increases, and since these have a higher marginal propensity to consume than capitalists, Kalecki's model indicates that output will increase (consumer demand will increase, possibly stimulating investment too through the accelerator). In other words, a lower degree of monopoly leads to a higher level of income. In this case (i.e., redistribution of income towards workers), aggregate demand will be affected through a decline in investment and an increase in consumption, and aggregate supply will decline or grow at a slower pace. In a so-called wage-led economy, a higher real wage rate or a higher labor share stimu-

²² For example, in an analysis of the manufacturing labor share for Korea, Mexico and Turkey, Onaran (2007) finds that the labor share is pro-cyclical during a crisis in the three countries. On the other hand, during a normal year, the labor share has no cyclical pattern in Korea and Mexico, whereas in Turkey it is counter-cyclical, i.e., the labor share decreases in this country in both good years and in years when the economy contracts.

lates demand. Wage-led growth occurs when the impact of profits on investment is negligible; then an increase in the wage share leads to an increase in the equilibrium capacity utilization rate, which leads to an increase in the growth rate of the capital stock and growth. Wage-led growth occurs because the increase in consumption demand derived from the increase in the labor share has a positive feedback effect on investment through raising the capacity utilization rate. Because in this regime investment is not sensitive to profits, there is no dampening effect through changes in profitability from the labor share increase (Foley and Michl 1999). The result is that the danger of over-contraction of domestic demand in a wage-led regime as a consequence of the implementation of policies that lead to a reduction in unit labor costs can be serious. Wage restraints depress consumption while labor productivity growth brought about by, for example, downsizing of the labor force, reinforces the depressive effect (and outweighs the possible stimulating effect on investment and exports). This danger of a sharp decline in domestic demand tends to be overlooked in today's policy discussions. This is due, as Bhaduri notes, "not due to ignorance, but for reasons that have become intrinsic to the current phase of globalization" (Bhaduri 2006).

If, however, the change in consumption is small or takes place slowly, then, as the profit share declines, a *profitability crisis* will emerge and unemployment will most likely develop. It is possible that the changes in consumption and investment cancel out, but this would be a fluke. In general, investment responds more quickly and sharply to these events than consumption, although it is possible that delayed changes in the distribution of income may result in (positive) changes in consumption that dominate the decrease in investment, thus avoiding the problem. What occurs if the distribution of income shifts toward capital? This will probably lead to an increase in investment in the initial stages. However, a prolonged shift in the distribution of income toward capital will induce a decline in consumption. Sooner or later there will be a mismatch between supply and demand as the increase in capacity due to the increase in investment will not be accompanied by an increase in consumption demand. This is a problem of lack of demand or what is known as *underconsumption crisis*. Capacity utilization will have to decline, then investment will be reduced, this will be followed by a decline in income, and then in production and in employment.

The above discussion has two implications. The first is that the relationship between the growth of *ulcs* and that of output may well be positive, at least for some time. And second, that it is not possible to talk about an economy's competitiveness without addressing the relationship between growth and its distributional implications.

In dynamic terms, the growth rate of the *ulc* is the sum of the growth rate of the labor share plus the growth rate of the ratio of exchange rates (in the case of

equation 3), that is, $\hat{ulc} = \hat{s}^L + x\hat{r}$, where again \wedge denotes a growth rate. Therefore, changes in *ulcs* are the results of changes in these two components, the first one (\hat{s}^L) being the result of the dynamics of income distribution, itself the result of the shifts in the balance of power between the social classes and the type of labor market in the economy, as well as of the prevailing technological conditions; and the second one ($x\hat{r}$) being driven both by market forces and central bank intervention. From period to period, $\hat{s}^L \cong 0$ (Kaldor's 1961 stylized fact, also referred to as Bowley's law) except in periods of crises when important readjustments in the balance of power between labor and capital take place (Diwan 2001, 2002). This indicates that, for small periods, \hat{ulc} will be mostly the result of $x\hat{r}$, i.e., $\hat{ulc} \cong x\hat{r}$. This is confirmed in Figure 7 with data for the Philippines.

Often researchers are interested in comparisons between two countries. To this purpose they construct the so-called relative unit labor cost ($rulc_j^i$), defined as the ratio of the *ulc* in country *i* to that in country *j*, that is,

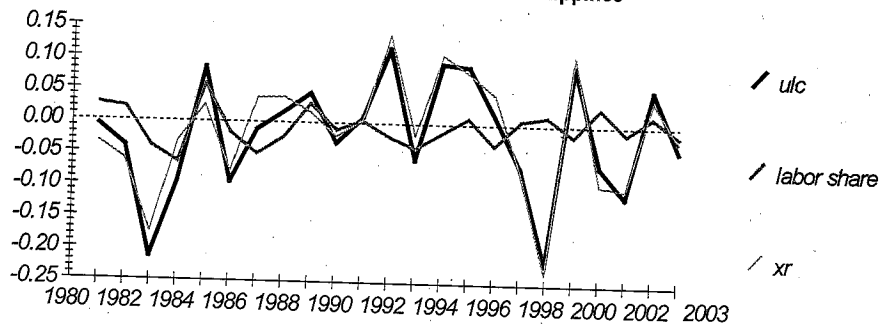
$$rulc = (ulc_i / ulc_j) = (s_i^L x r_i) / (s_j^L x r_j)$$

which in dynamic terms becomes

$$rulc_j^i = \hat{ulc}_i - \hat{ulc}_j = \hat{s}_i^L + x\hat{r}_i - \hat{s}_j^L - x\hat{r}_j.^{23}$$

If, as argued above, $\hat{s}_i^L \cong \hat{s}_j^L \cong 0$, then $rulc_j^i \cong x\hat{r}_i - x\hat{r}_j$. This indicates that the observed changes in *rulcs* are essentially due to differentials in the growth rates of the respective ratios of the PPP to the nominal exchange rate, which is, $x\hat{r}$

Figure 7. Growth rates of *ulc*, labor share and *xr*. Philippines



²³ For empirical purposes, j^i , *ulc* could be computed as the average of the country's trading partners *ulcs* (Fagerberg 1988, p.355, footnote 2).

(the price adjustment effect), more than to differentials in the growth rates of the labor shares (the pure unit labor cost effect).

It is important, finally, to contrast the rationale underlying Kaldor's "perverse" empirical findings put forward in this note with that of Fagerberg (1988). The explanation here is that differentials in *ulcs* across countries reflect the dynamics of class struggle to appropriate a higher share of output. It is not possible to ascertain what the relationship between *ulcs* and growth is because as the distribution of income shifts from one class to another, the economy swings between the possibility of underconsumption and profitability crises; and it is possible that higher labor shares lead (at least temporarily) to higher growth rates of output.

Fagerberg (1988) also argued that the popular relationship between *ulcs* and growth is much more complex because other variables have to be considered into the analysis, but his argument is different from the one in this note, and he did not question the standard interpretation of an inverse relationship between both variables. He developed a model that related growth in market shares to the ability to compete in technology (measured in terms of technology indices), the ability to compete in price (measured in terms of *ulcs*), and the ability to compete in delivery (measured in terms of investment). He tested the model by setting up a simultaneous equation framework with data for 15 industrial countries for the period 1960-1983. Fagerberg concluded that differences in international competitiveness and growth across countries are mostly due to differences in technological competitiveness and in investment. On the other hand, relative unit labor costs, though statistically significant in the export and import equations and with correct sign, appeared to be a lesser factor. Fagerberg calculated unit labor costs as:

$$ulc = \left[\frac{w_n}{[VA_n / P] / L} \right] / ER = \left(\frac{w_n L}{VA_n} \right) \left(\frac{P}{ER} \right)$$

and then he divided each country's *ulc* by an average.²⁴ As I argued above, however Fagerberg calculated the *ulcs*, these have the interpretation of the labor share times a price adjustment factor.

As argued above, *ulcs* may not be significantly different across developed countries. Hence their growth rates cannot be very different either. This implies that this variable cannot be significant in explaining crosscountry differentials in growth rates. Though one may find outliers, labor shares and the ratio of the price level to the nominal exchange rate must be similar among the developed countries.

²⁴ At the beginning of his paper, Fagerberg indicated that "relative unit labor costs (*RULC*) are *ULC* converted to an international currency and divided by the average *ULC* for the country's trading partners" (Fagerberg 1988, p.355, footnote 2). He also indicated that the source of this variable is the IMF and OECD statistics (Fagerberg 1988, p.373).

Moreover, although the sign of the growth of the relative unit labor costs was correct in the export and import equations, Fagerberg's model also predicted the same perverse relationship Kaldor found for the same countries.²⁵

CONCLUSIONS

This note has discussed the implications of the use of unit labor costs for policymaking. The main conclusions are as follows:

- ◆ Unit labor costs, the ratio of the nominal wage rate to output at constant prices, can be interpreted, in the sense that they are definitionally equivalent, as simply the labor share in output (the pure *ulcs* effect), multiplied by a price-adjustment effect. This reflection automatically links the notion of *ulcs* with the functional distribution of income. This is not an innocuous observation: competitiveness, measured or interpreted in terms of unit labor costs, is not just a technical concept. It embodies the social relations that affect the distribution of income between labor and capital.
- ◆ The previous point casts doubt on the traditional interpretation of *ulcs* that the lower the better, implying that the economy will be more competitive and will grow faster. Once distributional considerations are brought into the picture, it is possible that a higher unit labor cost (i.e., a higher labor share) lead to higher growth rates in the context of a wage-led growth economy. Many government policies, consciously or unconsciously, aim at reducing the labor share in output. Perhaps these should be reconsidered.
- ◆ Kaldor's paradox, the empirical finding that the fastest growing countries in terms of exports and/or GDP in the post-war period have at the same time experienced faster growth in their *ulcs* and vice-versa, is a not an anomalous or perverse result. A higher labor share need not lead to a less competitive economy in a wage-led context.
- ◆ Differentials in *ulcs* across countries reflect the dynamics of class struggle to appropriate a higher share of output. In reality, economies grow along the knife-edge of income distribution.
- ◆ Following the logic of the concept of unit labor cost, one can define the notion of *unit capital cost*, which is the ratio of the nominal profit rate to capital productivity, as a measure of competitiveness. This way, one can equally argue that the lower the better, and thus shift the burden of competitiveness on to capital.

²⁴ De Benedictis (1998) also offers an alternative interpretation.

- ✦ In the short run, given that labor shares vary very little, growth rates in unit labor costs, as well as in relative unit labor costs, are mostly (and simply) the result of changes in the price adjustment effect. If this is all the information the notions of unit labor cost and relative unit labor cost convey, their calculation, monitoring and use becomes questionable.
- ✦ Calculating correctly unit labor costs is a very difficult task due to data problems. Very seldom do authors report the original *ulcs*. Either they are shown in index form or in growth rate.
- ✦ In the Philippines, unit labor and capital costs have increased significantly during the last two decades if measured in terms of the Philippine price deflator. This is true whether one uses the adjusted or unadjusted factor shares. The increase is driven exclusively by the increase in the price deflator. When unit labor and capital costs are measured in terms of the ratio of the PPP to the nominal exchange rate, then the strong upward trends disappear. This is the result of the fact that the ratio of the PPP to the nominal exchange rate does not show an upward trend.

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