Openness and structural dynamics of productivity and employment in developing countries: A case of de-industrialization?

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Contents

1. Introduction ................................................................. 1

2. Recent economic history ................................................... 3
   Exchange-rate-based stabilization, trade openness and de-industrialization ............. 7
   Economic structure, stagnation and macroeconomic stability .............................. 9

3. Openness, regional patterns and economic structure ......................... 13
   Country Aggregates ...................................................... 13
   Structural patterns ........................................................ 17

4. De-industrialization in developing countries: A taxonomy ...................... 22
   A decomposition exercise ......................................................................................... 24
   Output de-industrialization ....................................................................................... 26
   Productivity de-industrialization ............................................................................. 30
   Employment de-industrialization ............................................................................. 31

5. Adjustment and socially necessary rate of employment creation ............... 37
   High road versus low road development ............................................................... 3 8

6. Conclusions and policy recommendations ........................................ 42

Appendix: Data sources .................................................................. 44

Bibliography ............................................................................. 45

Tables

Table 1. Total labor productivity, output and employment growth ..................... 11
Table 2a. Employment and productivity growth after 1985: regional patterns ......... 40
Table 2b. Employment and productivity growth before 1985 ............................ 41

Figures

Figure 0. Interdependence between economic structure and macroeconomic environment - a stylized vicious circle ................................................................. 6
Figures 1a-1b. Productivity and employment growth before/after 1985 ................... 15-16
Figures 2a-2b Productivity and job growth in manufacturing before/after 1985 .......... 19
Figures 3a-3b Productivity and job growth in services before/after 1985 ................. 20
Figures 4a-4b Productivity and job growth in agriculture before/after 1985 .............. 21
Figures 5a-5b Sectoral contribution to total output growth before/after 1985 ......... 28-29
Figures 6a-6b Sectoral contribution to labor productivity change before/after 1985 .... 32-33
Figures 7a-7b Sectoral contribution to total employment creation before/after 1985 ... 34-35
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The present paper on structural adjustment and industrialization forms part of a set of country studies and sectoral studies to indicate shifts in sectoral output and employment composition during various spells of adjustment efforts in the early 1980s and throws some lights on the employment consequences and sustainability of adjustment efforts under regimes of capital inflows in the 1990s.

For many developing countries, the macroeconomic stabilization and adjustment experience of the eighties and nineties has been characterized by stagnating productivity and per capita income growth and low capacity utilization (particularly of labor) accompanied by increasing inequality. Since the early 1980s, there has been an appreciable slowdown of industrial development in many developing countries, in particular in Latin America and sub-Saharan Africa. Over the past decade and a half many African countries have suffered sustained “de-industrialization” of the manufacturing capacity and as a consequence, African economies remain the least industrialized in the world. Similarly in Latin America, reduced economic growth has, not surprisingly, been accompanied by under-utilization of industrial capacity and de-industrialization. This, on the other hand, stands in stark contrast to the recent experience of successful industrialization and rapid growth rate of many Asian countries.

These illustrations are not unfamiliar. However, little research has been carried out regarding the dynamic adjustments of economic sectors in relation to productivity, output and employment that took place in response to macro stabilization and structural reform packages. This paper attempts to trace the dynamic adjustments of the different sectors – in particular of industry – in relation to overall changing employment and productivity in the economy. In dissecting sectoral productivities into changes in output and changes in employment, this paper develops a “taxonomy” for different patterns of de-industrialization, i.e. output de-industrialization, productivity de-industrialization and employment de-industrialization.

The paper then identifies how macro stability policies in particular exchange-rate-based stabilization and structural reforms affect the process of industrialization. The results from the decomposition exercise suggest that, in particular, industrial performance correlates with the overall performance of an economy, and therefore is the key sector in explaining the different regional patterns of overall productivity and employment growth in sub-Saharan Africa, Latin America and South and East Asia. A high, positive correlation between growth of productivity in industry and overall productivity growth was found to be independent of size (measured in terms of employment and value added shares).

The last part of the paper associates overall productivity growth with employment growth according to the concept of the socially necessary growth rate. It turns out that strong regional patterns emerge: Asian economies find themselves on a high road trajectory with socially and economically sustainable employment growth rates. On the other hand, most Latin American countries seem to be able to sustain high rates of job creation, but are currently faced with the problem of stagnating (or negative) productivity growth which may have taken them down the path of a vicious circle of development with unsustainable rates of employment and productivity growth thus joining the low road countries of sub-Saharan Africa. Policy lessons are drawn to counteract such trends.
Other studies published in this series deal with employment trends in Brazil, Mexico and the Philippines. These studies form part of a project undertaken by the Employment and Labour Market Policies Branch. The project was managed by Rolph van der Hoeven (staff member of the above branch) and Lance Taylor (New School of Social Research, New York). Sandrine Cazes (Employment and Labour Market Policies Branch) provided useful comments.

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1. Introduction

For many developing countries the macroeconomic stabilization and adjustment experience of the eighties and nineties has been characterized by stagnating productivity and per capita income growth and low capacity utilization (particularly of labor) accompanied by increasing overall inequality. With the research focus on short-run macroeconomics, however, the problem is that with a few exceptions, little attention has been given to the dynamic adjustments of the economic structure of productivity, output and employment that took place in response to macro stabilization and market-oriented structural reform packages of trade liberalization adopted in many developing countries in the 1980s and 1990s. Moreover, and as a corollary, the prospects for medium to long-term economic growth depend significantly on these induced changes in the economic structure of the productive base.

Particular attention in the investigations of the interactions between macroeconomy and structure will be given to the industrial sector. Here economic structure is defined as the sectoral composition of output, employment and labor productivity and its evolution over time. Industry or manufacturing has long been recognized for its role as “leading sector” or “engine of growth” in the development process (Kaldor, 1966). In fact, this paper will show that the structural dynamics of employment and productivity of the industrial sector show a close relationship with labor productivity growth in the economy as a whole.

Since the early 1980s there has been an appreciable slowdown of industrial development in many developing countries in particular in Latin America and sub-Saharan Africa. Over the past decade and a half many African countries have suffered sustained “de-industrialization” of the manufacturing capacity and as a consequence African economies remain the least industrialized in the world (Lall and Stewart, 1996). Lall (1992) for example writes: “Inefficiencies and external shocks exacerbated by poor policies, have led many industries to becoming a drag on their economies rather than engines of growth and structural transformation.”

Similarly in Latin America, reduced economic growth has, not surprisingly, been accompanied by rampant under-utilization of industrial capacity and de-industrialization (Hughes and Singh, 1991; Singh, 1995a). This, on the other hand, stands in stark contrast to the recent experience of successful industrialization and rapid productivity and output growth rates of many Asian countries.

These very brief illustrations, of course, are not unfamiliar. What this paper is focused on, however, is a systematic examination of the structural dynamics in the industrial sector (or manufacturing) interacting with a changing overall economy of output, employment and productivity, while simultaneously shifts in industrial output, employment and productivity interrelate with a changing sectoral composition of the aggregate economy. In other words, our empirical investigations attempt to trace the dynamic adjustments of the sectoral relatives – in particular of industry – in relation to overall changing employment and productivity in the economy.

The process of development or industrialization is essentially just this – a dynamically changing structure of the economy according to some (more or less understood) stylized pattern of structural change, while, at the same time, total output is growing (Kuznets, 1966, 1971; Chenery et al., 1986). The manufacturing sector drives this process because industrial activity carries the potential for efficiency gains from learning-by-doing and increasing returns to scale due to specialization and mechanization. Thus, with higher than average productivity growth rates, the industrial sector contributes dynamically to total output and productivity growth and this
process can be conceptualized as a circular process of cumulative causation or “virtuous circle” of sustainable development (Young, 1928; Myrdal, 1957; Kaldor, 1966, 1978).

In contrast, nowadays mainstream development and trade theories do not commonly regard the recent de-industrialization experience of many developing countries (as described above) as an integral part of a “vicious circle” of stagnation. The reason for this is, that the orthodox models of trade and trade liberalization can convincingly justify free trade policies only in the context of static gains from trade – that tend to be negligible empirically (Rodrik, 1995) – as opposed to dynamic efficiencies from increasing returns.\(^1\)

To isolate empirically direct effects of macro stabilization policies and openness on sectoral and overall employment and productivity growth is impossible, especially when the analytical approach is that of a dynamic process of reinforcing tendencies. Therefore, in the investigations of the recent de-industrialization phenomenon and its relation to sustainable development of employment and productivity growth, the methodological approach that is taken here is the development and application of an accounting framework.\(^2\) This accounting framework “decomposes” the (positive or negative) changes in productivity into sectoral shifts of output (or demand) and changes in the employment structure over the last 25 years as developing countries have gone through dramatic adjustment processes. This way we can isolate each sectors’ contribution - and in particular that of the industrial sector - to total productivity growth.

Further, we will dissect sectoral productivities into changes in output on the one side and changes in employment on the other which will allow us to develop a “taxonomy” for different patterns of de-industrialization. Essentially, a process of de-industrialization can take different forms. Most commonly, it refers to output and employment losses of the industrial sector relative to the rest of the economy. Here, however, we will give particular attention to the industrial sector’s loss in terms of relative productivity growth.

The paper then attempts to identify some potential channels through which macro stability policies in particular exchange-rate-based stabilization and structural reforms affect the process of industrialization, i.e. the changing composition of sectoral labor productivity, output and employment growth. The links between the country evidence and increasing trade openness and other forms of market liberalization are not direct - especially since many countries were still faced by the aftermath of massive external shocks in the late 1980s - but may still be suggestive. More concretely, are fiscal austerity measures and increasing openness of the economy associated with de-industrialization and low or negative overall productivity growth rates? And with respect to the structure of employment growth and its sectoral breakdown of job creation, which sectors have been labor “absorbing” sectors, and which labor “shedding”?

The research project was organized in two main parts: (i) the compilation and computation of a data set of sectoral employment, real value added and labor productivity at

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1 An extensive survey of the large empirical and theoretical literature on trade policy reform and industrialization in developing countries is outside of the scope of this paper. For recent exhaustive reviews, see Pack (1988, 1992) and Rodrik (1992, 1995). Noteworthy is the theoretical model with increasing returns by Ros and Skott (1995). It analyzes the dynamic adjustments between traded and non-traded goods sector following a reduction of trade barriers. In the presence of sluggish adjustments in relative prices and wages and/or relatively fast capital stock adjustments – plausible assumptions empirically speaking – the process of adjustment may involve a prolonged phase in which the traded goods sector actually shrinks in size as a result of trade liberalization.

2 We are exclusively concerned with questions of labor productivity defined as output per worker as opposed to capital/output ratios or total factor productivity. Therefore, throughout the paper “overall” or “total productivity” stands for labor productivity in the economy as a whole unless otherwise noted. Sectoral productivity then is equal to the sector’s output (measured by its real value added) divided by the number of people employed in that sector.
the one-digit level of the International Standard Industry Classification (ISIC) codes for consistent cross-country comparison; and (ii) the development of a “decomposition” framework to provide a profile of about thirty developing countries of productivity performance since the adoption of neo-liberal policies during the mid to late 1980s.

Section 2 summarizes the recent economic history in developing countries and provides a framework to analyze the interdependence between economic structure and the macroeconomic environment of stability and growth. The framework permits us to compare and contrast the different “stylized” experience of Latin America, sub-Saharan Africa and Asia. On the basis of our country data set, a regional overview of recent macroeconomic developments is given in section 3 which serves as background for investigating the relationship between productive structure and productivity and employment growth. Section 4 attempts to offer a definition of the concept of de-industrialization in the developing country context through the development and application of a “taxonomy.” This “de-industrialization taxonomy” will then be used to report the empirical results from the “decomposition” exercise. Finally, the findings are placed in the context of the current policy debate on economic and social sustainability and conclusions are offered in sections 5 and 6 respectively.

2. Recent economic history

The recent experience of most developing countries, particularly those of sub-Saharan Africa and Latin America, is best understood as a set of structural problems that began to emerge in the 1970s. Following the Golden Age the past two and a half decades have been characterized by global stagnation in the North and in many countries of the South outside of East and Southeast Asia. Global stagnation is defined as low capacity utilization particularly low levels of employment and low per capita income and productivity growth. This crisis of productivity, macroeconomic stability and debt induced a process of international and national restructuring of both production and policy regimes which is still under way.

The “lost decade” of the 1980s was marked by heightened economic instability and insecurity, severe internal distributional conflicts and growing inequality and poverty. However, since the early 1990s the developing world has been facing more favorable international conditions for economic development especially with respect to its access to international capital markets. This is the result of two fundamental constraints having been lifted that had acted as generators of the debt crisis of the 1980s. There has been a sharp fall in the international rate of interest since 1990 along with an easing up of credit rationing in particular in Latin American countries. Consequently, under a less constraining international environment, governments could rely on greater degrees of freedom to undertake stabilization policies successfully (Fanelli and Frenkel, 1995). The other side of the coin, of course, is that underlying structural imbalances that originate from the debt crisis became less binding with international finance flowing back into the region. This is why in Latin America and elsewhere questions related to sustainable growth and productive development have gradually made its way back onto the economic policy agenda under the heading of “structural reforms.”

There has recently been an acceleration of the rate of implementation of structural reforms in order to deepen the allocating role of markets in the economy. They take the form of neo-liberal or “market-friendly” policy packages consisting of austerity measures, deregulation of capital and labor markets domestically and liberalization of trade and finance
In response to the debt crises came a shift in the policy regime toward neo-liberalism not only in the North but also in the South. The convergence of policy regimes in the South can be explained in part by two factors. First, beginning with the debt crisis the Bretton Woods institutions' policy interventions are until this day laden with neo-liberal ideology. This so-called "Washington Consensus" was administered through stabilization and structural adjustment programs that imposed trade and financial liberalization and austerity policies on countries through a system of conditionalities (Pieper and Taylor, 1996).

Second, Rao (1996) offers a complementary explanation: "...neo-liberal influence has grown cumulatively: the pursuit of liberalization in individual countries not only affected their internal economies but also altered the global environment facing each of them, an alteration that made the pursuit of autonomous policies increasingly precarious or, at least, increasingly unfashionable."

There are some notable exceptions. Theoretical works include Pasinetti (1981); Taylor (1991); Amadeo (1996) and Ros (1997). Also note empirical works originating in the tradition of structuralist macroeconomics, e.g. Fanelli and Frenkel (1995), Amsden and van der Hoeven (1996) and the recent special issue of World Development 1996, Vol. 24(2). However, orthodox writings about the structural adjustment experience of the 1980s and the so-called “new” growth theory – just as much as the “old” growth theory – neglect structural change altogether (Syrquin, 1994; Pasinetti, 1994).

One reason why there is very little research investigating the interaction between economic structure and macroeconomics might be because of its interdisciplinary nature which becomes less attractive during times of extreme specialization as in the economics discipline of today.

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it serves to situate this project's research by eliciting the different theoretical traditions and their policy recommendations with respect to economic development.

In Latin America problems of macroeconomic disequilibria or stability have traditionally played a much more significant role in explaining imbalances of the economic structure than in Asia or the former socialist economies where economic thought was dominated by planning. For instance, the emphasis of the Asian planners has always been more concentrated on problems of policy interventions to foster economic development through the coordination of economic activity coupled with government-managed structural reforms. In other words, in terms of the flow chart in figure 1 the area of concentration of development planners has been the left hand side of the circle - the interaction between growth and economic structure mediated through state-led structural reforms.

In practice, these "Asian-style" reforms tend to be qualitatively different from the neo-liberal or "market-friendly" policy mix described above. The main difference between the two lies in the application of consistent industrial policy packages - the government intervenes proactively in the market to develop technological capabilities and to target and protect infant-industries. Commonly, the success of industrial policy was aided by a favorable macroeconomic policy environment of low-cost finance capital and export promotion.

What the proponents of neo-liberal or "market-friendly" policies tend to neglect is the mutually beneficial relationship between successful industrial policy and development and overall macroeconomic stability of domestic prices, exchange rate and balance of payments. The main difference between the two lies in the application of consistent industrial policy packages - the government intervenes proactively in the market to develop technological capabilities and to target and protect infant-industries. Commonly, the success of industrial policy was aided by a favorable macroeconomic policy environment of low-cost finance capital and export promotion.

For example, Korean industrial policy was effective in relieving the balance-of-payments constraint and thereby also aided overall macroeconomic stability. A current account balance at the desired growth rate can help to avoid the "stop-go cycles" which many economies in Latin America have experienced since the late 1980s (discussed in detail below). This, moreover, will reduce the cost of capital since there is no need to curb current account deficits through fiscal restraint and tight monetary policy. Thus, macroeconomic stability and industrial policy and a developing economic structure interact with each other in a virtuous circle of cumulative causation.

In contrast, any stepping up of investment through Latin governments would soon meet inflationary pressures and balance-of-payments crisis due to income leakage abroad that is aggravated through consumer goods imports (and maybe less importantly in recent history, a secular decline in the terms of trade of primary products). It was therefore no accident that the "old" Latin American structuralist adopted import-substitution industrialization as a strategy of development (Prebisch, 1950; Singer, 1950).

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Figure 0: Interdependence between economic structure and macroeconomic environment—a stylized vicious circle

“poor” economic structure

1) non-dynamic productive base  
2) insufficiently diversified industrial sector (failure to exploit existing gains from ISI)  
3) de-industrialization  
4) relative expansion of low-productivity service activities  
5) insufficient financial structure to mediate savings and investment decisions  
6) inefficient institutions for mitigating shocks and internalizing market failures

Structural reforms

1) fiscal reform (austerity, tax reforms)  
2) privatization  
3) market deregulation (labor and financial markets)  
4) trade openness  
5) international financial liberalization

Contradictory when uncoordinated

Low macro stability—relative price shifts create imbalances and volatility

1) importance of exchange rate policy (overvaluation risk)  
2) terms-of-trade vulnerability  
3) recessionary devaluation  
4) conflictive inflation processes  
5) high interest rate environment to attract foreign capital  
6) short-term time horizon of investment decisions  
7) unsustainable fiscal reforms (due to short-term privatization windfalls)

Unsustainable low growth

1) low productivity growth (low economies of scale; underdeveloped backward and forward linkages; underutilized “Kaldor” learning effects)  
2) low employment growth (underemployment; informalization of labor markets; widening gap between low-skilled and high-skilled workers)  
3) heightened economic (and social) vulnerability of large sections of the population

Source: Author; inspired by Fanelli and Frenkel, 1995; Amadeo, 1996.
An economy’s “poor” economic structure is characterized by a low degree of mechanization, by a lack of inter- and intra-industry diversification and specialization and by a low degree of sectoral interdependence; in essence there is a structural inability to realize increasing returns or “dynamic efficiencies” due to learning. On this basis, the economy’s export composition appears basically centered on primary commodities subject to volatile terms of trade, and a few “mature” manufactured products for which the growth of demand tends to be rather low and unstable while the opportunity for dynamic efficiencies remains underdeveloped. This is opposed to a “representative” advanced economic structure which is centered on the manufacturing sector, is highly diversified and interdependent. Further, the different industries are specialized in terms of products and methods of production; the latter are further characterized by an advanced degree of mechanization and by a high average intensity in accumulated experience, knowledge and technological mastery (Ricoy, 1987).

The focus of Latin American research and policy-making has therefore been on the interaction between macroeconomic stability and economic structure or the right hand side of the circle; and the period of the turbulent 1980s of financial crises and high (or hyper) inflation following the debt crisis is a prime example for this (Fanelli, Frenkel and Rozenwurcel, 1990). Latin American countries in the 1990s are still faced with strong contradictions between on the one side their “poor” economic structures interacting with “low” macroeconomic stability – conditions resulting from the debt crisis – and, on the other, neo-liberal structural reforms that have recently been introduced.

In the context of the Latin American stabilization experience, first the impact of the macroeconomic environment of stability and growth on the evolution of the economy’s productive structure is investigated. Second, this is followed by examples that demonstrate the channels through which the nature of economic structure may affect macroeconomic stability and growth.

**Exchange-rate-based stabilization, trade openness and de-industrialization**

Latin America has emerged from a long period of import substitution strategy, high levels of inflation, and low economic growth in the realm of the external debt crisis in the 1980s. Recently a combination of (domestic and international) factors helped stabilize the Latin American economies, however, ultimately exchange-rate-based stabilization policies restored overall confidence and credibility of the local governments.

At the same time, these countries also have in common many structural reform policies, in particular the simultaneous opening of their trade and capital accounts, characteristic of the “market-friendly” development approach that was adopted in the late 1980s. In the early 1990s, large capital inflows into the region led to stronger local currencies that together with trade liberalization caused rising current account deficits. To reduce their trade gaps, local governments had to pursue fiscal austerity measures and raise interest rates in order to curtail imports by slowing economic growth. Higher interest rates, however, attracted still more foreign capital to Latin America, resulting in further appreciation of the local currencies.

This ongoing process of foreign-capital-led expansion followed by periods of induced contraction that have been observed in many countries of the region since the early 1990s has been labeled “stop-go cycles” of growth (Singh, 1995a; Amadeo, 1996). Exchange-rate-based stabilization policies that have not been “coordinated” with increasing trade openness made these stop-go growth cycles inevitable (Fanelli and Frenkel, 1995). In terms of macro/sectoral interactions, the channels through which adjustments from the macroeconomy are transmitted...
to the economic structure is through shifts in relative prices which can create imbalances and volatility.

For instance, in a two-sector analysis of relative price shifts between the tradables and non-tradables sectors in Argentina, Chisari, Fanelli and Frenkel (1996) reveal the changes in the economic structure that may be responsible for the persistence of a foreign exchange gap. In the described policy regime of trade and financial liberalization coupled with exchange-rate stabilization the export and import competing sectors not only face increased international competition associated with openness but more importantly an appreciated exchange rate that is equivalent to shifting relative prices in favor of non-tradables. Inflation measured in terms of consumer prices fell dramatically and followed a declining trend since the early 1990s. Accumulated CPI inflation still resulted in an overvaluation because the nominal exchange rate was fixed. Wholesale prices (WPI), however, behaved differently, and have remained almost constant. This differential performance was the result of the different composition of the indexes. Since the weight of tradables is much more important in the wholesale index, the elimination of trade restrictions and the reduction in tariffs operated together with the pegging of the dollar as an anchor of tradable goods prices (ibid.).

A slower convergence of non-tradable goods prices to international inflation plays an important role in determining the effects of macro imbalances – here as a result of exchange-rate-based stabilization policies interacting with trade reforms – on the productive structure of output, employment and productivity particularly of the industrial sectors. The following findings for the case of Argentina are representative for other Latin American economies. The increase in nominal wages during the early 1990s was lower than the increase in the CPI, but higher than the increment in the WPI. The industrial real wage deflated by the CPI was about 20% lower than the average observed during the period of 1983-88. But industrial product wages or the “wage-wholesale industrial prices ratio” showed a 38% increase with respect to this periods average (ibid.). The authors conclude (1996: 233): “These changes in relative prices, that combined a reduction in the purchasing power of wages with an important increment in industrial labor costs, explain why Argentina is simultaneously facing income distribution and external competitiveness problems.”

The industrial sector gets “squeezed” both from the cost and the demand side which is changing its structure of employment, output and productivity. Amadeo (1996) and Dancourt (1997) also find similar evidence in recent studies for the three major economies Argentina, Brazil and Mexico, and Peru respectively.

In sum, the combination of such policies as trade and financial liberalization together with exchange-rate-based stabilization resulted in low inflation, an import boom (not matched by exports) and the resumption of growth during the early 1990s when renewed capital flows into the region could finance the post-stabilization trade deficit. The Mexican financial crisis of December 1994 and its spill-over into the other two large economies, however, has shown that this model is not sustainable. Ultimately the foreign exchange constraint is binding and these economies have to resort to a low growth with low inflation strategy in order to face up to the trade-off between stabilization and external imbalances.

Under such circumstances policy makers face a dilemma. If the exchange rate regime were adjusted in order to correct relative prices, it would possibly act in favor of medium-run stability and sustainability. However, given the strong emphasis on the pegged nominal exchange rate as a structural component of the new economic policy regime, a devaluation would have a negative effect on credibility and would probably reintroduce an inertial inflationary process.
The dilemma arises out of an over-exposure of the tradable goods sector to openness coupled with exchange-rate-based stabilization which leads to a vicious circle of low growth with low inflation to prevent external imbalances. Moreover, the contradictory mix of stabilization policies and “uncoordinated” structural reforms – as the stylized experience of Argentina demonstrates – create structural price imbalances that can result in de-industrialization. Two main issues arise for the analysis that follows.

First, macroeconomic stability problems of inflation and external balance can be more or less binding when structural reforms of trade and financial liberalization are introduced. For instance, at the risk of oversimplification Asian macro stability constraints of inflation and external balance have been less binding than in Latin America in recent history and even during the 1980s debt crisis. Here a dynamic and diversified productive structure is as much a cause as an effect of a virtuous circle of development. In fact, the level of development of the economic structure and its institutions ultimately decides whether shocks that cause macro imbalances can be absorbed or whether they will be reverberated throughout the entire economy (Fanelli and Frenkel, 1995).

On the other hand, the external environment is perhaps most binding in sub-Saharan Africa. The economic structure of African countries is characterized by high dependence on imports for investment, production and consumption on the one hand, and on the undiversified basket of primary commodity exports which are subject to continued weakening of world markets on the other. The fact that over 75 percent of this region’s imports are production-related suggests that long-term growth depends on the availability of foreign exchange (Ndulu, 1996). In addition to declining export revenues due to adverse terms-of-trade shifts, sub-Saharan Africa faced a slow-down in concessionary financial assistance as well as higher costs for obtaining external financing on non-concessional terms. The lack of foreign exchange severely constrained growth in the 1980s as African economies found it increasingly difficult to raise funds from international capital markets, and as increased debt servicing requirements absorbed a large proportion of their foreign exchange receipts. The nature of the vicious circle that is to be considered when structural reforms are introduced in the region is summarized by Ndulu (1996: 139): “The foreign exchange gap is widely regarded to be most constraining on growth and development in sub-Saharan Africa, and one that would require the most support to alleviate in the process of transforming these economies to more sustainable structures over the long term. Foreign resource inflows are needed to support not only the expansion of productive capacity but also the utilization of installed capacity and growth in the medium term.”

Second, the interaction between the macroeconomic environment and structural reforms can lead to undesirable changes in the economic structure if the reforms are uncoordinated like the recent experience of Latin American countries shows. As a corollary, the induced changes can have negative impacts on the ability to absorb future (external and internal) shocks as well as on the medium to long-run growth prospects particularly when the structural changes are as severe as de-industrialization.

**Economic structure, stagnation and macroeconomic stability**

As just argued macro imbalances such as shifts in the relative price in favor of non-tradables can aggravate the external constraint and induce negative changes in the productive base, but the structural causes of these imbalances are indeed as important. Thus, depending on the economic structure and the degree of diversification of the productive base, different
outcomes can be observed as a result of macro instability. For example, in response to currency realignment structural diversity, in particular diversification of the productive base determines among other factors whether a devaluation is contractionary or expansionary.\(^7\)

A second example refers to the lack of productive diversification as a direct cause of the degree of volatility of macroeconomics. One of the main determinants of the current account’s variability in Latin America is the terms of trade variability. As exports show a low degree of diversification owing to the lack of competitiveness from the industrial sectors, the trade account often experiences significant changes in the event of negative external shocks. “The lack of productive diversification converts the volatility of the terms of trade into the volatility of the fundamental variables. The dependency on a few export products makes it impossible to mitigate the volatility through the implicit risk diversification present in a diversified export structure. In that way, the lack of productive development becomes a source of macroeconomic volatility” (Fanelli and Frenkel, 1995: 138-9).

The third example is with respect to unemployment as a result of structural imbalances (rather than an overall shortfall of demand). A diversified economic structure requires a skilled and skill-dynamic work force. Skilled workers will be able to adapt more rapidly to structural imbalances than unskilled workers and therefore can be expected to relocate more effectively from those sectors that contract to those that expand.

On an empirical level, however, in general a myriad of interactions and feedback effects between economic structure and macroeconomic environment simultaneously determine both structural and macro variables of a given economy (ibid.). Hence, in the final analysis it is very difficult to determine, if an economy shows severe structural imbalances owing to its macroeconomic instability or, if, on the contrary, it is the lack of a non-dynamic productive structure - like a diversified industrial sector - that has generated the aggregate instability.

Nevertheless, this does not mean that an attempt at separating the two analytically is not crucial to understanding the growth and sustainability constraints of an economy at any given point in time. In order to interpret changes in the aggregates of output, employment and productivity, it is useful to decompose the changes into their structural components. For instance, overall job creating potential is determined by the sectoral breakdown of employment growth of an economy which interacts with changes in technology and aggregate demand. In the following section a consistent accounting framework will be derived that permits a link between the question of sustainable growth of productivity and employment and the recent history of de-industrialization in non-Asian developing countries. The framework accounts for overall changes in productivity by decomposing (positive and negative) growth rates into sectoral components of employment and output. This is preceded by an overview of the developments in aggregate output, employment and productivity for the countries in the sample since the early to mid-1970s.

\(^7\) In an analytical Keynesian model Krugman and Taylor (1978) illustrate a number of contractionary effects of currency devaluation.
<table>
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<tr>
<th></th>
<th>labour productivity (annual growth rate)</th>
<th>total output (annual growth rate)</th>
<th>total employment (annual growth rate)</th>
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</table>

* Brazil: output growth rates were computed from World Tables 1995. Brazilian employment data until 1989 from ILO, thereafter from RAIS, Brazil; the two series are not strictly comparable.
~ The coefficient of variation is defined as standard deviation divided by the mean.
^ Frequency distribution for output growth in brackets according to samples wider range. The figures in brackets represent regional frequency distributions (sub-Saharan Africa, Latin America, Asia); when the sum of individual intervals diverges from the sum in brackets, then it includes either Jordan, Turkey or both.
Source: Author's calculations.
3. Openness, regional patterns and economic structure

There has been a significant shift in policy emphasis in the developing world since the debt crisis in the early 1980s which is associated with dramatic changes in economic performance and significant regional patterns in the growth rates of average labor productivity, output and employment. In response to the crisis, many developing countries engaged in economic reforms that consisted of a mix of stabilization and liberalization policies in particular of trade openness. Most importantly, there has been a stepping up of structural adjustment programs in non-Asian economies starting in the mid 1980s. In order to account for the shift to a neo-liberal policy regime after the debt crisis, the country data series of output, employment and productivity was divided into a pre-crisis period and a post-crisis period of macro stabilization and adjustment beginning in 1985 through the early 1990s (depending on country data availability). The crisis years were deliberately included in the earlier period (from the mid 1970s through 1984) in order to not bias the later adjustment period growth rates downward through the inclusion of negative outliers.

Country Aggregates

The new global policy regime is generally associated with stagnating or low output and productivity growth rates outside of East and South Asia. Table 1 summarizes the country sample’s average annual performance of aggregate labor productivity, output and employment growth for the two periods under comparison. Most strikingly, for the country sample of thirty developing countries as a whole the median annual growth rate of productivity fell by more than half from 1.5 to 0.7 percent in the post-crisis years. Correspondingly, the sample’s frequency distribution worsened from 9 countries showing negative average annual growth rates of productivity pre-adjustment to 11 during the adjustment period. The dispersion of observations – here measured by the coefficient of variation of the sample – is exactly twice as high for the later period.

At the regional level significant patterns of productivity growth are detectable for both the pre-crisis and post-crisis years (columns 1 and 2). In sub-Saharan Africa the median of 1.3 percent during the early period was only slightly below the sample’s median, but it fell significantly to 0.7 percent during the later period. The region’s mean fell even more dramatically from 1.3 to about zero percent. By definition the coefficient of variation also increased manyfold; in other words, the individual country performances have become much more dispersed and volatile during the adjustment phase when more and more resources were devoted to debt servicing coupled with widespread liberalization efforts.

In contrast, in Latin America productivity performance was already dismal before 1985 - keeping in mind that the early period includes the crisis years. The region’s median productivity rate improved only slightly and shows barely positive growth for the post-crisis years. In half of the Latin countries in the sample, overall productivity still grows at negative annual rates, so that, most importantly, substantial improvements in response to macro stabilization and reform policies remain to be seen in the region. Moreover, the dispersion and

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8 See Horton, Kanbur and Mazumdar (1994) for the timing of structural adjustment programs in a number of developing countries.

9 The coefficient of variation is defined as standard deviation of the sample divided by the mean.
volatility measured by the coefficient of variation has also worsened noticeably in recent years similar to the case of sub-Saharan Africa.

Overall productivity performance of Asian economies, on the other hand, is remarkably different. This is possibly the result of positively reinforcing interactions between a stable macroeconomy and diversified economic structures. Not only was the regional productivity median of 3.3 percent twice as high as the country sample’s median of 1.5 percent through the crisis years, but the gap actually widened to nine times in recent years – 4.4 percent for Asia versus .7 percent for country sample as a whole. Moreover, the measures of variance and standard deviation for the Asian sample also fell between the two periods unlike the experience of the Latin American and sub-Saharan African regions.

Considering the output side of the productivity identity a similar regional “gap” can be found with respect to annual growth rates of output for the two periods (columns 3 and 4). In the Asian economies, median output growth of 6.2 and 5.9 percent annually during the pre- and post-1985 period was significantly higher than median output growth in the other two regions. In fact, the gap with Latin America increased where overall output growth performance has been disappointing during the post-crisis period – the regional median declined significantly from 3.5 pre-adjustment to 2.8 percent per annum during the adjustment phase and thereby fell behind the sample’s median which changed only slightly from 3.63 to 3.85 percent between the two periods. A aggregate output growth has also been unremarkable for the region of sub-Saharan Africa which is still unable to catch up to the sample’s overall performance in recent years.

Striking regional patterns for South and East Asian economies, on the one hand, and Latin America and sub-Saharan Africa, on the other, are also detectable for the aggregate employment growth record during the two periods. While median annual employment growth for the 30 countries fell moderately from 3.2 to 2.9 percent, variance and volatility (measured by the coefficient of variation) increased dramatically after 1985. The results of the frequency distributions for annual rates of employment growth reported in columns 5 and 6 also reflect this trend.

In sub-Saharan Africa volatility in employment growth measured by the coefficient of variation quadrupled and variance increased five times between the early and the later period. This growing trend is also significant but less pronounced in the group of Latin American countries, while for Asia it is declining. Similarly, this tendency in regional employment patterns can be traced by plotting the countries’ annual rates of employment growth. An increase in cross-country variability of employment performance during the adjustment period after 1985 is apparent from graphs 1A and 1B.

The scatter graphs correlate the sample’s employment record with average productivity growth rates for the period. While there is a significant negative trade-off between employment growth and productivity growth during the adjustment period, a relation between the two variables cannot be detected for the pre-crisis years. In Latin America, for instance, falling overall employment rates after 1985 (the regional median drops from 3.3 to 3 percent) marginally offset declining output growth rates and lead to overall stagnation of productivity growth for the region.

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10 When we correlate overall employment growth with total labor productivity growth, the association is only weak for the earlier period; the correlation coefficient’s t-statistic is insignificant at <10% level. For the later period, the relationship between overall employment and productivity growth is strongly negative, the t-statistic of the correlation coefficient (-.47) is significant at the >2.5% level. Further, in a test for structural change between the two periods, the null hypothesis that there is no structural change cannot be rejected at the 5% confidence level.
Figure 1a. Productivity and employment growth before 1985

- Productivity growth (median 1.5%)
- Employment growth (median 3.2%)

Countries and their productivity/employment growth:
- Indonesia: productivity 8%, employment 0%
- Sri Lanka: productivity 7%, employment 2%
- Korea: productivity 6%, employment 4%
- Myanmar: productivity 5%, employment 2%
- Ghana: productivity 4%, employment 0%
- Malaysia: productivity 3%, employment 2%
- Thailand: productivity 2%, employment 0%
- Singapore: productivity 1%, employment -2%
- Jordan: productivity 0%, employment -4%
- Botswana: productivity -1%, employment -6%
- Zambia: productivity -2%, employment -8%
- Zimbabwe: productivity -3%, employment -10%
- Turkey: productivity -4%, employment -12%
- Brazil: productivity -5%, employment -14%
- Panama: productivity -6%, employment -16%
- Costa Rica: productivity -7%, employment -18%
- Malawi: productivity -8%, employment -20%
- Philippines: productivity -9%, employment -22%
- Venezuela: productivity -10%, employment -24%
- Korea: productivity 0%, employment 0%
- Egypt: productivity 1%, employment 1%
- Korea: productivity 2%, employment 2%
- Korea: productivity 3%, employment 3%
- Korea: productivity 4%, employment 4%
- Korea: productivity 5%, employment 5%
- Korea: productivity 6%, employment 6%
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- Korea: productivity 94%, employment 94%
- Korea: productivity 95%, employment 95%
- Korea: productivity 96%, employment 96%
- Korea: productivity 97%, employment 97%
- Korea: productivity 98%, employment 98%
- Korea: productivity 99%, employment 99%
- Korea: productivity 100%, employment 100%
Figure 1b. Productivity and employment growth after 1985

- Productivity growth (median 0.7%)
- Employment growth (median 2.9%)

Countries shown include:
- Brazil
- Jordan
- Panama
- Myanmar
- Peru
- Turkey
- Guatemala
- Venezuela
- Singapore
- Korea
- Thailand
- Indonesia
- Malaysia
- Bolivia
- Mexico
- Zambia
- Zimbabwe
- South Africa
- India
- Chile
- Sri Lanka
- Costa Rica
- Kenya
- Philippines
- Indonesia
- South Africa
- Sri Lanka
- Colombia
- Malawi
- Panama
- Botswana
Contrarily, the regional pattern of the Asian economies again stands apart from the other two regions. Median annual employment growth actually increased during the post-crisis years, however, here it did not have a negative association with aggregate productivity growth because employment in the region grew less rapidly than output. In other words, for the adjustment period after 1985 in almost all Asian economies there appears to be a virtuous circle of high employment growth rates correlated positively with high productivity rates, while high employment growth is found to be associated with poor productivity performance in the non-Asian countries.

**Structural patterns**

The described regional profile of productivity, employment and output growth is not entirely surprising (or new) but it serves to set the stage for investigating the underlying structural dynamics of these country aggregates. In particular, are there different structural dynamics in a vicious circle as opposed to an Asian-type “win-win” situation? An overview of how the regional patterns play themselves out at the sectoral level will be offered next.

Graphs 2A-4B summarize the country data by correlating employment growth with productivity growth for three sectors. In addition to the manufacturing and agricultural sectors, the wholesale and retail, restaurant and hotel service sector will be examined because this sector tends to be representative of low-productivity activities.

An important finding is that only the manufacturing sector reproduces the significant regional patterns that were already established for the country aggregates above. What is surprising, however, is that for the pre-adjustment period there are no regional patterns detectable. Moreover, for both periods there is no simple correlation between employment and productivity growth for the manufacturing sector. Instead most countries are clustered around the country sample’s medians of employment and productivity growth for the pre-crisis years, while the sector’s employment variance increases dramatically across countries during the adjustment phase.

In contrast, the other two sectors considered here – agriculture and wholesale and retail trade – show much more cohesive patterns across countries from the early to the later period. This implies that after the debt crisis the global shift to the application of neo-liberal policy packages interacting with diverse macro conditions seems to have a significantly different impact not only at the inter-country or inter-regional level but also at the sectoral level within countries.

It could be expected that the low-productivity trade services sector is playing the role of employment “buffer” or “sponge.” From graph 3B this is apparently not the case, in general employment growth in this sector seems to be stagnating – at least in absolute growth terms – for the country sample overall (or falling in a number of African economies) with slight improvements in productivity growth as compared to the pre-adjustment period.

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11 The question of whether these outcomes are in any way associated with specific sector proportions particularly relative output shares of the manufacturing sectors will be addressed below.

12 It should be stressed here that the concept of labor productivity in the services sector is much less precise than for example in the manufacturing sector. This is due to problems of both definition and measurement. To address these issues in depth is beyond the scope of this paper. For a summary of the issues, see Petit (1987), and for more detailed discussions, cf. Petit (1986) and Gershuny and Miles (1983) with particular emphasis on questions of employment in services.
Regarding the manufacturing sector during the adjustment phase the Asian NICs can be found in the upper right-hand quadrant of graph 2B with high sectoral employment and productivity growth rates, while the majority of the Latin American countries are located in the lower right-hand quadrant where high manufacturing employment growth is correlated with negative productivity growth. An interesting observation can be made with respect to the manufacturing sectors in three of the Latin American economies of the sample, Bolivia, Brazil, and Mexico which all experienced negative annual employment growth below their national period average that is associated with an annual change in productivity of at least 3 percent on average. These manufacturing sectors diverge from the region’s overall poor economic performance which appears to be a very recent development in Latin America as a result of adjustment policies in the late 1980s: productivity growth is achieved through labor “shedding” of the manufacturing sectors rather than through output growth.

For example, in Brazil trade liberalization was formally introduced in 1990, until then (through 1989) the manufacturing sector was labor absorbing with employment growth rates above the national average at about 4 percent per annum associated with negative annual rates of productivity growth. Similar, but less dramatic, is the case of Mexico where average annual employment growth was positive through 1990 which thereafter turned negative with slight improvements of productivity growth.

In these three economies the manufacturing sectors appear to have given up most recently its role as “shock” absorber of the adjustment phase which it still sustains for most of Latin America (see lower right-hand quadrant of graph 2B) where high average annual employment growth rates are associated with negative productivity growth.

These findings are in line with recent work by Amsden and van der Hoeven (1996) which showed that sharp reductions in manufacturing real wages in Latin America lead to a situation of “sticky” employment associated with either a decrease or stagnation in the growth of labor productivity over the course of the 1980s. That is to say, dramatic wage reductions as a result of structural adjustment programs made the manufacturing sectors less efficient as opposed to more efficient as was predicted.

More recently, in the face of stepped up trade liberalization and a stagnant macro environment of low investment ratios and low overall growth, the manufacturing sector can only resort to ridding itself of labor to improve its international competitiveness. This results in de-industrialization here in terms of industry employment declining absolutely during the adjustment period as for example in the Brazilian and Mexican manufacturing sectors, or in terms of the sector’s absolute employment growing at an appreciably slower rate than the national average for an extended period as in Bolivia and Peru after 1985. Rather than leading to a dynamic expansion of employment opportunities the corresponding improvements in manufacturing productivity growth are associated with overall stagnation. With regard to the social and economic sustainability of this model, therefore, the imminent question is which activities pick up the employment slack in a “lose-lose” policy situation. The significance of the manufacturing sector in determining a virtuous versus a vicious circle of development will be examined in more detail below.

13 Amadeo and Pero (1996) provide a more disaggregated account of the Brazilian manufacturing sector’s experience with trade liberalization which in general supports this finding.

14 Moreover, this trend – in the first instance – coincides with the enhanced crack-down on organized labor in Latin America as an integral component of the neo-liberal policy package.
Figure 2a. Productivity and job growth in manufacturing before 1985

Figure 2b. Productivity and job growth in manufacturing after 1985
Figure 3a. Productivity and job growth in services before 1985

Figure 3b. Productivity and job growth in services after 1985
Figure 4a. Productivity and job growth in agriculture before 1985

Figure 4b. Productivity and job growth in agriculture before 1985
4. De-industrialization in developing countries: A taxonomy

Structural transformations characteristic of the industrialization process have long been identified to be interrelated with long-term economic growth. Similarly, in recent history, has de-industrialization been an integral process in the stylized vicious circle of development of the type experienced by many developing countries outside of East and Southeast Asia?

Surprisingly, there has been no recent attempt (at least to our knowledge) at systematically examining de-industrialization in the broader context of the development process; some references in the literature notwithstanding. As a consequence, the concept of de-industrialization has not been well defined with respect to economic sustainability in developing countries. We turn to this problem next in light of the above described contradictory economic reforms and their impact on the interaction between macroeconomic stability and productive structure.

In terms of national economic arithmetic “industrialization” up to at least the phase of economic “maturity” is accompanied by three main developments: (i) an increase in the share of national income from industry; (ii) an increase in the share of the population employed in the industrial sector; and (iii) a continual rise in labor productivity in the leading industrial sector (and to a lesser extent in the agricultural sector). While these changes in the structural composition are going on, for a successful industrialization process per capita income must be rising.

The reversal of condition (i) or (ii) or both over the long period is commonly defined as “de-industrialization.” However, in the context of a “dynamic” or virtuous circle of economic development the mere absence of any of these three main developments can be characterized as “non-industrialization,” or (if income per capita growth is also stagnant) stagnation. Thus, the proposed taxonomy for de-industrialization will pay particular attention to the contribution of labor productivity in the leading industrial sector (or condition (iii)) to aggregate productivity growth in the economy as a result of changing structures of employment and value added.

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15 Fajnzylber (1990) offers a remarkably comprehensive approach for analyzing the problems of industrial restructuring in Latin America. See also Amadeo (1997) and Dancourt (1997) for empirical assessments of recent developments in the Brazilian and Peruvian industrial sectors. And for an analysis of supply-side problems of African industry see Lall (1992) and Lall and Stewart (1996).

16 In the context of industrial policies in advanced capitalist countries the issues surrounding a proper definition of “de-industrialization” were publicly debated during the late-1970s and early 1980s particularly in the United Kingdom and the United States (for the U.K., see for example Singh, 1987; Rowthorn and Wells, 1987). Essentially, this debate attempted to establish “quantitative” as well as “qualitative” criteria to guide policy-makers in their decisions of when to concern themselves with de-industrialization. The latter criteria dealt with questions of the interaction between an “efficient” industrial sector and the achievement of overall macroeconomic objectives of stability and growth such as full employment at a socially acceptable level and distribution of income, and external balance. Indeed, a lot of the de-industrialization arguments relating to “qualitative” aspects of economic sustainability are – with some modifications – applicable to the general context of developing countries.

17 The concept of “maturity” of an economy is not very well defined; in fact, it is generally used tautologically for the post-industrial phase of advanced countries or the so-called “service economy.” It generally is identified with the “natural” outcome of the long-run process of economic development when the shares of output and employment in the service sector rise at the expense of the industrial sector or more specifically the manufacturing sector.

18 See note 16.
Why are we so concerned with the phenomenon of de-industrialization or “non-
industrialization” in recent development history? There is already much empirical literature
that indicates a close relationship between long-run economic growth and industrialization.19
This is supported by a systematic body of economic thought which not only explains why
manufacturing industry should expand faster than the economy as a whole during the course
of economic development but would also assign strategic causal significance to industry in
raising the overall rate of growth of productivity (Singh, 1987).20

To the extent that industry or manufacturing is regarded as the “leading” sector or a so-
called “engine of economic growth” (Kaldor, 1966; Cripps and Tarling, 1973) a fall in the
absolute or relative share of industry in either output or employment may be cause for concern
in so far as such reduction in the size may be expected to lower the economy’s future growth
potential. The statistical relationship between the rate of growth of average manufacturing
productivity and that of output – also known as the Kaldor-Verdoorn Law – has been
considered as evidence of substantial economies of scale in industry.21

Conceptually, we are interested in those issues resulting from de-industrialization that
are fundamental to the sort of negative feedback effects described above in terms of a stylized
vicious circle experienced in most non-Asian economies since the debt crisis.22 These areas of
concern are mainly associated with the domestic structure of employment creation and
productivity growth for which empirical results from the decomposition exercise will be
presented.23

20 The long tradition of empirical investigations of the relationship originates with the famous Verdoorn (1949) article. From
analyzing historical data series for various countries, Verdoorn suggested the existence of a fairly constant relation over a long
period between the growth of labor productivity and the volume of industrial production. There has been a great deal of
literature on the subject since, most notably, the renowned inaugural lecture by Kaldor (1966, 1978) who was also the first to
discuss the broader implications of the law for economic growth. For a review, see McCombie (1987).

Although the so-called Verdoorn Law was originally discussed in terms of the differences in productivity growth of
the advanced countries, the fundamental relationship that it postulates is now recognized as having a wider significance for
the more general process of economic growth and development. The quantitative analysis of structural change in general and
its relation to economic growth was, of course, most comprehensively investigated by Kuznets (1966; 1971). See also Chenery
et al. (1986) and Syrquin (1994).21

21 The importance of the Verdoorn Law is that it became the basis for Kaldorian-type cumulative causation models of
economic growth in which productivity growth is endogenously determined by the rate of expansion of output through a process
of “learning by doing.” Bairam (1987) provides a review of the literature, and for a structuralist critique of “Kaldor’s Growth

22 In addition to these there are other crucial feedback effects between a weak industrial sector and poor macro performance
that will not be pursued here, like e.g. the question of structural transformation and changing income distribution.

23 In the face of stepped up trade liberalization reforms there is a fourth area that is concerned with the problem of de-
industrialization in an open (versus a more closed) economy. It was originally identified by Singh (1977) in his seminal paper
on the post-war UK industry in which he argued that in an open economy, the question whether de-industrialization can be
regarded as a manifestation of structural disequilibrium, cannot be properly considered in terms of the characteristics of the
domestic economy alone. He then defined an “efficient” industrial sector as the following: one which is able to satisfy the full
employment level of domestic demand (either through internal and/or foreign markets), as well as finance any expansion
induced deterioration in the non-manufacturing balance of trade. For the case of a structural disequilibrium manifesting itself
through de-industrialization, according to the theory of cumulative and circular causation Singh argued that such an economy,
if it continues to participate in international economic relations on the same terms as before, will suffer a continual contraction
(and hence a reduction in its manufacturing sector). “Once the economy is in long-run disequilibrium, for whatever reason,
continued participation in international economic relations on the same terms as before may produce a vicious circle of
circulation. As a consequence, a country in a weak competitive position may have balance-of-payments difficulties, which lead
the government to have a lower level of demand, which leads to lower investment and hence lower growth of productivity and
continuing balance-of-payments difficulties. There may be no automatic market mechanism to correct the disequilibrium.”

On the basis of this definition, Rowthorn and Wells (1987) developed “true” indicators for de-industrialization in
Britain associated with her manufacturing sector’s weak performance: a persistently low rate of growth of UK per capita
A decomposition exercise

The following decomposes the productivity identity $q = X/L$ into its structural components of output and employment where $q$ is labor productivity, $X$ is total output and $L$ is total employment, i.e. here $X/L$ is output per worker or per employee. And let sectoral productivities be $q_i = x_i/l_i$, where $x_i$ and $l_i$ are sectoral value added and employment, respectively. Then $q$ is equal to the sum of sectoral output-labor ratios:

$$q = (X/L) = \sum i \frac{x_i}{l_i}$$

(1)

Taking first-order differences with respect to time ($t=0$), we get

$$\frac{q_{t+1} - q_{t}}{q_{t}} = \sum i \left[ g_i \frac{q_{t+1}}{q_{t}} - \frac{q_{t+1}}{q_{t}} \lambda_{t_0} \right]$$

(1')

where $g_i$ and $n_i$ are sectoral growth rates of value added and employment:

$$g_i = \frac{x_{i,t+1} - x_{i,t}}{x_{i,t}} \text{ and } n_i = \frac{l_{i,t+1} - l_{i,t}}{l_{i,t}}$$

and $X$ and $L$ are the output and employment shares of sector $i$, respectively:

$$\theta_{i,t} = \frac{x_{i,t}}{X_t} \text{ and } \lambda_{i,t} = \frac{l_{i,t}}{L_t} .$$

In words, total labor productivity growth is equal to the sum of the differences between the sectoral value added growth rate in sector $i$ weighted by the sector’s output share in period $(t-1)$ and the sectoral employment growth rate weighted by the sector’s labor share from the previous period. Note that the right hand side of the equation shows an “interaction” term $(q_1/q_0)$ due to first-order differencing at discrete time steps.

Equation (1') provides a decomposition of the change in total productivity into shifts of the sectoral output composition and changes in sectoral employment creation. Through “re-writing” of the terms on the right hand side of the equation, some crucial aspects from the

income relative to that of other advanced countries; Britain’s growing inability to combine full employment with external balance, and the persistent rise in UK unemployment.

These indicators of stagnating material standards of living, a persistent balance-of-payments constraint and severe problems of underemployment are relevant in the developing world in recent history. A systematic empirical investigation of this hypothesis is outside the scope of this paper, but some of the evidence presented in this and the following sections will have some bearing on it.
accounting of the dynamics between changes in overall productivity and changing structures of output and employment in the economy reveal themselves:24

\[
\xi = \sum \left[ q_0 \left( g_i - n_i \right) + \left( q_0 - \frac{q_1}{q_0} \right) \lambda_0 n_i \right], \quad \text{where} \quad \xi = \frac{q_1 - q_0}{q_0}
\]  

Essentially, equation (2) shows how changes in overall productivity can be expressed as a weighted average of sectoral productivity shifts (plus an “interaction” term) as a result of weighted “reallocations” of employment (or output in equation (3) below) across sectors. The “reallocation” weight \( [2_{-i} - (q_i/q_0) \theta_i] \), i.e. the difference between the output and labor share of sector i, reflects differences in productivity levels across sectors in the economy. This “artifact” of the accounting allows us to stress the importance of the role of “leading” vs. “lagging” sectors for overall productivity growth in the economy.

In terms of our accounting, a leading sector – like manufacturing or possibly certain industry services, e.g. the financial sector – then is defined by a relatively high value of its reallocation weight due to a relatively small labor share (as compared to a lagging sector like agriculture for example). This, of course, is just another way of re-stating the commonly used definition of a leading sector as a high-productivity sector in terms of our accounting framework.

Equation (2) shows the effect of sectoral employment reallocation on overall productivity change represented by the second term on the right hand side. The reallocation of employment from a sector with a low output/labor ratio to a high-productivity sector ratio will have a positive effect on overall productivity. Moreover, due to its relatively high reallocation weight, changes in employment (or output from equation (3) below) of a leading sector are expected to show a close relation with changes in overall productivity, irrespective of its relative size (measured in terms of its output or labor share) in the economy.

In a way, this accounting framework formalizes the stylized facts of resource reallocation known from the study of structural change and economic growth. For instance, during the three decades of the Golden Age, average growth of GDP in almost all regions of the world was significantly higher than in any period of the recent history that this study is concerned with. This observation was even true for most of the very low-income economies in sub-Saharan Africa. During this historical phase many countries and regions experienced an acceleration of growth similar to the one identified by Kuznets (1966) in the early experience of today’s advanced countries. Growth acceleration then and during the three decades after World War II was accompanied by, and was in part the result of, the rapid expansion of industry and the reallocation of particularly labor from low-productivity to high-productivity activities (Syrquin, 1988, 1994a).

A negative impact from the “leading” sector(s) on overall productivity growth can come from the output side when sectoral output growth is negative or lags behind employment growth, i.e. productivity growth in the leading sector stagnates. Then a negative (or small) value resulting from \( (g_i - n_i) \) of the first term on the right hand side is further reinforced by its high output share.

24 I am grateful to Lance Taylor for pointing this out to me.
Over long periods of time, of course, if sectoral output growth persistently lags behind employment growth, ceteris paribus the sector’s output share would fall while its employment share would rise and the sector would lose its leading role for overall productivity growth in the economy.

$$\xi = \sum \left[ z_i \left( q_i - \frac{q_i - A_i}{q_0} \right) + \frac{q_i - A_i}{q_0} \left( z_i - n_i \right) \right]$$  \hspace{1cm} (3)

Equation (3) considers the impact on overall productivity growth by reallocating sectoral output across the economy – as opposed to employment in equation (2). High output growth rates in e.g. manufacturing are amplified by the high value of its reallocation weight (inside the brackets of the first term on the right hand side); and vice versa for low-productivity activities, generally in the service or agricultural sectors.

On the other hand, this negative effect of output growth in a sector with a relatively low-productivity level can be offset, if the sector has high productivity growth rates (or output growth minus employment growth rates \((g_i - n_i)\)) represented by the second term on the right hand side of equation (3). This is generally the case for the agricultural sector of many Asian economies which retains a relatively high labor share \(8_i\) but is very dynamic in terms of its productivity growth rate. In contrast, this cannot be said for the rapidly expanding service sectors in Latin American economies, for which the \(8_i\)'s are growing but sectoral productivities are stagnant.

**Output de-industrialization**

Applying these formal findings to the numerical results, we are first concerned with the problem whether “Kaldor effects” have been responsible for the significant regional and structural patterns of productivity growth identified in section 3. In other words, are these outcomes associated with specific sector proportions of output growth; particularly are there substantial differences in the relative output contribution of the industrial sectors to overall output growth in these economies?

For the thirty countries in the sample and comparing the two periods before and after 1985, graphs 5A and 5B show the results from decomposing the total change in output into weighted relative contributions of four main sectors – agriculture, industry, industry services and “other” services. In other words, the sum of the changes in these four sectors’ value added adds up to the total change in gross domestic product (GDP) of the economy as a whole.

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25 A complete set of the numerical results from the decomposition exercises for this and the following sections can be obtained from the author upon request.

26 According to the one-digit ISIC codes, the group of other services is comprised of wholesale and retail trade, hotel and restaurant services plus social and personal services; hereafter referred to as “services.” Industry services include the following sectors: public utilities, transport, storage and communication, and finance, insurance and real estate and business services. Industry is made up by mining and quarrying, manufacturing, and construction.

27 From the National Income and Product Accounts (NIPA), we obtained GDP at factor prices (minus “Producers of Government Services”).
Further, in order to compare between the two periods, each sector’s contribution to the change in total GDP was “scaled” by dividing its weighted rate of change for the period by the sum of the absolute values of these changes across all four sectors of the economy. Thus, the percent contributions of the four sectors together sum up to the total (“net”) change in output with positive and negative contributions offsetting one another. If for a country a sector’s “spike” is to the left of 0 percent of the graph, then it means that this sector’s (weighted) contribution to total output growth was negative.

For the period through the onset of the debt crisis, industry’s contribution to output growth was actually negative for a number of non-Asian countries (cf. graph 5A). None of the other three sectors show a similar pattern of a substantial negative contribution to aggregate output growth for the same period. De-industrialization in terms of industrial value added thus is found for Ghana, Sierra Leone and Zambia in sub-Saharan Africa, and for Bolivia, Peru and Venezuela in Latin America (the Philippines is not a very surprising exception in the group of Asian countries). In Ghana, Bolivia and Peru, de-industrialization actually resulted in negative annual rates of growth for the economy as a whole before 1985, i.e. the other three sectors’ contributions to total output growth could not offset the losses incurred by industry.

Even though industry’s dramatic negative contribution to total output growth could be halted in some countries, this type of “output” de-industrialization continues to be widespread in the groups of sub-Saharan African and Latin American countries during the adjustment period (cf. graph 5B). For the cases of Zambia and Peru, we still find negative industrial output growth, and de-industrialization newly occurs in South Africa, Jordan and most substantially in Brazil. In fact, the Brazilian industrial output loss is just offset by the contribution of the service sector. This has resulted in no growth for the economy as a whole in the recent period, when industry was simultaneously faced with an overvalued currency – as a consequence of exchange-rate-based stabilization policies – and increased exposure to world markets caused by the introduction of liberal structural reforms (Amadeo, 1996).

The contribution of industry to total output growth also declines in a number of non-Asian countries as for example in Botswana, Kenya and Mexico. In contrast, a continuously rising (or constant) contribution of industrial value added to aggregate growth (or “industrialization”), persists in all of the Asian countries in the sample through the recent years. Moreover, the most striking finding from the comparison between the later adjustment period and the earlier period is, while the (weighted) annual rate of output growth of the Asian service sector also increases as in many non-Asian economies, both the level and the trend of its relative contribution to the aggregate change in output are substantially lower. In fact, for those countries where industrialization (measured by industry’s contribution to total output growth) accelerates – e.g. in Thailand, and (possibly) in the Philippines – despite its expansion the service sector’s relative position is declining due to a rapidly growing industrial sector.

However, an increase in the relative importance of services in the other two regions may have negative implications for overall productivity performance in the context of a vicious circle of economic development, because service activities tend to have lower average rates of productivity growth. The relative sectoral contribution to aggregate productivity growth will be examined next which is followed by an investigation of associated structural dynamics of employment creation.
Figure 5a: Sectoral contribution to total output growth (period before 1985)
Figure 5b: Sectoral contribution to total output growth (period after 1985)
**Productivity de-industrialization**

The empirical results from the exercise of decomposing the change in aggregate productivity into its sectoral components are summarized in graphs 6A and 6B. Not surprisingly, the service sector’s relative contribution to aggregate productivity growth tends to be negative for the country sample overall. However, there are substantial differences between the Asian service sector on the one hand, and the sub-Saharan African and Latin American on the other. First, the magnitude of the negative contribution of services to overall productivity growth in Asian economies is appreciably lower than it tends to be in countries in the other two regions, and in particular in Latin America. Second, the negative impact diminishes in all Asian countries, and five out of nine economies actually show a positive (weighted) contribution of the service sector to overall productivity growth during the most recent period.

This compares to the Latin American region which finds itself at the other extreme with ten out of eleven countries showing a negative contribution of services to overall productivity growth before 1985, and eight out of eleven thereafter. Not only is the magnitude of this (negative) impact much more dramatic than in Asia, but the trend actually worsens during the adjustment phase like for example in Mexico. Mexican services had a marginally positive weighted annual rate of productivity growth before 1985 which then turned negative despite a dramatic decline in the corresponding rate of employment creation of the sector. Thus, while the weighted annual growth of service employment fell by almost two thirds from 1.8 to .6 percent after the 1980s crisis, annual output growth of the sector dropped even faster from 2 to a mere .4 percent. This trend is most probably a consequence of fiscal austerity measures including cutbacks of social services introduced by the Mexican government during the post-crisis years.

A negative contribution of services does not necessarily result in negative productivity growth for the economy as a whole, however. It is only in combination with a negative (or declining) contribution of industry that it leads to a negative productivity performance for a country as a whole. Thus in terms of a taxonomy, de-industrialization regarding industry’s contribution to overall labor productivity growth cannot be found in Asian countries, neither before nor after 1985 (with the exception of the Philippines). Indeed, the industrial sector’s impact on positive change in productivity in the economy as a whole is increasing during the later period.

In contrast, this type of “productivity” de-industrialization is widespread in all the other regions where it is always associated with negative changes in overall productivity. During the adjustment years, however, it has become a pattern that is dominated by Latin American countries such as Colombia, Costa Rica, Guatemala, Panama, Peru and in addition Turkey whose economy is commonly classified as “Latin-style” (cf. graphs 6A and 6B).

In sub-Saharan Africa further productivity losses of the early period could only be prevented on the basis of substantial labor shedding in the industrial sector which will be discussed in more detail below. At this point it should be pointed out that the resulting marginal improvements in the rate of industrial productivity growth are more than offset by either a significant negative contribution of services (Botswana, Kenya and South Africa) or of agriculture (Malawi and Zimbabwe) resulting in declining rates of overall productivity growth in the region.
On the other hand, Chile, that is arguably characterized as a case of post-crisis success owing to neo-liberal reforms, for example shows a dramatic decline in the (weighted) average rate of industrial productivity as a result of the sector absorbing more labor than is validated by the expansion of value added. Indeed, a positive annual rate of productivity growth for the economy as a whole is mainly accounted for by a combination of rapid growth of industry services of finance, insurance, real estate and business services (FIRE) and construction. Whether this is a sustainable situation or whether it is only a temporary boom of the non-tradables goods sectors which may be an indication of an overvalued exchange rate remains to be seen. There are recent signs for optimism, however, because evidence suggests that active exchange rate policies could prevent the Chilean currency from appreciating by allowing for sensible levels of inflation (Dornbusch, Goldfajn and Valdes, 1995).

The case of Mexico exemplifies a general pattern of “productivity” de-industrialization in Latin America after 1985 (and to some extent for sub-Saharan Africa during the early period). Mexico’s weighted annual rate of industrial productivity growth fell substantially from 1 to .2 percent for the period of stepped-up reforms of trade liberalization which finally culminated in the ratification of the North American Free Trade Agreement (NAFTA) in 1992. The decline in industrial productivity growth results from Mexican industrial output growing annually at less than half the rate than before the early 1980s crisis, while the weighted annual rate of growth of industrial jobs remained constant during the adjustment phase.

What appears to explain productivity-type de-industrialization in Mexico and other countries in the region is an employment absorbing industrial sector that is not “validated” by an expansion of industrial value added leading to negative rates of productivity growth not only for this sector, but this situation also feeds negatively into the productivity performance of the economy as a whole.

Moreover, there are signs that when such a “model” is subject to increased trade liberalization reforms in a stabilization policy regime of austerity, productivity growth can only be restored through a reduction in industrial employment. In other words, the interaction of a “poor” productive structure with the macroeconomic environment of stability results in a vicious circle of stagnation of the type stylized in figure 1 above. The numerical results from the decomposition exercise provide evidence that “labor shedding” of this type in the industrial sector is occurring in Bolivia, Brazil, Peru and also South Africa and most recently in Mexican manufacturing when industry is further disaggregated.28

Employment de-industrialization

Lastly in terms of a taxonomy therefore the question of whether there has been de-industrialization regarding industry’s contribution to total employment creation will be examined next. For Latin America the most striking finding is that the service sector loses its predominant role of “employment absorber” and was replaced by industry during the adjustment phase after 1985 with negative consequences for overall productivity growth as discussed above (cf. graphs 7A and 7B). In general, a labor absorbing industry sector is associated with employment creation for the country as a whole, while contracting industrial employment tends to lead to aggregate job loss in the economy (compare also the de-industrializing countries in sub-Saharan Africa below).

28 Cf. Amadeo and Pero (1996) and Dancourt (1997) for supporting evidence on the Brazilian and Peruvian cases, respectively.
Figure 6a: Sectoral contribution to labour productivity change (period before 1985)

The diagram illustrates the sectoral contribution to labour productivity change for various countries during the period before 1985. The x-axis represents the average change in percent, ranging from -80.00% to 80.00%. The y-axis lists countries including Botswana, Ghana, Kenya, Malawi, Sierra Leone, South Africa, Zambia, Zimbabwe, Jordan, Turkey, Bolivia, Brazil, Chile, Colombia, Costa Rica, Guatemala, Mexico, Panama, Peru, Puerto Rico, Venezuela, India, Indonesia, Korea, Malaysia, Myanmar, Philippines, Singapore, Sri Lanka, Thailand, Venezuela, and Zimbabwe.

The sectors are color-coded: blue for agriculture, purple for industry, yellow for industry services, and green for other services. Each country's contribution is indicated by the length of the bars corresponding to each sector.

The data shows varying contributions across different sectors and countries, with some countries having significant contributions in one or more sectors compared to others.
Figure 6b: Sectoral contribution to labour productivity change (period after 1985)
Figure 7a: Sectoral contribution to total employment creation (period before 1985)

Average change in percent

- Agriculture
- Industry
- Industry services
- Other services

Countries: Botswana, Ghana, Kenya, Malawi, Sierra Leone, South Africa, Zambia, Zimbabwe, Jordan, Turkey, Bolivia, Brazil, Chile, Colombia, Costa Rica, Guatemala, Mexico, Panama, Peru, Puerto Rico, Venezuela, India, Indonesia, Korea, Malaysia, Myanmar, Philippines, Singapore, Sri Lanka, Thailand.
Figure 7b: Sectoral contribution to total employment creation (period after 1985)
For the early period Bolivia and Peru are the exceptions to this Latin American sectoral pattern and the Bolivian annual rate of industrial employment growth continues to be negative during the recent years when it is joined by Brazil.

Before and during the global recession of the 1980s, “employment” de-industrialization has predominantly been a severe problem in sub-Saharan African economies such as Ghana, Zambia and Zimbabwe and more recently also in South Africa as mentioned above. Botswana represents a remarkable, though perhaps not surprising, exception to this general pattern in the region. Its (weighted) growth rate of industrial employment more than doubled from 1.6 to 3.6 percent per annum, but this came at the cost of a severe decline in the annual rate of industrial productivity growth of .5 percent, down from 7.3 percent.

In contrast, there is no de-industrialization of this type in Asia (with the exception of a brief episode in Sri Lanka). In fact, for the fast growing countries like Malaysia and Thailand the contribution of industrial employment growth to total employment creation expands relative to the other sectors most recently.

But more importantly, in addition to industry the Asian agricultural sector has been a major source of productivity growth as a consequence of labor moving to the urban centers especially during the early period. For example, in Indonesia, Korea, Malaysia and Sri Lanka agricultural output growth fell behind relative to all the other sectors, but particularly with respect to a rapidly expanding industrial sector, while the weighted rate of agricultural employment growth dropped even faster leading to substantial productivity growth in the sector (cf. graphs 6A and 6B).

This pattern of structural transformation from a rural to a modern economy as identified by Kuznets (1971) cannot be found outside of the group of Asian countries. The case of Korea replicates the stylized pattern of structural change most strikingly. Before 1985, the weighted rate of agricultural productivity growth was 1.7 percent or 25 percent per annum of the total positive change in aggregate productivity. The sector’s weighted employment rate fell annually at -1.2 percent and continues to decline at - .7 percent during the recent period. In contrast, this compares to a persistently widening productivity gap in Mexican agriculture which is still absorbing labor.29

At the same time, industrial value added in Korea accounted for more than half of total output growth compared to only a third in the Mexican case. Rapidly expanding industrial output in Korea, however, allowed the sector’s productivity growth rates to remain high, even though it has become the main source of employment growth creating jobs as fast as the service sector. Korea has stayed on this trajectory during the adjustment phase after 1985. Agriculture is still “shedding” labor and thereby contributes positively to total productivity growth though as expected at a slowing rate during the recent period. Simultaneously, industry expands its role as leading sector for productivity growth while jobs are also increasingly being created in industry services and other services. For Mexico, and in general the group of non-Asian countries in the sample, this type of rapid structural transformation or virtuous circle was not found.

In concluding this section, the developed taxonomy for de-industrialization established clearly a leading role for industry in determining the level and trend of aggregate outcomes for productivity and employment growth. A negative (weighted) annual rate of productivity growth in the industry sector is strongly associated with negative productivity growth for the

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29 The problem of a persistent productivity gap in agriculture in Mexico was recently also pointed out by Ros (1997).
economy as a whole. Moreover, for this association to occur the size of the industry sector (measured in terms of its labor or output share) does not appear to matter because it holds for Malawi as much as for Turkey which has a more advanced industrial base.  

Second, the evidence shows that the different sectors in the economy adjusted differently to the changing economic environment of macro stabilization policies and neoliberal structural reforms and in particular trade liberalization. As was expected (and intended by the reform packages), a sector with a high share of tradable products in its output basket, like the industrial sector, finds itself subject to growing international competition. But it appears that currency overvaluation, i.e. a relative price shift in favor of the non-tradables sectors that results from the interaction between exchange-rate-based stabilization policies and increasing openness (as described in section 2) may force the industrial sector to contract. Industrial output contraction is inevitably followed by employment contraction due to an “overexposure” of the sector to international markets. In terms of the accounting framework, the contraction of leading sectors, however, has negative effects for the rate of growth of productivity in the economy as a whole, and therefore for its medium to long-term growth prospects. Prolonged phases of de-industrialization may then become an integral part of a vicious circle of development.

5. Adjustment and socially necessary rate of employment creation

Is there a necessity for continued industrialization in the developing world? It has been argued that economic growth should not be an essential objective for developing countries because it does not necessarily enable a nation to achieve economic development. That is certainly true, but it would be a mistake to assume that economic development can be achieved without economic growth. Moreover, the most compelling economic and social reason for the developing world to continue to industrialize is the enormous problem of global unemployment.

Developing countries today face the challenge of dramatic demographic transitions, in particular working-age cohorts are currently entering local labor markets. The unemployment or better “underemployment” has already been very severe for many countries, but there is also the necessity of providing productive jobs for a labor force that is estimated to grow at approximately 3 percent a year. In Africa, the rate of labor force growth is even expected to increase in the foreseeable future to 3.5 percent a year (UN, World Social Report 1993 cited...
Van der Hoeven and Rodgers (1995) offer a second explanation for the failure of the "basic needs approach:" "those promoting basic needs policies incorrectly assumed the presence of a benevolent and efficient state, an assumption which this approach had in common with most other development strategies."

Singh and Zammit (1995b) develop this idea on the basis of past relationships between output, employment and productivity growth. According to their calculations countries need to grow at a rate of 6 percent per year to meet the employment needs of new entrants to the labor force at 3 percent productivity growth and current levels of income. Ros (1997) applies a concept of a "socially necessary growth rate" for the case of Mexico.

As a result of the debt crisis, however, these ideas dropped from the development agenda because the basic needs approach paid little attention to national and international macroeconomics particularly structural adjustment policies which then took predominance over poverty alleviation (van der Hoeven and Rodgers, 1995).32 The previous (and following) investigations have attempted to remedy (at least in part) this shortcoming by associating economic policy regimes with structural performance.

High road versus low road development

Table 2A explores the idea of a "socially necessary rate of growth of employment" for the period of the stagnationary regime coupled with liberalization policies beginning in the mid-1980s.33 The matrix associates countries' employment performance (compared to the socially necessary employment growth of 3 percent per annum) with the long-term trend rate of productivity growth in the period 1950-80 or a "Golden Age" rate which has also been about 3 percent a year (Singh and Zammit, 1995b).

A significant pattern of regional differences emerges from this exercise. Out of eight sub-Saharan economies five (Kenya, Sierra Leone, South Africa, Zambia and Zimbabwe) fall into the low road category defined as growth rates below the socially necessary 3 percent for both employment and productivity. It is the low road because this model's social and economic sustainability is highly questionable.

At the other extreme five (Indonesia, Korea, Malaysia, Singapore and Thailand) out of nine Asian economies have taken the high road with both employment and productivity growth rates greater than the socially necessary rate. These Asian NICs have been able to sustain high output growth rates through the 1980s, especially in the manufacturing sector. India is a special Asian case with high productivity growth but below benchmark rates of job growth. If the high output growth of the period, however, can be sustained in spite of recent liberalization efforts, India might be able to join the other Asian economies on the high road.

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33 Singh and Zammit (1995b) develop this idea on the basis of past relationships between output, employment and productivity growth. According to their calculations countries need to grow at a rate of 6 percent per year to meet the employment needs of new entrants to the labor force at 3 percent productivity growth and current levels of income. Ros (1997) applies a concept of a “socially necessary growth rate” for the case of Mexico.
The last category is that of above 3 percent job creation “paid” for with productivity growth that is below the Golden Age rate of 3 percent per year. This is essentially the model of Turkey and Latin America (eight out of twelve countries: Chile, Colombia, Costa Rica, Guatemala, Panama, Paraguay, Puerto Rico and Venezuela) with socially sustainable employment growth rates but economically unsustainable productivity gaps. The question of what road they will end up taking is very imminent because the remaining four Latin countries from the sample (Bolivia, Brazil, Mexico and Peru) are grouped with the low road economies. These findings suggest that in addition to the African countries a “new” group of low road countries is forming in Latin America. Again, Chile is an interesting case in point which is widely quoted as a success story of the neo-liberal policy regime, as it turns out, in the face of “productivity” de-industrialization, substantial productivity improvements of 3 percent or more - especially in the manufacturing sector where the rate of productivity growth is actually negative - remain to be seen after about 15 years of economic liberalization.

To pursue this exercise further these regional patterns from the period after 1985 are compared to the period of pre-crisis and crisis years in table 2B. The striking finding is that unlike the adjustment phase no straightforward regional patterns can be detected except for the group of sub-Saharan African economies. At the aggregate level there appears to be no dynamic with respect to productivity growth or employment creation in these economies even during the pre-crisis years. The sub-Saharan continent had already begun its low road trajectory before the structural adjustment phase, so that the “lost decade” of the eighties has its precedents in the 1970s.

Second, from the other non-African low road countries only India could turn its low employment growth from before 1985 into dramatic productivity growth in the post-crisis years by continuing with import substitution industrialization policies through the late 1980s. On the other hand, three of the five low road Latin American countries could not restore productivity growth rates during the adjustment phase for which they, however, show a socially sustainable employment record.

Third, a new development appears to emerge for the two big Latin American economies for which most recent employment data through the mid-1990s is available. While Brazil and Mexico were able to sustain high employment growth through the late 1980s they can no longer afford to do so in a trade-liberalized policy regime with heightened international competition. So far, however, their economic structures preclude employment losses to be turned into productivity gains.

Finally, only two countries from the sample of developing countries could be found on the high road prior to adjustment - Singapore and Jordan (which fell behind in the second period due to the drying up of foreign exchange). However, for countries that succeeded in moving onto the high road trajectory it did not make a difference if they previously had low employment with high productivity or high employment with low productivity. But more importantly, only Asian countries are on a socially and economically sustainable trajectory in the recent period. Indonesia, Korea, Malaysia and Thailand are cases that not only have in common non-liberal policy regimes as has been pointed out convincingly in the literature but also a shared pattern of structural economic dynamics.

34 Note that no country in the sample succeeded in moving directly from the low road to the high road trajectory during the adjustment phase which the Bretton Woods type structural reforms would have predicted. The reallocation of factors of production in particular of labor as a response to free-market incentives is expected to result in efficiency gains at full employment.
Table 2A: Employment and productivity growth after 1985: regional patterns

<table>
<thead>
<tr>
<th>“socially unsustainable”</th>
<th>low road countries</th>
<th>“socially sustainable”</th>
<th>high road countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>employment growth &lt; 3%</td>
<td>Kenya, Sierra Leone, South Africa, Zambia, Zimbabwe, Bolivia, Brazil, Mexico, Peru, Myanmar, Philippines</td>
<td>India, Ghana*</td>
<td>Chile, Colombia, Costa Rica, Guatemala, Panama, Paraguay, Puerto Rico, Venezuela, Jordan, Turkey, Botswana, Malawi, Sri Lanka</td>
</tr>
</tbody>
</table>

Notes: * Output data for Ghana is only available for 1985-86.
** Employment growth rate for Singapore is 2.62 percent.

Source: Author’s calculations.
Table 2B: Employment and productivity growth before 1985

<table>
<thead>
<tr>
<th>“socially unsustainable” employment growth &lt; 3%</th>
<th>“economically unsustainable” productivity growth &lt; 3%</th>
<th>“economically sustainable” productivity growth ≥ 3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>low road countries</td>
<td></td>
<td>high road countries</td>
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<tr>
<td>Kenya</td>
<td></td>
<td>Brazil</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td></td>
<td>Colombia</td>
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<tr>
<td>South Africa</td>
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<td>Costa Rica</td>
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<td>Zambia</td>
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<td>Zimbabwe</td>
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<td>Bolivia</td>
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<td>Chile</td>
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<tr>
<td>Guatemala</td>
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<td>Peru</td>
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<td>Botswana</td>
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<tr>
<td>Puerto Rico</td>
<td></td>
<td>Ghana</td>
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<tr>
<td>India</td>
<td></td>
<td>Malawi</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>“socially sustainable” employment growth ≥ 3%</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td></td>
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<td>Korea</td>
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<td>Myanmar</td>
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<tr>
<td>Sri Lanka</td>
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</table>

Source: Author’s calculations.
6. Conclusions and policy recommendations

This paper provides a framework for the analysis of the interdependence between productive structure and macroeconomic stability in developing countries. Many developing countries outside of Asia are still faced with strong contradictions between on the one side their “poor” economic structures interacting with “low” macro stability - conditions resulting from the debt crisis - and, on the other, neo-liberal structural reforms that have recently been introduced. These interactions have taken many economies down the path of a vicious circle or “lose-lose” situation that is difficult to escape, despite the macro stability attained globally. The present challenge for economic policy is to introduce reform and growth policies without jeopardizing these global achievements.

For an empirical examination of the interactions between economic structure and macro environment, an accounting framework was applied to relate changes in sectoral employment and output compositions to changes in overall productivity growth for thirty developing countries. Changes in total labor productivity were decomposed into changes in output and employment for a pre- and post-adjustment phase. The numerical results were interpreted using a taxonomy describing industrialization and de-industrialization.

The results from the decomposition exercise suggest that, in particular, industrial performance correlates with the overall performance of an economy, and therefore is the key sector in explaining the different regional patterns of overall productivity and employment growth in sub-Saharan Africa, Latin America and South and East Asia. That is, a negative annual rate of productivity growth in the industrial sector is strongly associated with negative productivity growth for the economy as a whole, and vice versa.

Moreover, rapid industrial growth may bring a virtuous circle of development, in which overall productivity growth is positively related with employment generation. Stagnation of industry, on the other hand, may bring a vicious circle, in which productivity growth trades off with employment growth.

The high, positive correlation between growth of productivity in industry and overall productivity growth was found to be independent of size (measured in terms of employment and value added shares). This finding warrants closer examination. If the relative size of the industry sector does not matter for the generation of a virtuous circle, then it is relevant for all countries, irrespective of the level of industrialization. In this case, the targeting of a few key industries is perhaps a viable national strategy, along the lines of the development model of the European Nordic countries like Denmark and Sweden. On the basis of a few leading industries, these economies created advanced economic structures and were able to develop into egalitarian societies.

Finally, overall productivity growth was associated with employment growth according to the concept of the socially necessary growth rate for the period of the post-crisis regime of global stagnation and neo-liberalism. It turns out that strong regional patterns emerge from this exercise: only Asian economies find themselves on a high road trajectory with socially and economically sustainable employment growth rates. On the other hand, most Latin American countries were able to sustain high rates of job creation, but they are currently faced with the problem of stagnating (or negative) productivity growth. Moreover, there is some indication
that overexposing these economies to international trade in the face of exchange-rate-based stabilization policies may have taken them down the path of a vicious circle of development with unsustainable rates of employment and productivity growth thus joining the low road countries of sub-Saharan Africa.

Against the background of this paper’s findings, trade (and financial) liberalization reforms as the dominant development model should be de-emphasized. This is not equivalent to a call for less trade, it is rather a call for truly using structural reforms to achieve equitable international development.
Appendix: Data sources

Sectoral data for real value added

The country data for value added used in the paper is from an annual series “Gross Domestic Product by Kind of Activity (at constant prices)” of the National Accounts Statistics which was provided by the United Nations Statistical Office, New York. The data is broken out at the one-digit level of the International Standard Industry Classification (ISIC) codes, i.e. it covers nine main “activities” or “sectors.” The sum total of these nine sectors’ real value added (excluding “producers of government services”) gives the gross domestic product (GDP) at factor prices. For most countries, the series covers the period from the mid-1970s through 1993.

For Brazil, sectoral and total output data series were computed from “Country Pages, GDP at factor cost”, World Tables, World Bank. Their level of disaggregation includes only three main sectors – agriculture, industry and services.

Sectoral data for employment

The country data for sectoral employment from the International Labour Statistics Yearbook was provided by the International Labour Office, Geneva. It is an annual series that covers (at maximum) the period between 1975 and 1993. Just like the data from the National Accounts Statistics, the series is disaggregated at the one-digit level of ISIC.

Because its country coverage is smaller than the output series used in the paper, additional sectoral employment data was obtained from national sources for Brazil (for 1990-1995: Relação Anual de Informações Sociais (RAIS), Departamento Intersindical de Estatística e Estudos Sócio-Econômicos (DIEESE), Rio de Janeiro), Peru (Compendio Estadístico) and Mexico (Sistema de Cuentas Nacionales de México).

Sectoral labor productivities

Sectoral labor productivities for the countries were computed by combining the two data series of sectoral value added and employment described above. In other words, sectoral productivity is defined as sectoral value added divided by the number of persons employed in the sector.
Bibliography


