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IS TRADE LIBERALIZATION A SOLUTION TO THE UNEMPLOYMENT PROBLEM?

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by

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Abstract

This paper examines how trade liberalization affects the growth rate of employment in developed and developing countries. The estimation results imply that trade openness in the form of higher trade volumes has not been successful in generating jobs in developing countries. The overall weak, negative employment response to trade volumes may be explained by the negative output response to trade openness in these countries. Our estimates also indicate that higher trade volumes have adverse effect on industrial and agricultural employment in developed countries. Moreover, trade barriers have relatively little adverse effect and/or in some cases positive effect on employment both in developing and developed countries. Thus, it is probably safe to conclude that both higher (or lower) output and employment growth rates can stem from trade and industrial policies implemented by these countries.

1. Introduction

The process of trade liberalization has accelerated since the late 1970s due to the removal of natural as well as artificial trade barriers. Both developed and developing countries fear that openness to trade may cause substantial job losses. In the developing countries, the primary focus of concern is on employment in import competing sectors, whereas in the developed countries, the concern is that increased trade with developing countries supposedly results in adverse labor market outcomes for less-skilled workers. A common concern is that ‘cheap labor’ and the ‘race to bottom’ may be the consequence of increasing levels of integration. Thus, there have always been protectionist sentiments against liberalization in both developed and developing countries.

During the past two decades, general reductions in the aggregate demand for labor has accompanied the expansion of international trade (ILO, 1995). On average, the unemployment rate has been growing across countries. According to the Global Employment Report 2004, global employment conditions deteriorated and total unemployment in the world economy grew slightly in 2003 despite an increase in growth of real GDP and of trade after two years of sluggish economic performance. The number of unemployed in the world has reached the highest level ever recorded. In parallel to the worsening employment situation, the size of the informal economy increased in the developing regions characterized by low GDP growth rates (ILO, 2004a).

While the wage and employment conditions of unskilled labor in many industrial countries have worsened during the last two decades, we have seen opposite tendencies in some groups of developing countries. Asian economies have experienced both rising employment and falling wage inequality, while in Latin American countries, employment growth has been slow and inequalities have been increasing. Most of the earlier studies of the impact of trade openness on labor market outcomes focused on developed countries, but recently, there has been an increase in case studies examining the effects of trade openness on the labor markets of developing countries (Ghose 2000).

This paper examines the effects of trade openness on labor market measures. It analyzes the issue of trade openness and employment in agriculture, industry, and services from a consistent cross-country perspective. Our estimation results imply that trade openness in the form of higher trade volumes or lower trade barriers has not been successful in generating jobs in developing countries. Similarly, they also show that trade openness or trading more with developing countries does not seem to reduce overall employment in developed countries. Overall, our results thus indicate that developing countries have not

been able to benefit from trade liberalization. Therefore, trade openness is not in itself a solution to the unemployment problems of developing countries

The paper is organized as follows. Section 2 examines the relationship between trade openness and employment in developed and developing countries. Section 3 discusses the data and empirical methodology. In Section 4, we report the results for the relationship between changes in employment in agriculture, industry and services and trade openness, followed by a discussion section. Finally, Section 6 draws conclusions from the empirical investigation.

2. Literature Review

The main theoretical framework guiding research on the employment effects of trade liberalization in developing countries is the “specific factors” trade model. This model makes the following short-run assumptions: capital-specificity, labor mobility between sectors and inelastic aggregate factor supply. Dismantling trade barriers will cause labor shifts from the shrinking import-competing sectors to the expanding export-oriented sectors. Since the labor intensity of export industries is expected to be higher than that of import-competing sectors in developing countries, overall, trade liberalization should bring about an increase in aggregate labor demand. However, by emphasizing the importance of the nontraded goods sectors, surplus labor and dualism in the labor markets in developing countries, Ghose (2000, p. 6) argued that “North-South trade in manufactures would have the predicted unfavorable effects on employment and wages of unskilled workers in North but could conceivably fail to generate the predicted beneficial effects in South.”

Exposure to increased foreign competition may not only cause a shift in labor towards exportable sectors but may also result in better resource allocation and increased efficiency. But if alternative trade policies promote capital deepening in all industries through implicit subsidization of capital goods imports, then employment will grow slowly as industries use relatively more capital-intensive production techniques. Alternative theoretical perspectives have been developed by Wood (1994 and 1997) and Rodrik (1997)¹, arguing that trade may have adverse effects on the employment of unskilled workers by bringing about technological change that leads to a displacement of unskilled workers and/or by increasing the own-price employment elasticity of unskilled workers, and thus, making these workers more vulnerable to economic shocks. Therefore, the net effects of trade liberalization on employment will depend on these offsetting effects, an outcome that cannot be determined theoretically.

¹ Rama (2003) and Sen (2003) briefly reviewed the empirical literature assessing Rodrik’s argument.

In both developed and developing countries there has been growing concern about rising unemployment and about the living standards of the poor. Protection has been advocated to boost employment, especially in industrialized countries, particularly the UK and the US. Although the mainstream macroeconomics literature suggests that import controls are likely to be contractionary for an economy with a flexible exchange rates (Mundell 1961), Cripps and Godley (1976, 1978) challenge this view and argue that compared to ‘deflation’ and ‘devaluation’ options, control of imports is a better policy option for maintaining full employment (see also Fender and Yip 1989 and Ocampo 1987, 1990 on the macroeconomic effect of import controls from a Keynesian perspective). Interestingly, Slaughter (1999, p. 610), bases on a few broad observations, argues that a protectionist backlash “ is already under way – particularly with respect to controlling the terms of trade policy debate in the United States and other countries.”

During the last three decades, major trade liberalization reforms have been undertaken by developing countries unilaterally and/or as a condition of IMF and World Bank loans. Numerous case studies that have examined the effect of trade reforms on employment for developing countries have shown a substantial dispersion of the net effect on employment. Papageorgiou et al. (1990) concludes that trade liberalization in developing countries did not cause losses in employment even in the short run. Currie and Harrison (1997) find that trade reform had essentially no effect on employment for the majority of firms, except for publicly owned firms and export oriented firms in Morocco. Revenga (1997) finds that while changes in tariffs had no impact on Mexican manufacturing employment, reductions in quotas had significant but small negative effects on employment. Harrison and Hanson (1999) report that employment changes are only weakly associated with changes in trade policies in Morocco and Mexico.

Milner and Wright (1998) find higher employment in both the exportable and importable sectors following the trade liberalization initiated in Mauritius. Similar positive employment effects in import-competing industries following trade liberalization are reported in Ghose (2000) for a number of high-growth Asian countries. Parker et al. (1995) report that trade liberalization increased the employment levels of small firms in a number of African countries. Harrison and Revenga (1995) find that while trade liberalization boosted employment in Latin countries (Costa Rica, Peru and Uruguay), it led to substantial employment losses in transition economies (Czechoslovakia, Poland and Romania).

Rama (1994) concludes that trade liberalization substantially reduced manufacturing employment in Uruguay, especially when trade union activities were banned. Moreira and

Najberg (2000) report that trade liberalization in the 1990s lowered manufacturing employment in the Brazil. Winters (2000) finds an adverse impact on employment from trade liberalization in Zambia, Zimbabwe, and India. Levinsohn (1999) concludes that in Chile, following a trade reform, net employment in manufacturing fell by about 8 percent, and over an eight-year period about a quarter of all workers changed jobs.

While the pace of trade liberalization in industrialized countries has slowed during the past three decades, the employment (and wage) conditions of unskilled labor in many industrialized countries have worsened substantially². The ILO (2004b) reports that in most developed countries the ratio of the 10 percent highest paid over the 10 percent lowest paid workers between the mid-1980s and the mid-1990s has increased considerably. For the US and the UK, this ratio is over 30 percent. Despite their relatively low levels, imports from developing countries are usually considered to be the prime cause of the increasing skill premium and lower demand for unskilled labor. For example, trade data from IMF's Direction of Trade Statistics show that developing countries have been responsible for a third of the total US imports over the past three decades.

The employment effects of trade liberalization in developing countries contrasts with those obtained found in similar studies for the industrialized countries. Following trade liberalization in industrialized countries, job losses are found to be quite substantial (Revenge 1992; Gaston and Trefler 1997; Hakura 1997; Beaulieu 2000; Trefler 2001; Scott 2001; Tomiura 2003; Lang 1998). Several studies (Baldwin 1995; Ghose 2000; Heitger and Stehn 2003) looking at the effects of developing country exports on labor market outcomes in the industrialized countries, conclude that they have relatively little adverse effect on manufacturing employment in industrialized economies. Surprisingly, Greenaway et al. (1999) find that increased trade volumes, especially from the EU and the US, led to reductions in the level of employment in the UK. Overall, for the industrialized countries, it appears that trade liberalization results in employment losses.

Turrini (2002) claims that while empirical studies of the labor market impact of trade in developing countries adopts a short-run perspective such as the fixed-factor model of

² There are two strands of literature that offer explanations for the falling demand for unskilled labor in developed countries. The first line of research suggests that skill-biased technological change has reduced the demand for unskilled labor (Krugman 2000). The other line of research emphasizes trade-related developments that affect the demand for different types of labor (Wood 1994; Leamer 2000). Some authors (Slaughter 1998 and 1999; Krugman 1995; Sachs and Shatz 1994) have argued that increased trade with developing countries cannot account for all of the adverse labor market outcomes in industrialized nations. Ghose (2000) claimed that trade among industrialized countries could plausibly be blamed for this phenomenon. A large number of studies using a variety of techniques for different countries have attempted to assess the relative importance of technology and trade as alternative explanations for the reduction in the demand for unskilled labor.

international trade, those for developed countries use the long-run framework of the neoclassical model of comparative advantage. By showing different labor demand effects depending on the sector bias of trade liberalization reforms, he claims that there is a need to shift from a single-country to a cross-country perspective. In this study, we thus investigate the sectoral employment effects of trade openness using cross-country econometrics. For this purpose, this analysis uses a large number of measures of trade volumes and trade barriers.

3. Model and Data

To analyze the relationship between trade openness and sectoral employment growth, we estimate a simple model relating the employment growth rates to various trade openness measures. The basic estimated model is:

$$\Delta \log (EMP_i) = \Delta \log (LABPROD_i) + \Delta \log (POP_i) + \log (GDP_i) + \log (DENSITY_i) + \Delta \log (INV_i) + OPEN_i + \varepsilon$$

Sectoral employment (GEMP) growth rates -- industrial employment growth (GEMPIND), agricultural employment growth (GEMPAGR), and services employment growth (GEMP SER) -- are calculated using the log differences of yearly total employment figures for each sector. Growth of output per worker (LABPROD) in each sector is used as a proxy for labor productivity. These growth rates are calculated in the same way as the employment growth rates. While growth of agricultural machinery, tractors per 100 hectares of arable land (INV), is used to measure the capital stock related to the agricultural sector, growth of gross domestic fixed investment (INV) is used for the other two sectors. Data for these last four measures, (urban and rural) population growth rates (POP), population densities (DENSITY), and GDP at constant US dollars are from the World Bank (2004). Trade openness measures used in the paper are discussed below. ε is a disturbance term.

We use two types of trade openness measures to investigate the employment effects of trade liberalization. Unless indicated otherwise, annual data for all openness measures are taken from the World Bank (2004). The first group of openness measures is calculated using trade volumes. The most basic measure of trade intensity is “trade openness” (OPEN), which is the ratio of exports plus imports to GDP. It has been known that earlier empirical studies on the growth effects of international trade put too much emphasize on (the growth of) exports and largely ignored the import sectors and their growth effects. Therefore, this paper employs both import penetration ratios (MGDP) and exports shares in GDP (XGDP) to measure the extent of trade liberalization in a country. We expect that both exports and imports are more likely to have different employment growth effects in different types of countries.

One of the mechanisms by which international trade fosters economic growth is that trade enables countries, especially developing countries, to acquire new goods and technologies invented in the developed countries. We then expect that developing countries may benefit more from trading with technologically innovative developed countries than by trade with non-innovating developing countries. Moreover, international trade theory suggests that trade flows from developed and developing have different employment implications in countries. Thus, to assess whether the effects of trade with developed and with developing countries are different from one another, two more trade intensity ratios -- trade with OECD countries (TOECD) and trade with non-OECD countries (TNOECD) -- are also used in the empirical estimates. The last two measures are taken from Easterly and Sewadeh (2002). Further, given the fact that that the United States is one of the most highly innovative countries in the world, it may be more appropriate to test this hypothesis using U.S. bilateral trade data. We then make use of the so-called "U.S. trade openness" measure (USBTRD), which is defined as the ratio of each country's total bilateral trade with the U.S. to its GDP. Note that bilateral trade numbers are weighted by the capital to capital distance to control for the impact of geographical proximity on bilateral trade.

We further disaggregate trade volumes into five different groups. The first group consists of merchandise trade (MERTRD), measured as the trade in goods as a share of GDP. Defined and calculated in the same way as MERTRD, merchandise exports (MEREXP) and merchandise imports (MERIMP) are also used in the estimates. The second group includes manufactured exports (MANEXP) and manufactured imports (MANIMP). The third group includes commodity exports (CMDEXP) and commodity imports (CMDIMP). The fourth group consists of only agricultural raw material and food exports (AGREXP), and agricultural raw material and food imports (AGRIMP). Finally, the last group contains services exports (SERVEXP) and services imports (SERVIMP). We use the sectoral composition of exports and imports to see whether they exert different effects on employment growth.

The other group of trade measures is based upon trade restrictions. First, we use total import duties as a percentage of the value of imports (TARIFF) to measure the severity of trade restrictions. Second, we use total export duties as a percentage of the value of exports (XTAX) and taxes on international trade as a percentage of total national government revenue (TAXTRD) as measures of trade policies. Third, bilateral payments arrangements (BPAs) of IMF members with non-IMF members and current account restrictions (CURRENT) are used to measure the trade restrictiveness of countries. Tabular data for BPA and CURRENT are taken from the IMF's Annual Reports on Exchange Restrictions (ARER). Summary statistics

for the main variables used are reported in Appendix A. Data sources and definitions are listed in Appendix B.

Cross-country regressions are estimated for a panel of about one hundred developed and developing countries for the sample period 1980 to 1999³. The number of countries is actually limited by the availability of data. The system is a two-equation system estimated using the seemingly unrelated regression technique (SUR) as in Barro (1997)⁴. As Barro and Lee (2005) argue, panel estimates are preferred to fixed effect and first-differenced GMM estimates, because the latter techniques eliminate time-persistent cross-section information⁵.

4. Results

4.1 Correlation between openness measures and employment growth

Table 1 reports correlations between sectoral employment growth rates and various measures of openness. The results show that while employment growth rates are positively correlated with trade barrier measures, they are in most cases negatively and significantly correlated with measures of trade volumes, excepting commodity exports. While industrial employment positively correlates with employment in services, employment in agriculture correlates negatively with employment in the other two sectors. The results also indicate that there is generally a statistically significant correlation among openness measures. While most of the correlation coefficients have the expected signs, commodity trade usually has positive relationship with trade barrier measures. It seems that trade barriers are fairly effective for reducing manufacturing trade and increasing commodity trade.

4.2 Trade openness and employment growth

Figures 1 and 2 display the simple relationship between sectoral employment growth and trade shares and tariff rates for all countries. Figure 1 indicates that there exists a negative association between trade shares and the growth of sectoral employment. As expected, this negative association is more noticeable for agricultural employment growth than for industrial or services employment. It is important to note that close investigation of the graphs reveals that the relationships between trade openness and employment growth are not driven by outliers.

Figure 2 presents these relationships for import tariffs. Sectoral employment growth increases with tariff rates. If the similar six graphs in Figures 1 and 2 are drawn only for developing nations (not shown), the relationship between agricultural employment and tariff

³ Countries used in estimates are listed in Appendix C.

⁴ See Greene (1997) for a detailed discussion of this technique.

⁵ Fixed-effect estimates also obtain very large convergence coefficients.

rates becomes negative. The other five graphs for only developing nations depict considerably similar patterns. The positive relationship between tariffs and employment growth is consistent with the findings of a wide array of studies. For example, while obviously contradicting the notion of import substituting strategies widely employed in the developing countries, Revenga (1997) finds that labor-intensive industries received more protection than capital-intensive sectors in Mexico. Currie and Harrison (1997) report a similar pattern for Morocco (see also, Rama 2003; Harrison and Hanson 1999). Moreover, several studies of developed countries (see Sachs and Shatz 1994 for the US; Beaulieu 2000 for Canada; and Lang 1998 for New Zealand) report that more protection has been provided to the less-skill intensive sectors in developed countries as well.

The estimates of the employment growth model are reported in Tables 2 -7. The model is estimated as a two-equation panel using the seemingly unrelated regression technique. Other than the constant terms, all coefficients are constrained to have the same value in each equation. Regression results for industrial employment in Table 2 indicate that the growth of labor productivity measured by output per worker is significantly and negatively related to industrial employment growth, while urban population growth has significant positive effects. The level of GDP has a negative coefficient, but is insignificant. Population densities and growth of gross domestic fixed investment are not significant. Since the area-specific dummies for three areas (Sub-Saharan Africa, Latin America, and East Asia) are insignificant in the base regressions, they are not included in further regressions. Regression results for the above-mentioned variables in the services employment regressions are similar to the industrial employment regressions. The only difference is that the level of GDP is significantly positive for services employment growth (see, Table 3).

In the agricultural employment growth model in Table 4, labor productivity and population densities have significant, negative coefficients, while rural population growth has a positive effect on agricultural employment growth. The level of GDP and investment measured by the growth of agricultural machinery in agriculture have insignificantly negative coefficients.

4.2.1 Trade openness and employment in industry

Table 5 reports the SUR estimates for decade averages of industrial employment growth⁶. Both current and lagged values of trade shares (as well as exports and imports) have negative coefficients for the whole sample. However, only those for lagged values are

⁶ Estimates of these models for four 'five-year' intervals obtain similar results, available from the author.

statistically significant. The estimated results indicate that higher trade shares are associated with lower industrial employment growth. Both developing and developed countries that trade more with OECD countries have higher industrial employment growth. While merchandise trade has a depressing effect on employment growth, driven by merchandise imports, manufacturing exports do have negative effects on employment growth through their effect on developing countries' manufactured exports. Although regressions using five-year averages (not reported) have a similar pattern to the decade averages, one difference is that the five-year estimates indicate that manufacturing exports boost industrial employment growth in developed countries.

There are several feasible explanations for the negative employment effects of trade volumes. If the traded goods are relatively capital-intensive compared to non-traded goods or trade liberalization leads to growth of capital intensity in the industrial sector, then higher trade shares may lead to a reduction in employment levels. Moreover, if most of the exports of manufactured goods originating in developing countries are produced by branches and subsidiaries of MNCs that use the capital-intensive technology of the home country, there will be a reduction in the demand for labor. The statistically significant, negative coefficients for the manufacturing exports of developing countries support this argument.

Higher trade shares may also reduce employment by reducing the demand for abundant, unskilled labor if trade results in the importation of advanced technology that increases the returns to skilled labor and capital. For example, Cornia (1999) concludes that trade liberalization episodes in Latin America reduced the intensity of unskilled labor in the tradable sector through the adoption of imported, advanced technologies, that have also been associated with increased wage inequality in the region.

Moreover, Ghose (2000) argues that, as a general rule, developing countries' formal manufacturing sectors are typically import-competing. They have no comparative advantage relative to manufacturing sectors in industrial countries and thus it is difficult for them to export their products to industrial countries. This means that in developing countries, exports of labor-intensive manufactures originate basically in the non-formal sector, at least in initial stages. It is possible then that higher trade shares may lower formal industrial employment in these countries. The ILO (2004b) reports that the share of self-employment, as a proxy for the measure of the informal sector in most developing countries, has increased in most developing regions, except East and South-East Asia, during the last two decades. Thus, export-oriented manufacturing in developing countries is also often associated with low wages and poor working conditions, and this too is a matter of concern.

For estimates using decade averages, tariffs have no significant effect on industrial employment growth. However, estimates using five-year averages (not reported) indicate that tariffs increase industrial employment growth for all countries. Estimates for both decade and five-year averages indicate that export taxes increase industrial employment growth in developing countries. Furthermore, both decade averages and five-year averages indicate that higher taxes on international trade lead to higher industrial employment growth, especially for developed countries. In the estimates, neither BPA nor CURRENT has a significant impact on industrial employment growth. Thus, these results are mostly consistent with case studies of the employment effects of trade liberalization in developing countries.

To test the sensitivity of our results to country fixed effects, we also estimate the fixed effects specifications (not reported)⁷. There are important differences between the fixed effect and SUR estimates. For the fixed effects estimates, neither trade volumes nor trade barriers have any statistically significant effect on industrial employment in developing countries. BPA is the only exception, which affects employment growth positively in developing countries. Our results, however, indicate that trade volumes, especially trade with other industrial countries, do have significant, positive effects on industrial employment growth for developed countries. Note that manufactured imports, export duties, and bilateral payments arrangements have significant, negative effects on employment growth in developed countries.

4.2.2 Trade openness and employment in agriculture

Table 6 reports the SUR estimates for agricultural employment growth. As expected, statistically significant, negative coefficients for trade shares (current and lagged) in the first row indicate that countries with higher trade shares are likely to experience reduced agricultural employment growth. There are also similar patterns for import and export shares.

Statistically significant, negative coefficients for trade with OECD countries indicate that trading with industrial countries lowers agriculture employment growth in developing countries. This result is consistent with the fact that while on average trade protection has declined substantially over the past three decades, it remains significant in both industrial and developing countries, particularly for agriculture and labor-intensive industrial products where developing countries have a comparative advantage (IMF and World Bank 2001; Hertel and Martin 2000). However, countries trading more with non-OECD countries have higher agriculture employment growth.

⁷ Fixed effects estimates for three sectors are available from the author.

While agricultural employment growth in developing countries decreases with higher merchandise exports, a similar negative impact is found for manufactured exports on agricultural employment growth in developed countries. For developed countries, higher commodity exports as well as agricultural exports raise agricultural employment growth, commodity imports do not have any significant impact on agriculture employment growth. Overall these results thus do not support the argument that goods embodying more labor content have adverse employment effects in the labor markets of industrial countries.

As expectedly, while the tariffs have a negative impact on agricultural employment growth in developing countries, this measure has a positive impact on agricultural employment growth in developed countries. These results are consistent with the common perception that while developed countries provide relatively more protection to their agriculture sectors, developing countries protect their industrial sectors. Export taxes do have a negative, but insignificant, impact on agricultural employment growth. TAXTRD, BPA and CURRENT have positive effects on agriculture employment growth, especially when five-year averages of growth rates are used.

Fixed effects estimates (not reported) indicate that none of the current measures of trade volumes have any significant effect on agricultural employment growth. However, lagged values of exports, primarily through merchandise exports, have significantly negative effects on employment growth for all countries. The estimates indicate that higher levels of trade with industrial countries have significant, negative impacts on employment growth in the developing countries. Finally, while BPA raises it, CURRENT lowers agricultural employment in developed countries.

4.2.3 Trade openness and employment in services

Table 7 reports the estimates for service employment growth. While decade averages show that overall trade shares in GDP have no impact on employment growth in services, five-year averages of growth rates indicate that as expected, countries importing more from other countries have higher employment growth in services. Note that for both decade and five-year averages, statistically insignificant coefficients for merchandise and manufacturing trade suggest that these results are mostly driven by trade in services. Our results also indicate that industrial countries that trade more (with OECD, non-OECD, and the United States) have higher employment growth in services.

Although our measures of trade barriers are mainly related to merchandise trade, trade barriers in the form of tariffs, export taxes, and taxes on international trade have a positive association with the employment growth in services. These results are especially pronounced

for developing countries. For both decade and five-year averages, the statistically significant and positive coefficients indicate that countries with higher tariffs have higher employment growth in services. Finally, neither BPA nor CURRENT has any significant relationships with employment in services, except for lagged values of CURRENT.

Fixed effects estimates for the employment growth in services show that similar to the previous two sectors, most coefficients of current values are insignificant, except those for service trade. For lagged values, employment growth in services in developing countries decreases with higher merchandise imports. For trade restrictions, while XTAX and CURRENT raise employment growth in services in the developing countries, BPA lowers it in developed countries.

5. Discussion

Despite the existence of substantial theoretical evidence (see, Ocampo and Taylor 1998), opening to trade by itself has not yet been unambiguously and universally linked to subsequent output growth in developing countries (see, Rodriguez and Rodrik, 2001 and Yanikkaya, 2003). Comparing the growth performances of Latin American countries, which are the champions of the Washington style reformers⁸, with those of East Asian countries and certain other countries that have extensively and selectively intervened to promote overall development and in some cases the development of specific industries, renders the issue more complex. On the one hand, Ocampo (2002, p. 394) citing the studies analyzing Latin America, concludes that “growth and productivity performance have been frustrating in Latin America.” On the other hand, the longest-lasting episodes of rapid growth in the development world (e.g., the East Asian countries, most recently, the Chinese, Indian, and Mauritanian ‘miracles’, or in the past, the periods of rapid growth in Brazil or Mexico) did not coincide with phases of extensive liberalization or with the mere implementation of the Washington Consensus style of trade liberalism.

To the contrary, the idea that countries dismantle trade barriers as they get richer is a widely shared view. For example, after comparing the experiences of Vietnam and Haiti during the past two decades and the experiences of East Asian countries, China and India, Rodrik (2001, p. 22) concludes that “integration with the world economy is an outcome, not a prerequisite, of a successful growth strategy.” Milward and Brennan (1996) come to a similar

⁸ See, Williamson (1990 and 2004) for a complete discussion of the Washington Consensus.

conclusion that trade liberalization follows, rather than causes, the great surge in international trade in the first half of the 1950s. The World Bank (1993) also shares this view, in part⁹.

Our estimation results indicate that trade openness has not been successful in generating jobs in developing countries, either. Conversely, while lagged trade volumes have negative employment effects, trade barriers have positive employment effects for the industrial sectors of all countries. For the developing countries, the overall weak, negative employment response to trade volumes may be explained by the negative output response to trade in these countries¹⁰.

Empirical evidence to date thus shows that trade liberalization is not a reliable mechanism for generating self-sustaining output growth, employment growth, and poverty reduction. It is probably due to the fact that the current international trading regime is missing the “developmental view” or more broadly the “human face”. Therefore, existing trading rules that overemphasize trade at the expense of not only poverty reduction but also output and employment growth have important consequences for developing countries.

According to the WTO charter, the highest priority of the WTO is raising standards of living, ensuring full employment, and promoting sustainable development. Several authors (Stiglitz 1998, Helleiner 2000, Rodrik 2001, UNCTAD 2004) argue that since expanding trade is considered to be the means of achieving these objectives, international trade rules have to be formulated according to this view. The negotiators in the WTO rounds should take a more developmental approach and ask, “How should we formulate the international trading regime to grow countries out of poverty or to create more jobs?”

On the one hand, the growth literature and the theory of strategic trade policy, the infant-industry arguments, development economics and a large number of case studies and/or studies analyzing a limited number of countries all suggest that countries with selective interventions, or heterodox trade and industrial policies, perform better than other countries. The existing literature comes to a general consensus that trade policies in East Asian countries are not those of a laissez-faire regime even though there is disagreement about the effects of these policies (Stiglitz 1998; Amsden 1989, Wade 1990; World Bank 1993). Other studies (e.g. Rodrik 2001) emphasized the vital role of unorthodox policies in the outstanding growth

⁹ The idea that trade may follow growth is similar to so called the Lipset hypothesis (Lipset, 1959), where democracy follows prosperity, rather than causes it.

¹⁰ A number of studies (Jacobson et al., 1993a, b, Levinsohn 1999, Matusz and Tarr 1999, Rama 2003, Winters 2000, World Bank 1997) discuss the fact that the weak employment effects of trade liberalization may mask substantial job churning in developing countries, which imposes substantial private costs for replacing workers because the longevity of unemployment or underemployment and the identity of the replaced workers are the most important adjustment problems occurring in labor markets.

performance of countries such as China, India, Vietnam, and Mauritius. Furthermore, Subramanian and Roy (2001) conclude that there are considerable similarities between the trade and development strategies of Mauritius and the East Asian countries. Both Subramanian and Roy (2001) and Hinkle et al., (2003) argued that Mauritius was highly protected even in the late 1990s. Latin American countries with miserable growth rates, however, have long been known to be followers of Washington Consensus style of trade liberalization.

Although less well known compared to the interventions used in East Asian economies, Milward and Brennan (1996) argue that import controls were far more effective in attaining the intended objectives including reducing the import bill and providing infant industry protection for certain industries. Milward and Brennan (1996) analyze the use of quantitative import controls in the post-war British economy. The issuance of about a quarter of a million separate import control licenses in 1948 evidenced their extensive use in British economy. The extensive use of import controls was also very common in other European countries. They (1996, p. 190) claim that “(M)uch of the modern science-based industry of the United Kingdom can be said to owe its birth to such protectionism.” They also conclude that while their effects on raising manufacturing employment were limited, import restrictions had a relatively higher impact on regional employment in the UK.

On the other hand, a large number of studies, mostly case studies briefly cited in section 2, report very diverse employment effects of trade liberalization implemented in different developing countries. Combining the employment literature with the literature described in the previous paragraphs indicates that the same set of policies that helped countries to grow faster also benefited these countries through higher employment levels. For example, Milner and Wright (1998) analyze the case of Mauritius and find that, after a time lag, trade liberalization resulted in expanded labor demand in export industries. More surprisingly, labor demand appears to increase even in import-competing industries. Ghose (2000) concludes that trade liberalization accelerated manufacturing employment growth in both export-oriented and import-competing sectors for East Asian countries (including China and India). Many case studies described above, however, report non-positive, in some cases significantly negative, employment effects of trade liberalization for Latin American countries.

Moreover, comparing Zambia and Zimbabwe, Winters (2000) argues that Zambia undertook bold, orthodox, and unidirectional trade reform but Zimbabwe was hesitant and rather opaque. Yet, based on the outcomes, it appears that Zimbabweans have achieved

greater liberalization, especially an increase in competition in the cotton market. Although, following trade reform in both countries, some reallocations occurred, in Zambia following the trade liberalization, there was a 15% decline in manufacturing employment in 1991. The liberalization also caused a reduction in output in most manufacturing sectors in Zambia. The obvious conclusion is that these results demonstrate that, even though characterized differently by different authors, selective intervention, active government policies, or heterodox policies seem to work better than the international trading regime currently imposed by a few of the developed countries. Thus, it is probably safe to conclude that both higher (or lower) output and employment growth rates can stem from trade and industrial policies implemented by these countries.

6. Conclusion

This paper investigates the question of how trade openness affects the growth rate of employment in developed and developing countries. The estimated results imply that trade openness in the form of higher trade volumes has not been successful in generating jobs in developing countries. Overall, our results thus imply that most of the developing countries have not benefited from trade liberalization, probably due to the absence of strong institutions, adequate levels of physical, human, and social capital, sound macroeconomic policies, and a competitive economy. Thus, opening up to trade is not in itself a “panacea” for developing countries. Our estimates also indicate that trade openness, especially measured by trade volumes, has an adverse effect on industrial and agricultural employment in developed economies. Moreover, trade barriers have relatively little adverse effect and/or in some cases a positive effect on employment both in developing and developed countries.

Although it is impossible to deny the positive potential effect of international trade in overall economic development and poverty reduction, one should be aware that the task before all of us is not to maximize trade flows but to maximize the welfare of the people we work for. Furthermore, it isn't at all obvious that increasing trade is currently in every country's interest (Helleiner 2000; Rodrik 2001; Ocampo 2002).

In more general terms, active government policies can be a solution to our unemployment problem, but at the same time, for countries to benefit from protectionist policies they must have the necessary institutional capacity to deal with the rent seeking, corruption and inefficiency issues which are probable outcomes of a high degree of selective interventionism.

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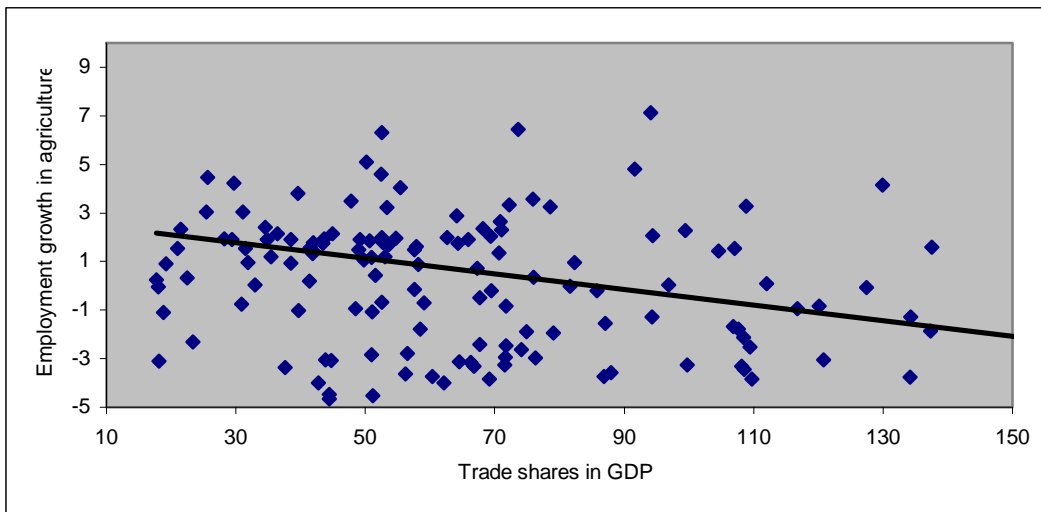
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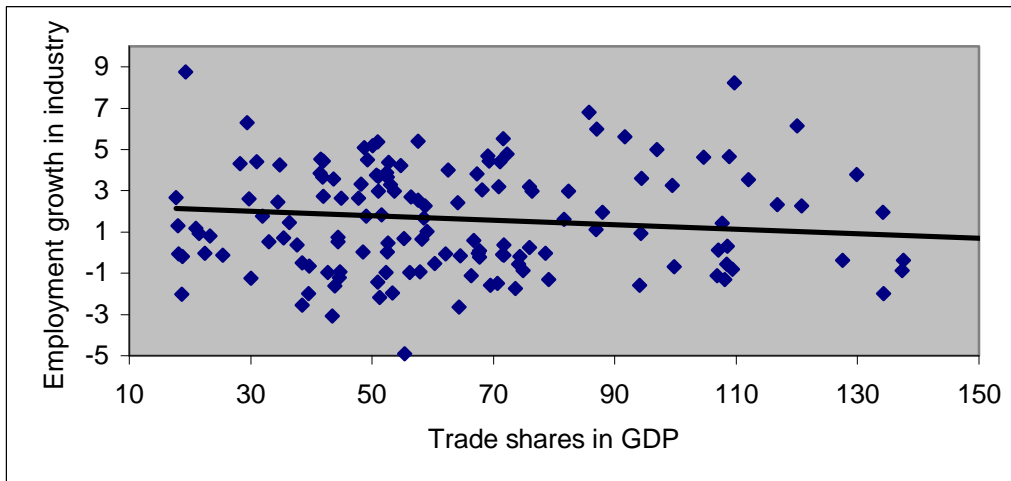
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TABLES AND FIGURES

1 - a



1 - b



1 - c

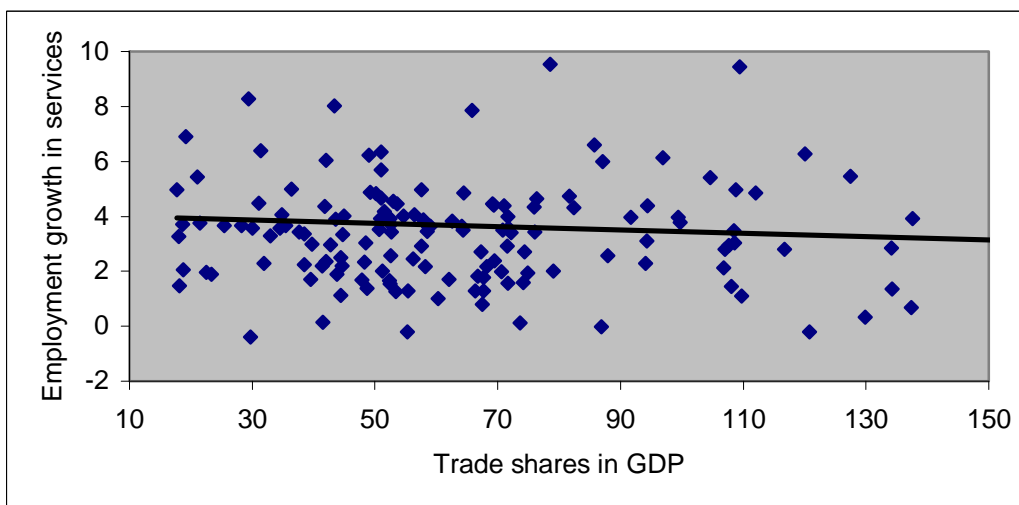
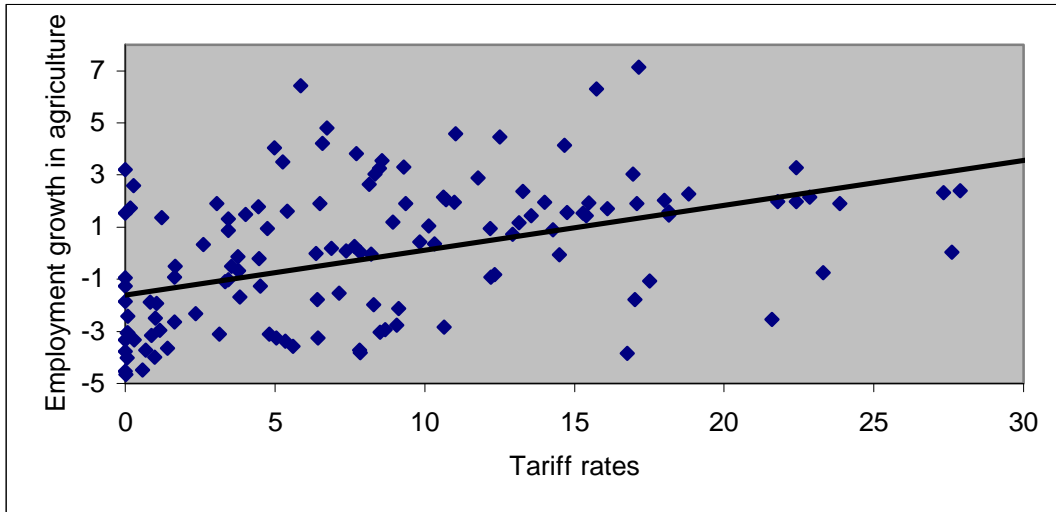
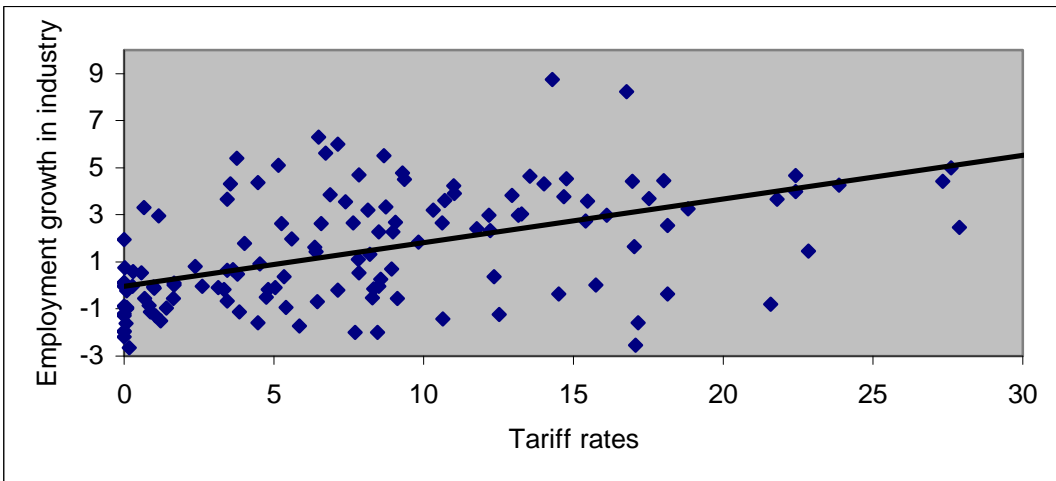


Figure 1: Employment growth and trade shares in GDP

2 - a



2 - b



2 - c

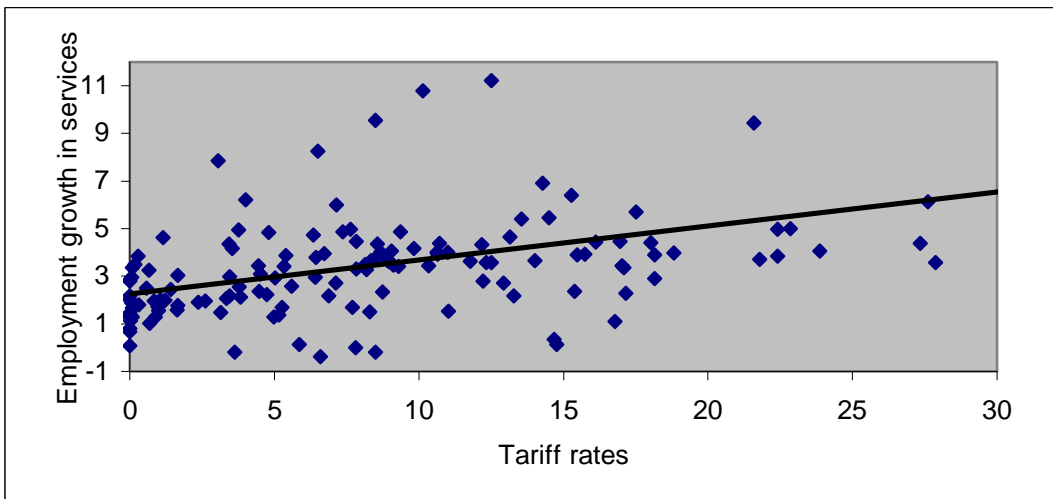


Figure 2: Employment growth and tariff rates

Table 1: Pearson correlation coefficients for various openness indicators and employment growth

Variables	GEMPAGR	GEMPIND	GEMPSE	TARIFF	XTAX	TAXTRD	BPA	CURRENT
GEMPAGR	1.00	-0.13*	-0.23*	0.09	0.07	0.10	0.07	0.20*
GEMPIND	-0.13*	1.00	0.28*	0.35*	0.25*	0.35*	0.04	0.20*
GEMPSE	-0.23*	0.28*	1.00	0.37*	0.16*	0.29*	-0.05	0.15*
TRADE	-0.22*	-0.08	-0.05	-0.07	-0.23*	0.11*	-0.27*	-0.25*
XGDP	-0.23*	-0.10	-0.08	-0.14*	-0.27*	-0.03	-0.28*	-0.30*
MGDP	-0.18*	-0.05	-0.009	0.004	-0.17*	0.23*	0.23*	0.18*
TOECD	-0.27*	0.09	-0.02	-0.20*	-0.21*	0.11*	-0.21*	-0.24*
TNOECD	-0.12*	-0.03	0.002	-0.16*	-0.14*	0.10	-0.10	-0.17*
USBTRD	-0.09	0.12	0.12	-0.10	-0.009	-0.003	0.06	0.10
MERTRD	-0.15*	-0.22*	-0.03	-0.18*	-0.24*	0.02	-0.18*	-0.24*
MEREXP	-0.13*	-0.16*	-0.05	-0.27*	-0.25*	-0.15*	-0.22*	-0.28*
MERIMP	-0.12*	-0.16*	-0.03	-0.07	-0.22*	0.16*	-0.22*	-0.24*
MANEXP	-0.17*	-0.28*	-0.28*	-0.46*	-0.35*	-0.45*	-0.03	-0.18*
MANIMP	0.02	-0.11	-0.10	-0.16*	-0.13	-0.31*	-0.14*	-0.17*
CMDEXP	0.18*	0.28*	0.22*	0.47*	0.35*	0.46*	0.08	0.16*
CMDIMP	-0.04	0.08	0.09	0.16*	0.14	0.30*	0.14*	0.16*
SERVEXP	-0.31*	-0.03	-0.06	0.07	-0.20*	0.17*	-0.20*	-0.14*
SERVIMP	-0.22*	0.13	0.10	0.18*	-0.006	0.24*	-0.16*	0.02

See Section 3 and Appendix B for the definition of the variables.

* Statistically significant at least at the 5 % level.

Table 2: Employment in industry, trade, and trade policies, 1980-1999:Base regression						
	All countries		Developed countries		Developing countries	
Independent Variables	SUR	SUR	SUR	SUR	SUR	SUR
GDP (in constant 1995 USD, in logs)	-0.025 (0.08)	-0.30 (0.97)	0.08 (0.28)	0.007 (0.02)	0.19 (0.53)	0.34 (0.90)
Growth of output per worker in the sector	-0.50*** (10.37)	-0.49*** (10.50)	-0.61*** (7.97)	-0.62*** (7.50)	-0.43*** (7.48)	-0.41*** (7.54)
Urban population growth	0.47*** (2.95)	0.50*** (3.39)	-0.46 (1.36)	-0.31 (0.93)	0.26 (1.35)	0.31* (1.71)
Growth of gross fixed capital formation	0.012 (0.54)	0.008 (0.28)	0.07*** (3.65)	0.23** (2.15)	0.0008 (0.03)	0.0001 (0.001)
Population density (in logs)	0.23 (1.48)	0.22 (1.50)	-0.20 (1.48)	-0.30* (1.95)	0.51 (2.41)	0.47** (2.27)
Import Duties	0.053 (1.42)		0.12 (1.17)		-0.008 (0.18)	
Trade shares in GDP (%)		-0.008 (1.26)		0.009 (1.17)		0.009 (0.89)
R ² , for each equation	.57, .51	.56, .47	.94, -1.31	.88, -.72	.42, .47	.35, .44
Number of observations	133	148	46	49	87	99

The system has 2 equations, where the dependent variables are the annual average percentage growth rate of employment in industry over each decade. Each equation has a different constant term (not reported). Other coefficients are restricted to be the same for all periods. t-statistics are in parentheses. *** Significant at the 1 percent-level. ** Significant at the 5 percent-level. * Significant at the 10 percent-level.

Independent Variables	All countries		Developed countries		Developing countries	
	SUR	SUR	SUR	SUR	SUR	SUR
GDP (in constant 1995 USD, in logs)	0.51** (2.37)	0.40* (1.63)	-0.023 (0.20)	0.012 (0.06)	0.64** (2.08)	0.70* (1.92)
Growth of output per worker in the sector	-0.50*** (9.42)	-0.62*** (12.43)	-0.40*** (6.84)	-0.41*** (5.49)	-0.52*** (2.08)	-0.65*** (10.89)
Urban population growth	0.35*** (3.11)	0.42*** (3.68)	0.74*** (7.92)	0.81*** (6.47)	0.44*** (2.77)	0.37*** (2.42)
Growth of gross fixed capital formation	0.022 (1.33)	0.056** (2.33)	0.004 (0.42)	0.059 (1.20)	0.028 (1.08)	0.042 (1.49)
Population density (in logs)	0.11 (1.06)	0.11 (0.94)	0.06 (1.19)	0.005 (0.07)	0.25 (1.50)	0.20 (1.13)
Import Duties	0.083*** (3.17)		0.086** (2.15)		0.081** (2.41)	
Trade shares in GDP (%)		0.003 (0.51)		0.004 (1.07)		0.004 (0.41)
R ² , for each equation	.08, .67	-.15, .73	.91, .56	.84, .55	-.09, .71	-.40, .75
Number of observations	133	147	46	49	87	98

Note: See, Table 2.

Independent Variables	All countries		Developed countries		Developing countries	
	SUR	SUR	SUR	SUR	SUR	SUR
GDP (in constant 1995 USD, in logs)	-0.39 (0.58)	0.094 (0.16)	2.01 (1.80)	0.053 (0.09)	0.48 (0.55)	1.79** (2.24)
Growth of output per worker in the sector	-0.61*** (14.56)	-0.65*** (15.60)	-0.55*** (7.66)	-0.56*** (7.87)	-0.57*** (12.47)	-0.67*** (13.74)
Rural population growth	0.44** (2.19)	0.11** (2.26)	0.28 (1.06)	0.092** (2.10)	0.63*** (2.42)	0.72*** (3.11)
Growth of agricultural machinery, tractors per 100 hectares of arable land	-0.36 (0.56)	-1.08*** (2.39)	-2.65* (1.97)	0.18 (0.31)	-0.17 (0.29)	-1.19** (2.14)
Population density (in logs)	-0.33* (1.81)	-0.49*** (2.89)	-0.23 (1.17)	-0.45** (2.35)	-0.54** (2.33)	-0.66*** (3.25)
Import Duties	0.013 (0.32)		0.18 (1.65)		-0.11** (2.19)	
Trade shares in GDP (%)		-0.017** (2.11)		0.016 (1.32)		-0.008 (0.74)
R ² , for each equation	.63, .73	.61, .76	.66, .71	.64, .76	.68, .70	.66, .75
Number of observations	135	150	44	46	91	104

Note: See, Table 2.

Table 5: Employment in industry, trade, and trade policies: two-decade averages, 1980-1999						
Variable	Contemporaneous Values			Five-year lagged values		
	All countries	Developed countries	Developing countries	All countries	Developed countries	Developing countries
	SUR	SUR	SUR	SUR	SUR	SUR
OPEN	-0.008 (1.26)	0.009 (1.17)	0.009 (0.89)	-0.025*** (3.45)	0.003 (0.34)	-0.010 (0.92)
MGDP	-0.017 (1.33)	0.020 (1.41)	0.010 (0.58)	-0.039*** (3.45)	0.018 (0.92)	-0.017 (0.91)
XGDP	-0.013 (1.06)	0.013 (0.89)	0.020 (1.05)	-0.041*** (3.02)	-0.003 (0.17)	-0.013 (0.68)
TOECD	-0.008 (0.07)	0.019* (1.94)	0.032* (1.81)	-0.011 (0.92)	0.028** (2.25)	0.002 (0.10)
TNOECD	-0.0002 (0.01)	-0.005 (0.36)	0.059* (1.80)	-0.028 (1.38)	-0.038 (1.68)	-0.042 (0.95)
USBTRD	0.009* (1.83)	0.005 (0.91)	0.011 (1.56)	0.003 (0.56)	-0.001 (0.24)	0.005 (0.55)
MERTRD	-0.005* (1.91)	-0.0001 (0.06)	0.005 (0.73)	-0.010*** (2.85)	-0.005 (1.38)	-0.006 (0.88)
MEREXP	-0.007 (1.50)	0.0002 (0.07)	0.017 (1.42)	-0.016** (2.28)	-0.009 (1.43)	-0.007 (0.57)
MERIMP	-0.010** (2.20)	0.0002 (0.05)	-0.002 (0.01)	-0.020*** (2.98)	-0.009 (1.30)	-0.009 (0.86)
MANEXP	-0.036*** (2.64)	0.014 (0.97)	-0.038** (2.08)	-0.041*** (3.64)	0.007 (0.50)	-0.025 (1.63)
MANIMP	-0.005 (0.20)	-0.020 (0.89)	0.034 (1.03)	0.002 (0.10)	-0.021 (1.02)	0.044* (1.69)
TARIFF	0.053 (1.42)	0.12 (1.17)	-0.008 (0.18)	0.029 (0.91)	0.019 (0.32)	-0.011 (0.28)
XTAX	0.041 (0.66)	-4.28 (1.57)	0.010 (0.16)	0.16*** (3.39)	-0.44 (0.56)	0.14*** (2.52)
TAXTRD	0.035 (1.49)	0.18*** (2.67)	-0.008 (0.30)	0.028** (2.25)	0.084 (1.54)	0.033 (1.19)
BPA	0.37 (0.55)	-0.17 (0.14)	-0.42 (0.55)	0.12 (0.24)	-0.22 (0.31)	-0.44 (0.75)
CURRENT	0.45 (0.82)	-1.24 (1.47)	-0.03 (0.05)	0.31 (0.67)	-1.05* (1.77)	0.06 (0.10)

The system has 2 equations, where the dependent variables are the annual average percentage growth rate of employment in industry over each decade. Other regressors are log of GDP at constant US Dollars, log of growth of output per worker in the sector, urban population growth, log population densities, growth of gross domestic fixed investment. Each equation has a different constant term (not reported). Other coefficients are restricted to be the same for all periods. t-statistics are in parentheses. *** Significant at the 1 percent-level. ** Significant at the 5 percent-level. * Significant at the 10 percent-level.

Table 6: Employment in agriculture, trade, and trade policies: two-decade averages, 1980-1999						
Variable	Contemporaneous Values			Five-year lagged values		
	All countries	Developed countries	Developing countries	All countries	Developed countries	Developing countries
	SUR	SUR	SUR	SUR	SUR	SUR
OPEN	-0.017** (2.11)	0.016 (1.32)	-0.008 (0.74)	-0.027*** (3.04)	0.016 (1.17)	-0.012 (1.02)
MGDP	-0.025 (1.55)	0.041 (1.57)	-0.003 (0.17)	-0.043*** (2.48)	0.039 (1.39)	-0.006 (0.27)
XGDP	-0.037*** (2.44)	0.025 (1.08)	-0.023 (1.20)	-0.053*** (3.22)	0.025 (0.92)	-0.032 (1.56)
TOECD	-0.045*** (3.63)	0.008 (0.54)	-0.036** (2.01)	-0.040*** (2.93)	0.010 (0.50)	-0.011 (0.63)
TNOECD	0.061** (2.33)	0.038 (0.51)	0.040 (1.31)	-0.039 (1.04)	0.056 (0.30)	-0.053 (1.36)
USBTRD	0.007 (0.89)	0.022 (1.13)	-0.003 (0.41)	0.0052 (0.55)	0.022 (1.06)	-0.006 (0.60)
MERTRD	-0.010** (2.20)	0.007 (1.32)	-0.007 (1.15)	-0.016*** (3.20)	0.006 (0.95)	-0.012* (1.73)
MEREXP	-0.019** (2.19)	0.008 (0.90)	-0.018 (1.43)	-0.028*** (2.96)	0.005 (0.47)	-0.025* (1.95)
MERIMP	-0.015* (1.85)	0.018 (1.62)	-0.006 (0.60)	-0.024*** (2.73)	0.017 (1.36)	-0.011 (0.97)
MANEXP	-0.036*** (2.41)	-0.053*** (4.03)	0.018 (0.89)	-0.050*** (3.72)	-0.060*** (4.82)	0.004 (0.20)
MANIMP	-0.060* (1.82)	-0.005 (0.15)	-0.035 (0.86)	-0.010 (0.37)	0.013 (0.43)	-0.014 (0.40)
CMDEXP	0.035*** (2.39)	0.053*** (3.92)	-0.017 (0.89)	0.051*** (3.75)	0.060*** (4.64)	-0.0016 (0.08)
CMDIMP	0.064* (1.96)	0.006 (0.18)	0.045 (1.11)	0.007 (0.24)	-0.018 (0.59)	0.020 (0.55)
AGREXP	-0.0003 (0.02)	0.048*** (2.87)	-0.013 (0.87)	0.007 (0.58)	0.047*** (2.81)	-0.008 (0.66)
AGRIMP	0.050 (0.90)	0.018 (0.21)	0.024 (0.37)	0.11** (2.37)	-0.031 (0.44)	0.14*** (2.80)
TARIFF	0.013 (0.32)	0.18 (1.65)	-0.11** (2.19)	0.073*** (2.28)	0.076 (1.03)	-0.012 (0.31)
XTAX	-0.097 (1.16)	-5.14 (1.26)	-0.078 (0.88)	0.043 (0.76)	-1.11 (0.98)	-0.001 (0.02)
TAXTRD	0.020 (0.64)	0.12 (1.40)	-0.019 (0.55)	0.036 (1.44)	0.098 (1.57)	0.005 (0.17)
BPA	2.40*** (3.04)	-2.23 (1.44)	1.33 (1.41)	1.18* (1.85)	-0.77 (0.82)	0.14 (0.18)
CURRENT	1.09* (1.75)	0.43 (0.40)	-0.55 (0.73)	1.52*** (2.60)	-0.68 (0.84)	0.77 (0.98)

Note: See, Table 5.

Variable	Contemporaneous Values			Five-year lagged values		
	All countries	Developed countries	Developing countries	All countries	Developed countries	Developing countries
	SUR	SUR	SUR	SUR	SUR	SUR
OPEN	0.003 (0.51)	0.004 (1.07)	0.004 (0.41)	0.0008 (1.04)	0.002 (0.32)	0.008 (0.73)
MGDP	0.003 (0.36)	0.008 (1.18)	0.005 (0.33)	0.003 (0.02)	0.0007 (0.07)	0.013 (0.68)
XGDP	0.006 (0.61)	0.006 (0.92)	0.007 (0.43)	0.002 (0.21)	0.005 (0.54)	0.012 (0.64)
TOECD	-0.006 (0.06)	0.0004 (0.07)	0.011 (0.74)	-0.009 (0.93)	0.0007 (0.10)	0.0008 (0.05)
TNOECD	-0.001 (0.09)	0.018*** (3.30)	-0.007 (0.28)	-0.018 (1.11)	0.024*** (2.58)	-0.036 (0.96)
USBTRD	0.03 (0.91)	0.007*** (2.57)	0.004 (0.71)	-0.002 (0.63)	0.007*** (2.84)	-0.007 (0.86)
MERTRD	-0.0008 (0.43)	0.001* (1.72)	0.0006 (0.11)	-0.002 (0.51)	0.0008 (0.55)	-0.0016 (0.25)
MEREXP	-0.002 (0.63)	0.003 (1.52)	-0.001 (0.13)	-0.004 (0.64)	0.001 (0.34)	-0.005 (0.44)
MERIMP	-0.0007 (0.20)	0.003* (1.91)	-0.0006 (0.07)	-0.002 (0.38)	0.002 (0.77)	-0.002 (0.15)
MANEXP	0.005 (0.48)	-0.004 (0.67)	0.006 (0.40)	0.008 (0.87)	-0.004 (0.58)	0.022 (1.62)
MANIMP	0.003 (0.15)	0.002 (0.18)	0.025 (0.84)	-0.010 (0.62)	-0.001 (0.11)	-0.0002 (0.01)
SERVEXP	0.044** (2.09)	0.006 (0.32)	0.052* (1.88)	0.046* (1.80)	0.018 (0.84)	0.043 (1.27)
SERVIMP	0.008 (0.43)	0.004 (0.16)	0.048* (1.90)	0.014 (0.58)	-0.011 (0.45)	0.042 (1.38)
TARIFF	0.084*** (3.17)	0.086** (2.15)	0.081** (2.41)	0.081*** (3.37)	0.052** (2.10)	0.069*** (2.17)
XTAX	0.011 (0.23)	0.31 (0.24)	0.050 (0.88)	0.13*** (3.32)	0.06 (0.09)	0.13*** (2.82)
TAXTRD	0.021 (1.22)	0.062* (1.81)	0.024 (1.06)	0.062*** (3.74)	0.046* (1.99)	0.031*** (3.75)
BPA	0.35 (0.64)	0.26 (0.45)	0.076 (0.11)	0.36 (0.84)	-0.14 (0.40)	-0.10 (0.19)
CURRENT	0.58 (1.35)	0.16 (0.36)	0.12 (0.21)	1.05*** (2.64)	0.17 (0.53)	0.43 (0.71)

Note: See, Table 5.

Appendix A
Data Summary Statistics

<u>Variables</u>	<u>All Countries</u>	<u>Developed Countries</u>	<u>Developing Countries</u>
Growth of gross domestic fixed investment (% of GDP)	5.12	4.71	5.29
Population density (log)	1.62	1.87	1.55
Employment growth in industry (%)	1.67	-0.61	2.77
Growth of output per worker in industry (%)	1.04	2.29	0.48
Employment growth in services (%)	3.78	2.41	4.43
Growth of output per worker in services (%)	0.06	1.28	-0.50
Employment growth in agriculture (%)	0.62	-2.36	2.06
Growth of output per worker in agriculture (%)	0.03	0.89	-0.35
GDP (log, constant 1995 USD)	10.12	11.19	9.80
Urban population growth	3.54	1.22	4.20
Rural population growth	0.76	-0.64	1.15
Growth of agricultural machinery (%)	2.79	2.23	2.94
Trade shares (% of GDP)	68.30	72.32	67.15
Import duties (% of imports)	11.21	3.46	13.82

Appendix B
Data Sources

The following data are from the World Bank, World Development Indicators 2004:

- Employment growth in industry (GEMPIND)
- Employment growth in agriculture (GEMPAGR)
- Employment growth in services (GEMPSEER)
- Growth of output per worker (LABPROD)
- Growth of gross domestic fixed investment (INV)
- Growth of agricultural machinery, tractors per 100 hectares of arable land (INV)
- Population densities (DENSITY)
- Population growth (urban or rural) (POP)
- GDP at constant US dollars (GDP)
- Trade openness (OPEN): the ratio of exports plus imports to GDP
- Import penetration ratios (MGDP): the ratio imports to GDP
- Exports shares in GDP (XGDP): the ratio exports to GDP
- Merchandise trade (MERTRD): the trade in goods as a share of GDP
- Merchandise exports (MEREXP): the exports in goods as a share of GDP
- Merchandise imports (MERIMP): the imports in goods as a share of GDP
- Manufactured exports as a percentage of merchandise exports (MANEXP)
- Manufactured imports as a percentage of merchandise imports (MANINP)
- Manufactures comprise commodities in SITC sections 5 (chemicals), 6 (basic manufactures), 7 (machinery and transport equipment), and 8 (miscellaneous manufactured goods), excluding division 68 (non-ferrous metals).

Commodity exports as a percentage of merchandise exports (CMDEXP)

Commodity imports as a percentage of merchandise imports (CMDIMP)

Commodity trade includes in SITC sections 0, 1, 4 (food), 2 (agricultural raw materials), 3 (mineral, fuels), 27, 28, and 68 (ores and metals).

Agricultural raw material and food exports as a percentage of merchandise exports (AGREXP),

Agricultural raw material and food imports as a percentage of merchandise exports (AGRIMP).

Services exports as a percentage of services in GDP (SERVEXP)

Services imports as a percentage of services in GDP (SERVIMP)

Import duties (TARIFF): Import duties as a percentage of the value of imports are the sum of all levies collected on goods at the point of entry into the country and are used as a measure of the average import tariff rate.

Export taxes (XTAX): Export duties as a percentage of the value of exports are comprised of all levies collected on goods at the point of export.

Taxes on international trade (TAXTRD): taxes on trade as a percentage of current revenues include import duties, export duties, profits of export or import monopolies, exchange profits, and exchange taxes.

The following data are from the IMF's Annual Reports on Exchange Restrictions.

Bilateral payments arrangements of IMF members with non-IMF members (BPA): BPA is an agreement that determines the general method of settlement of trade balances between two countries.

Current Account Restrictions (CURRENT): restrictions that exist on payments with respect to current transactions in the form of quantitative limits or undue delay on other than restrictions imposed for security reasons and official action directly affecting the availability or cost of exchange.

The following data are from Easterly and Sewadeh (2002)

Trade with OECD countries (TOECD)

Trade with non-OECD countries (TNOECD)

US bilateral trade (USBTRD): the ratio of each country's total bilateral trade with the U.S. to its GDP - the IMF's Direction of Trade Statistics.

Appendix C

List of Countries:

Algeria	France*	New Zealand*
Argentina	Gabon	Nicaragua
Australia*	Gambia, The	Norway*
Austria*	Germany*	Oman
Bangladesh	Ghana	Pakistan
Barbados	Greece*	Panama
Belgium*	Guatemala	Papua New Guinea
Belize	Guinea-Bissau	Paraguay
Benin	Honduras	Peru
Bolivia	Hong Kong, China*	Philippines
Botswana	Iceland*	Portugal*
Brazil	India	Romania
Burkina Faso	Indonesia	Rwanda
Cambodia	Iran, Islamic Rep.	Saudi Arabia
Cameroon	Ireland*	Senegal
Canada*	Italy*	Sierra Leone
Central African Rep	Jamaica	Spain
Chad	Japan*	Sri Lanka
Chile	Kenya	Sweden*
China	Korea, Rep.	Switzerland*
Colombia	Lesotho	Thailand
Congo, Rep.	Madagascar	Togo
Costa Rica	Malaysia	Trinidad & Tobago
Cote d'Ivoire	Mali	Turkey
Cyprus*	Mauritania	Uganda
Denmark*	Mauritius	United Kingdom*
Dominican Rep	Mexico	United States*
Ecuador	Mongolia	Uruguay
Egypt, Arab Rep.	Morocco	Venezuela, RB
El Salvador	Mozambique	Vietnam
Ethiopia	Namibia	Yemen, Rep.
Fiji	Nepal	Zambia
Finland*	Netherlands*	

* Developed countries