Trade and Employment: Evidence from Latin America and the Caribbean

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Abstract

This paper examines the impact that the recent wave of trade liberalizations and economic reforms has had on employment. We use four alternative measures of openness and four measures of the real exchange rate to measure the impact of trade reforms on economy wide and manufacturing employment. Effects on labor demand are estimated on a panel data set for 18 countries in Latin America and the Caribbean. Across a wide range of specifications, we find that trade reforms have had a negative, albeit small, effect on employment growth, and that this effect has been reinforced by appreciation of the real exchange rate. We do not find that changes in domestic protection have had an effect on unemployment, suggesting that movements in and out of the labor force dominate over flows into unemployment in the adjustment of the labor market.

JEL classification codes:

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1 Introduction

Stabilization and restructuring policies in the region have been quite successful in abating inflation and accelerating growth[1]. These positive results have been achieved through a combination of fiscal measures aimed at reducing fiscal deficits, more cautious monetary policies, and thorough liberalization of the external sector (including both the current and the capital account of the BOP).

The stabilization and restructuring policies that many countries have undertaken in the region has coincided with a deceleration in the rhythm of employment growth. During the 70's and the 80's, in spite of a mediocre growth performance, the region experienced a sustained record of employment creation, briefly interrupted only by the oil crisis in 1974 and by the debt crisis between 1981 and 1983. Surprisingly, the recuperation of growth at the end of the eighties has coincided with a long period of negative employment growth. This trend is not just the product of events in the bigger countries in the region: in 11 of the 16 countries for which we have complete data for both periods, employment growth has been slower between 1991 and 1996 than between 1985-1990.

This coincidence between slow employment growth and trade reform has rekindled the debate about the effects of trade openness on the labor market. The theory regarding the effects of trade reform on employment predicts that an increase in trade will increase the relative price of the more abundant factor, normally presumed to be unskilled labor. In the context of a full employment model of the labor market, this implies that there will be a reallocation of output towards labor-intensive goods, an increase in the demand for unskilled labor, and an increase in wages.

A number of studies have attempted to test these predictions. Revenga (1994) used plant level data for Mexico manufacturing industry and did find a moderate effect on employment and no effect on wages at the firm level. Currie and Harrison (1994) used plant level data for Morocco, and found a relatively small effect on employment. Harrison and Revenga (1995) highlights that in both cases "the correlation between output and trade policies are small in magnitude and inconsistent ". Therefore, the case is not one of lack of correlation between output and employment, but between trade

[1]For a discussion on Latin America post-reform performance, see Easterly et al, (1997), Lora & Barrera (1997) and Fernandez-Arias & Montiel (1997).

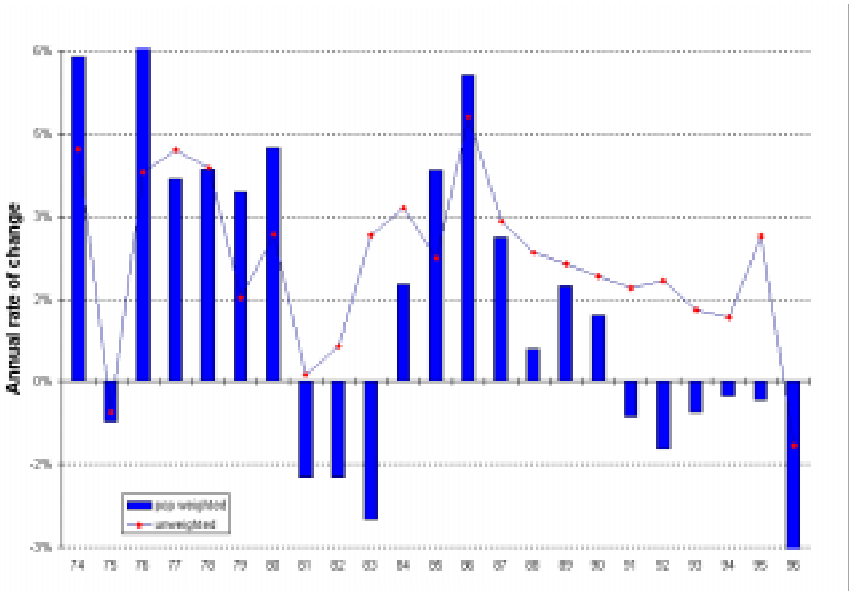

Figure 1: Employment growth in Latin America and the Caribbean, 1974-1996

reform and output.

A recent wave of studies examines the relationship between increased trade openness, employment, and wages in the manufacturing sector, for Brazil (Paes de Barros et. al. (1996)), Chile (Meller and Tokman, (1996)), and Peru (Saavedra (1996)). The overall conclusion is that trade reforms had a different impact on firms depending on their size: Large firms experienced net job losses whereas small firms had positive employment growth. The overall effect depends on the relative magnitudes of losses and gains and the number of small versus large firms. Brazil suffered heavy overall losses, while Peru enjoyed some increase in manufacturing employment.

The studies for Brazil, Chile and Peru do not estimate formal employment equations. Instead, they assume that (net) imports are substitutes of domestic production and employment and therefore, compare the relative labor content of imports (in terms of the domestic production they substitute for) and exports, before and after trade reforms. A shortcoming of their methodology is that they do not control for other simultaneous events that may affect labor demand (output growth, real exchange rate appreciation,

real wage variations among others). Paes de Barros et al. (1996), for instance, conclude that in Brazil, a reduction in tariffs changed relative prices in favor of imported goods, increasing imports and displacing domestic production and employment. They estimate that around half a million jobs were lost between 1987 and 1995, with 80% of the employment losses concentrated in 1995. However, it is not clear whether this outcome was driven by trade reforms or by the sharp real exchange rate appreciation suffered by Brazil that year.

In spite of this relative abundance of studies on the impact of trade reform in sub-sectors within a country, to our knowledge, there are no recent studies that examine the impact of trade liberalization on economy wide aggregate employment. In this paper we analyze the impact that the recent wave of trade liberalizations and economic reforms has had on aggregate and manufacturing employment. We use a cross-country time-series panel of data for 18 countries of Latin America and the Caribbean. The use of a panel data analysis allows us to control for the simultaneity of macroeconomic and policy changes through the use of the underlying timing and intensity of reform variability in different countries in our sample.

This is a complex task for at least two reasons. First, it is difficult to isolate the effect of trade reforms from the effects of other measures that were being simultaneously undertaken in countries in the region. As Edwards (1994) mentions, the standard recommendation of the literature regarding stabilization and trade liberalization implied a sequencing of reforms that began by fiscal measures aimed at stabilization, followed by current account liberalization, in turn followed by capital account liberalization. The fact that this recommendation was not followed and most of the reforms were done in the form of an all-inclusive 'package' ended up producing important real exchange rate appreciations. Therefore, adequate controls are needed to disentangle the effects of a reduction in domestic protection from those of a misalignment of the real exchange rate.

The second difficulty relates to the relationship between trade and growth. To the extent that trade increases growth by increasing the ability of countries to absorb and develop technological change, movements toward international prices via trade reforms, may have both a direct negative (through substitution of domestic production for imports) and indirect positive (through the acceleration of growth) effect on employment. Therefore, it is necessary to carefully distinguish between those two effects in the estimation of the impact of trade reforms on employment.

This paper is organized as follows; Section 2 describes the theoretical framework in which we base our empirical specifications, examines the difficulties of measuring trade reforms and describes the set of measures and data used in our specifications. Section 3 describes the results obtained in labor demand specifications in which we control for output. Our results show that trade reforms have a negative, albeit small, direct effect on employment. Across a wide range of specifications, we find that the coefficients on different measures of trade liberalization have a negative sign on a labor demand equation. In addition, we find that real exchange rate appreciations, often caused by increased capital inflows in the aftermath of economic reform, contribute to reinforce this negative impact.

Section 4 examines the results obtained from specifications in which we allow trade policy to have an indirect effect on employment throught a positive effect on output. We show that the expansive effect on employment caused by output growth has not been large enought as to compensate the direct job losses caused by a non-smooth transition of workers across sectors. These results should be interpreted with caution since trade reforms are too recent to expect that their potential medium and long-run effects on output growth have been already fully realized.

Section 5 examines the direct and total impact of trade reforms on manufacturing employment. We find that our results for economy-wide aggregate employment hold for manufacturing employment, with the effects somewhat magnified for the latter.

Section 6 examines the impact of trade policy on unemployment. We do not find evidence that trade reforms or real exchange rate appreciations have had an impact on unemployment, suggesting that movements in and out of the labor force dominate over flows into unemployment in the adjustment of the labor market.

Finally, Section 7 concludes and posses questions for future research.

2 Methodology, Data, and Correlations

2.1 A simple Framework

In this section we derive a very simple framework in which to assess the impact of changes in domestic protection levels on employment.

Assume the economy wide aggregate demand can be represented by the

following function:

$$P = AY^{(-1/\gamma)}, \qquad \gamma > 0$$

where P is the price level, Y is the output and A is a demand schedule shifter that captures the effects of trade policy on employment. Let T be a direct measure of trade barriers, such as average tariffs rates or coverage ratios for non-tariff barriers and assume

$$A = A(T)$$

Technology is represented by a Cobb-Douglas production function

$$Y = \lambda K^{\alpha} L^{\beta}$$

At any time $t = 0$, the firm maximizes

$$\sum_{t=0}^{\infty} \beta^t \{R_t(T, K, L_t) - WL_t - RK - C(\Delta L_t)\}$$

were $R_t(T, K, L)$ is the revenue function, W and R are the nominal returns of factors, and $C(\Delta L)$ denotes adjustment costs associated with net changes in employment. Assuming quadratic adjustment costs and static expectations about the set of forcing variables, the solution of this problem yields the well know partial-adjustment equation[2]

$$\Delta l_t = \delta(l_t - l_t^*) + \varepsilon_t, \delta < 0 \tag{1}$$

were small cases denote variables in logs, l_t^* denotes the employment long-run value equilibrium of employment towards which firms are adjusting and ε_t is a disturbance term. This specification reflects that changes in employment due to changes in, for instance, the level of openness do not have to occur simultaneously to change in policy, and that employment levels might take some time to adjust to the new equilibrium level. Assuming log linearity of the function A, the long term equilibrium is given by

$$l_t^* = \alpha_o + \alpha_1 y + \alpha_2 w + \alpha_3 t + \alpha_4 r \tag{2}$$

[2] A model were agents have rational expectations and adjustment costs are linear would lead a similar employment equation. However, the interpretation of the coefficients would be different. $1 + \delta$ would represent the fraction of firms that are neither hiring or firing. See P. Anderson(1993)

It is difficult a priori to sign the coefficients for trade policy. Trade models predict that a reduction in the level of tariffs will lead to reallocation of workers towards sectors that have competitive advantage given the new set of prices. If, as is commonly assumed, developing countries are intensive in labor, a decrease in trade distortions will lead to an expansion of labor intensive sectors. Labor demand and wages will increase, and the capital-labor ratio and returns to capital will decrease. In such case, the coefficient on trade policy will have a positive sign. Adjustment cost however, are likely to hinder the process of reallocation across sectors, slowing down the shrinking of non competitive sectors and the rising of new ones. In addition, if nominal rigidities exits; workers do not find it attractive to reallocate to emerging sectors; or emerging sectors do not find workers with the appropriate skills, the reallocation process might be accompanied by increases in unemployment or increased outflows from the labor force. In such case, the coefficient on trade policy could be negative. Therefore, the question about whether more openness increases or reduces employment has to be examined empirically.

An added difficulty in examining the effects of openness on employment is the observation that trade reforms were implemented simultaneously with other reforms aimed at stabilizing the economies. As mentioned above, successful stabilization processes were in most cases followed by large capital inflows that lead to real exchange rate appreciations.. Burgess and Knetter (1996) examine the response of industry level employment to exchange rate shocks in a sample of OECD countries. Their results suggest that in the UK, US, Italy and Canada, exchange rate depreciation lead to increased domestic production and employment. Their data, however, does not show this correlation for Germany and Japan. This limited evidence suggests that real exchange rates might be an important factor explaining differences in employment performance across-countries and periods. Since trade policy changes and real exchange movements are likely to be correlated, not accounting for this variable might lead to biased estimates of the effect of trade policy.

To account for differences in exchange rate adjustments, we include the real exchange rate in our definition of long-run employment. Therefore, expression (2) becomes

$$l_t^* = \alpha_o + \alpha_1 y + \alpha_2 w + \alpha_3 t + \alpha_4 r + \alpha_5 e \qquad ((2)')$$

where e denotes the logarithm of the real exchange rate.

An issue that has been debated in the existing literature on trade policy and employment examining subsectors of activity is whether the small observed response of employment to changes in trade regimes is due to employment inertia caused by adjustment costs, or lack of output response to changes in trade policy. To disentangle positive changes in employment due to a positive response in output, to changes or lack or changes due to fast or slow reallocation of workers across sectors, we run our estimations in two steps. In the first one, we estimate equation (1), once l_t^* is substituted by the value given in equation (2)'. Using this specification, we can properly assess the short and long-run elasticities of employment to changes in the level of economic activity and therefore assess the importance of adjustment costs. In addition, the coefficient on trade policy indicates whether, once controlling for wages and output, changes in trade regime lead to a higher or lower aggregate demand for workers. A positive sign would indicate that the Heschker-Ohlin effect dominates and hence an increase in openness yields a higher labor demand[3]. A negative sign would indicate that the reallocation of workers across sectors is less than smooth and that some workers loose their jobs and do not hold or find new ones. In the second step, we estimate the same equation, without controlling for output. Under this specification, the coefficient on trade policy yields the combined effect of *direct* changes in employment induced by reallocation of workers and *indirect* changes induced by the impact of trade policy on economic activity.

2.2 Data Sources

To analyze the effects of trade policy on employment we have collected a panel of yearly data covering 18 countries of Latin America and the Caribbean for a period of 15 years or longer[4]. All larger countries are represented in our sample, as well as some of the least populated countries of the Caribbean basin. The sample comprises countries in different stages of development that went through structural reforms with varying degrees of intensity and coverage. Almost all countries in the region undertook significant trade reforms. However, differences in timing, sequencing and packaging of reforms help to identify the effects of trade policies.

[3]That is, assuming that developing countries are intensive in labor.

[4]The data set covers the period 1970-1996, althought the number of observations varies across countries. Countries for which we did not have at least 15 consecutive observations were excluded from the sample.

The geographic coverage and the definition of employment, unemployment, and wages varies somewhat across countries. We control for these differences including country dummies in all our empirical specifications. Total employment (EMP) reflects total number of workers employed in all sectors of activity[5]. Total and manufacturing employment ($MANU$) data was obtained from the ILO Yearbook of Labour Statistics, various years, and country statistical yearbooks. Unemployment rates (UE) were obtained from the ECLAC Statistical Yearbook for Latin America and the Caribbean, various years, ILO/PREALC data provided by the IDB Statistics and Quantitative Unit, or obtained from country yearbooks. Total real wages (TRW) were gathered from the ECLAC Statistical Yearbook or obtained from the IDB statistical unit. Real manufacturing wages (RMW) were obtained from the ILO Yearbook of Labour Statistics, country statistical yearbooks, or central bank statistical reports. Working-age population ($WAPT$) generally includes the population 15 to 64 years and was calculated from estimates published by the United Nations Population Division. Data on Gross Domestic Product (GDP) was obtained from the IDB statistical unit.

2.3 Measuring Trade Policy and Exchange Rates

The already voluminous literature on trade policy and growth has made patent the difficulties of capturing the degree of openness with a single measure[6] The most commonly used measure is openness proxied for trade flows $\frac{M+X}{GDP}$. This measure is easy to obtain, but it has various shortcoming that difficult the interpretation of the results. In particular, trade flows might be affected by geographical variables (location, size of the country) that are not correlated with trade policy. These difficulties are partially overcome in panel estimations since these differences can be partly accounted for in the constant terms. Another shortcoming of using trade flows, is that they measure results and, as such, they are not necessarily correlated with changes in policy.

A better measure of trade policy would be given by either a comparison of tradable prices among countries, or direct measures like average tariffs and

[5]Data on total employment from Brasil, Bolivia and Mexico has a smaller coverage than for the other countries. In particular, Brasil data does not include services and Bolivia and Mexico data comes from Social Security administrative records which do not include the non-covered population.

[6]See Leamer (1988), Edwards (1992), and Harrison (1996) among many others.

coverage ratios of non-tariff barriers. However, price and non-tariff barriers measures are difficult to obtain in a yearly basis. Average tariffs are easier to obtain, but on their own, might fail to capture the increasing importance of non-tariff barriers once tariffs have been reduced.

In our study, we analyze the effects of trade as measured by four different proxies: trade flows ($OPEN$), average tariffs ($TARIFF$), black market premia (BMP), and a dummy ($TREF$) that takes a zero value before trade policy reforms and a unit value afterwards. $OPEN$ was obtained from data on M, X, and GDP coming from the IDB Statistical Unit. $TARIFF$ reflects average tariffs (unweigthed) for all the universe of goods and services subjected to these taxes, and were provided by the Integration, Trade and Hemispheric Issues Division at the IADB. Data on black Market premia was obtained from various issues of the World Currency Yearbook. Finally, $TREF$ was constructed using as break points the trade reform dates published in the Social and Economic Progress Report, 96 (IADB) pp. 99.

To control for the effects of exchange rate movements, four different measures of real exchange rates were considered: A measure of trade weighted real exchange rates ($TWRER$) was constructed using a weighted average of country j 'main trade partners Consumer Price Indexes (CPI),

$$TWRER_j = \frac{\sum_i \nu_{ji} x_{ji} CPI_i}{CPI_j} \tag{3}$$

where ν_{ji} denotes the share of trade of country j with country i, and x_{ji} denotes the bilateral nominal exchange rate between j and i, in j's currency. Data on bilateral exchange rates and trade shares was obtained from the IMF Research department. Data on Consumer Price indices was obtained from IFS Statistics.

In order to interpret appreciation periods as deviations from the steady state, instead of changes in fundamentals that lead to a new "equilibrium" rate, we compute two new real exchange rate measures. Based on Goldfajn and Valdes (1996) we take as a concept of equilibrium the purchasing power parity (PPP). This definitions states that controlling for differences in non-tradable prices, prices of tradeables must equate across-countries. If the baskets of goods considered in expression (3) included only tradable goods, deviations from equilibrium will be computed as episodes in which the real exchange rate is different from 1. However, since the CPI include a significant share of non-tradable goods, differences in non-tradable prices across countries should be accounted for. Goldfajn and Valdes suggest that these

	$TARIFF$	$OPEN$	BMP	$TREF$	$TWRER$	$TWRT$	$TWRD$	$RERUS$
$TARIFF$	-	-.41*	.66*	-.78*	.35*	.11	.28*	.16**
$OPEN$		-	-.22*	.11*	-.21*	-.19*	-.03	-.007
BMP			-	-.23*	-.12*	-.07	-.11*	-.05
$TREF$				-	.30*	.28*	0.07*	.23*
$TWRER$					-	.93*	.31*	.60*
$TWRT$						-	-.01	.49*
$TWRD$							-	.41*
$RERUS$								-

Table 1: Rank Correlations among measures of Openness and Exchange Rates

differences are affected by factors that are likely to move slowly. One of such factors are differences in the tradable sector productivity growth that lead to differences in the relative price of non-tradeables.. Following their methodology, we capture these effects by regressing ($TWRER$) on a constant and a quadratic time trend. The fitted value of this regression captures relative differences in non-tradeables and therefore, gives a measure of the long-run equilibrium value of the real exchange rate ($TWRT$)[7]. Deviations from the fitted value ($TWRD$) are interpreted as periods of over- or undervaluation of the exchange rate, that lead to pressures in the balance of payments.

Finally, we also include as a measure of the exchange rate, the bilateral real rate between every country and the US ($RERUS$) computed from nominal exchange rates and CPI obtained from IFS statistics.

Table 1 shows the rank correlations between all measures of trade policy and exchange rates. One (*) and two stars (**) indicate significance at the 5 and 10% level, respectively.

The rank correlations between the different openness measures have the expected signs and are all significant. A decrease in average tariffs is associated with an increase in trade flows, a decrease in black market premia and trade reform. In the same manner, an increase in trade flows is associated with a decrease in black market premia and episodes of trade reform. Fi-

[7]Other factors such like: government spending, movements in the terms of trade, international interest rates or tariffs are likely to affect the relative prices of non-tradables. If these factors induce short-lasting deviations in the relative prices of non-tradables, they would not be properly captured in our simple measure of equilibrium.

nally, episodes of trade reform are associated with a decrease in black market premia.

All exchange rate measures are positively and significatively correlated among themselves, with the exception of the trend and deviations from the trend. As expected, trade weighted real exchange measures are significatively correlated with openness measures, however the signs differ across measures. An increase in openness measured by a decrease in tariffs or an increase in trade flows, is associated with real exchange rate appreciations. However, when openness is measured by the size of BMP or the reform variable (TREF), increased openness is associated with real exchange rate devaluations. This lack of consistency indicates that the four measures of openness are capturing different things, and hence some lack of consistency in the estimation results might also be expected. Finally, notice that correlations between real exchange rates measured against the dollar and openness measures are much lower and less significant that the ones computed with trade weighted real exchange measures.

3 Estimates of the direct effect of trade policy on total employment

Table 2 reports the results of estimating equation (1), once we substitute l^* by its value given in equation (2)', with different proxies for openness and different measures of exchange rates. The estimation procedure is instrumental variables (IV), in which lagged employment, l_{t-1} has been instrumented with current and past values of the exogenous variables[8]. This procedure guarantees consistency regardless of the structure of the residuals. However, it does not guarantee efficient estimates.

We deal with the likely endogeneity of wages in two alternative ways: The first one simply replaces wages by its one-period lag. The implicit assumption is that the correlation between lagged wages and current employment is lower than the correlation between their contemporary values. Since we do not explicitly care about the employment-wage elasticity, replacing wages with lagged wages will provide a correct control, insofar, lagged wages are exogenous.. The second approach, uses a 2SLS procedure in which we in-

[8]OLS estimates yielded autocorrelated residuals and therefore inconsistent estimates of the parameters of interest.

struments wages and lagged employment with the same set of contemporary and lagged values of exogenous variables. In this set of instruments we also add population in working age, to capture movements in the labor supply schedule. In general, the reported results correspond to the first approach unless otherwise mentioned, since it yields lower standard errors and better specification test results.

The results shown in table 2 suggests a negative relationship between openness, as proxied by trade flows and average tariffs, and aggregate employment. The combined results presented in the first column indicate that a 1 percentage point increase in trade flows, leads to a .065% reduction in aggregate employment. The sign and magnitude of the coefficient is robust to changes in control variables, and is significative, at least at the 10% level, in 5 out of 6 specifications. Regarding average tariffs, our results indicate a fairly robust positive effect of average tariffs on aggregate employment. In this case, however, tariffs only come significant at conventional levels in 2 out of 6 cases.

These results are not maintained when we measure openness by the size of the black market premia or the trade reform dummy. An increase in black market premia will lead to a reduction of employment, however, the coefficients are very small in magnitude and come significant in only 1 out of 6 cases. Finally, the trade reform dummy is also positive indicating an increase in employment once a trade reform has taken place, however in none of the cases appears as significative.

Taken as a whole these results suggests that changes in the level of openness lead to non-smooth transitions of workers across sectors that may result in reductions in overall employment levels. Another possible interpretation of the negative (positive) coefficient on trade flows (tariffs) is that an increase in openness leads to a positive increase in average labor productivity that, for a constant level of output, translates into employment reductions.

As expected, the coefficients on openness and tariffs become slightly larger when exchange rates are not included. This confirms our initial hypothesis that not including exchange rates might bias the openness results insofar as exchange rate movements correlated with openness are associated with movements in employment. However, this bias, if any, seems rather small.

The coefficients on exchange rates are in general positive and quite significant indicating that exchange rate depreciations are associated with expansions in employment. The dollar denominated real exchange rate appears as the most robust measure of exchange rates, being positive and significative,

throughout the four measures of openness. In addition, both appreciations in the real exchange rate equilibrium level (fitted trend) and deviations from the trend seem to have negative effects on aggregate employment. However, when they compete in the same equation (specifications (5), (11), (17) and (23)) the trend seems to have a larger explanatory power. This is consistent with appreciations of the trend capturing relative increases in tradable sector productivity.

All specifications presented in Table 2, exhibit large persistency on the dependent variable indicating that employment adjusts fairly slowly to changes in economic conditions. Averaging across the 24 specifications presented in Table 2, we obtain a mean coefficient on lagged employment equal to -.238 implying a median lag (i.e. the time it takes employment to move halfway to its long run equilibrium value) of approximately 2.5 years. This median lag is large when compared to estimates obtained with similar data for countries like the US and UK[9], suggesting the presence of large adjustment costs that slow down workers' reallocation across sectors.

None of the above described results was sensitive to the use of 2SLS to jointly instrument lagged employment and wages. However, standard errors were larger and, consequently, the coefficients were less significant. In addition, specification test performed on the residuals[10]indicated that the regressions performed with this method, were more likely to present error autocorrelation

4 Estimating the total effect of openness on employment

The above reported regressions assume that there is no effect of trade policy on output. However, as the buoyant literature on trade and growth has emphasized, more open economies might be more efficient in absorbing exogenously generated innovations (Edwards, 1996), Grossman and Helpman (1992). If this is the case, trade policy is likely to have an indirect effect on employment through its effect on output. To examine the total effect

[9]See Hammermesh (1993) pp. 254-255

[10]The specification test that we performed consisted on regressing the residuals on their lagged values and testing for the hypothesis that the coefficients were individually and jointly equal to zero.

of trade policy on employment we run the same specifications than in the former section but without controlling for output[11].

Table 3 reports the results of these regressions. The value and significance of the coefficients on trade flows and tariffs is now lower and only one out of the twelve coefficients comes significant, indicating that the negative impact of trade policy on employment, reported in Table 2, is now outweighed by a positive effect through output. These results suggest that the impact of trade policy on output has not been, so far, large enough to compensate the *direct* negative effect of trade policy on employment. They also indicate, that the *total* effect of trade policy on output has been negative, but small.

The coefficients on the exchange rate measures are now, in general, larger and more significant. In these regressions, exchange rates are a proxy for demand. When the exchange rate appreciates, aggregate demand for domestic production and employment are reduced. As before, both the quadratic trend, and deviations with respect to the trend are significant, however, when competing in the same equation, the effect of the trend is stronger.

5 Results for the Manufacturing Sector

The existing literature on trade and employment has focused on the impact of increased openness on manufacturing employment. Rama (1994) using four-digit industry data for Uruguay, finds that a 10% reduction in industry protection, reduces employment between 4 and 5% within the same year. Revenga (1994) examines plant-level data on Mexico and finds a smaller effect of trade policy on manufacturing employment. Her estimates suggest that a 1% reduction in tariff levels, was associated with a .02 to .03% decline on employment. For Morocco, Currie and Harrison (1994) find that a reduction in tariffs had no significant effect on employment. Both in the cases of Mexico and Morocco, the authors find that this lack of response of employment was mostly due to a small correlation between trade policy changes and output.

We reexamine these finding using aggregate yearly employment and wage manufacturing data for a sample of Latin American and Caribbean countries covering the period 1975-1996[12]. As before, we proceed in two steps.

[11] Even when output is not included as an explanatory variable, we use lag values of output among the set of instruments for lagged employment.

[12] The periods covered by our sample differ across countries. However, countries with less than 15 observations were excluded.

We first examine the response of manufacturing employment to changes in trade policy for a given constant level of output. For that purpose, we use the specifications described in equations (1) and (2)' substituting aggregate wages and employment by their manufacturing counterparts. In addition, we include a linear time trend to capture long-run declines in manufacturing. If trade policy has no *direct* effect on employment beyond its *indirect* effect through output, the coefficient on the measure of openness in this first set of regressions should be close to zero. In the second step we reestimate the first set of regressions excluding output, and use the results to assess the relative magnitudes of direct and indirect effects on manufacturing employment.

Table 4 reports the first set of regressions with manufacturing employment as a dependent variable with and without dollar-based exchange rates. The trade policy coefficients are robust to the introduction of trade weighted exchange rates, and decompositions between trend and deviations from the trend[13]. As in the results reported in Table 2, increased openness, proxied by increased trade flows or declines in average tariffs, leads to an employment decline. The point estimates are now larger, suggesting a larger effect for manufacturing than for the economy wide aggregate employment. The difference between the estimated coefficient for openness measures with and without controls are larger than in Table 2, suggesting that the bias in the estimation of the effects of openness is bigger for the manufacturing sector than for the economy wide aggregate. The estimates, however, are more imprecise and not significatively different from zero except in equation (2).

Our point estimates are in the range of those found by the existing literature. According to them, a 10% increase in trade flows would lead to a 1% to 1.4% decline in manufacturing employment within the same year. In terms of tariffs, a 10% decrease in average tariffs would reduce manufacturing employment by 2 to 3.2%. These estimates, however, do not take into account the indirect effect of trade policy on output. Table 5 reports the estimates once output is not controlled for. As before, we have a small reduction in the size and significance of the coefficients, indicating that the indirect effect through output was small and not enough to compensate for the change in relative prices.

Results regarding the real exchange rate are more robust. All coefficients are positive, significative, and larger in magnitude than in the specification

[13]We choose not to report these results because they do not add much to the discussion. They are available upon request.

for total employment. This indicates that, as it is to be expected in a a tradable sector, real exchange appreciations have a much larger effect on employment in manufacturing than on total employment.

All specifications exhibit large persistence on the dependent variable. Averaging across all specifications presented in Table 4 we obtain a mean coefficient on lagged employment equal to -.189, indicating that rellocation of workers has not been a smooth process. In fact, the coefficient of lagged employment is smaller than the one obtained from comparable equations for total employment (-.232), suggesting that adjustment costs in the manufacturing sector are larger, and that the time required to reach a new equilibrium is longer.

The above reported results were not sensitive to the use of 2SLS to instrument lagged employment and wages. As in the case of results for total employment, the standard errors of coefficients are larger. The results of the specification tests indicate that some specifications are likely to suffer from error autocorrelation, and the number of affected specifications is very similar for 2SLS and for the reported results.

6 Trade Policy and Unemployment

The results reported in the last sections indicate that trade liberalization has had a negative, albeit small, effect on economy wide and manufacturing employment. The positive effect that opening had on growth was not large enought as to compensate for the *direct* negative effect of trade reforms on employment. Our results also indicate that real exchange rate appreciation was an important factor both for total employment and for manufacturing. All these effects are small in magnitude, but nevertheless consistently negative. Opening the economy to foreign competition, thus, produces reallocation of labor across sectors, but this reallocation is not smooth and ends putting a number of workers out of a job.

If participation rates were constant, or changed only slowly in response to demographic determinants, then one would expect that trade reform and real exchange rate appreciation have a positive effect on unemployment. However, if we take into account that workers may move in and out of the labor force, instead of only between a job and unemployment, then trade reform and appreciation need not have that positive effect.

The results presented in Table 6 indicate that movements in and out of

the labor force are important in the adjustment of the labor market to changing conditions. In none of the specifications opening or real exchange rates have significative coefficients: the coefficients for all but one of our variables related to openness and the real exchange rate are smaller in magnitude than in the equations for employment (economy wide and manufacturing), and are not statistically different from zero. The only exception is the coefficient for trade reform ($TREF$) that is positive and significative, indicating that the adoption of trade reform policies shifts the unemployment rate upwards by around 1 point. All control variables have the expected signs and are statistically significative in all specifications, with the exception of those including $TARIFF$.

One possible interpretation of these results is that movements in and out of the labor force dominate over movements into unemployment. Workers who are displaced from their jobs do not go into the unemployment pool, but rather leave the workforce either because they get an early retirement in the context of privatizations or downsizing programs, or because they have a weaker attachment to the labor market given their personal and family characteristics. Therefore, the flows that dominate the employment adjustment associated with opening are not between a job and unemployment, but between into and out of the labor force. This interpretation would be consistent with the lack of incentives to declare oneself unemployed given the absence of unemployment insurance and/or benefits[14], and with the low variability of the unemployment rate observed in most of the countries in the region.

7 Conclusions and Agenda for Future Research

The results presented in this paper sustain the view that trade liberalization has a negative, albeit small, direct effect on employment. Across a wide range of specifications we have found that the coefficients of different measures of trade reform, ranging from the share of imports and exports on GDP to a dummy for trade reform, have a negative sign on a labor demand equation. We also found that real exchange rate appreciations, that have often been caused by increased capital inflows in the aftermath of economic reform, contribute to reinforce this negative impact.

[14]Large severance payments could reinforce this effect given that they are paid upon separation, and thus are not conditional to job search as unemployment insurance is.

The question of whether or not trade has a positive impact on growth (that would translate into an indirect positive effect on employment), has received extensive attention in recent literature. Against that background, our research shows that the expansive effect of trade on output has not been enough to compensate for the negative direct effect on employment. These results should be interpreted with some caution, given that reforms are too recent to expect that the full medium and long term effects of trade on growth have already been realized.

Both sets of results hold both for economy wide aggregate employment and for manufacturing employment, with the effects of openness and real exchange rate appreciation somewhat amplified in the latter.

We do find that neither openness nor real exchange rate appreciation have an effect on unemployment. These results are consistent with a labor market adjustment process dominated by movements in and out of the labor force, rather that with inflows into unemployment. This is an intriguing and, at first sight, counterintuitive result given the upsurges of unemployment that countries like Argentina have experienced in the recent past.

However, it should be stressed that our results refer to the average country in the region and therefore are not able to capture each and every individual country characteristics and processes. Future research should address this shortcoming in at least three different directions. In the first place, the predictions of standard trade theory regarding labor demand hinge crucially on the assumption that the region's more abundant factor is unskilled labor. However, it may well be the case that different countries in the region have different endowments and different 'more abundant ' factors. If that is the case, our mean estimates may result in a biased estimation of the magnitude and significance of the effects of trade on employment.

In the second place, our results suggest that manufacturing has been more affected by trade than the economy wide aggregate. Therefore, controlling for the size of the manufacturing sector may be another way to attenuate the potential biases of averaging across countries. In the third place, education may be an important factor in determining the ability of workers to adapt to a changing environment. As the average education of the workforce is probably correlated within the region with the size of the manufacturing sector, introducing controls for education could also be instrumental in correcting potential estimation biases.

Finally, our results should be interpreted as indicating that the process of reallocation of workers has not been a smooth one. Data on gross flows

between different labor market status that are begginning to become available will be an invaluable tool in obtaining a clearer picture about the determinant of these movements and the types of obstacles that hinder a smoother process of worker reallocation.

Table 2: Regression results for economy wide aggregate employment

	Different measures of real exchange rate with openness measured as imports + exports as a fraction of GDP						Different measures of real exchange rate with average level of tariffs					
	(1)	(2)	(4)	(3)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Openness	-0.064	-0.060	-0.071	-0.062	-0.060	-0.073						
	(-1.9)	(-1.6)	(-1.9)	(-1.6)	(-1.5)	(-1.9)						
Tariffs							0.014	0.014	0.000	0.022	0.002	0.028
							(1.3)	(1.4)	(0.0)	(2.1)	(0.2)	(2.3)
Black market premium												
Trade reform index												
log real exchange rate (dom. currency vs. US$)	0.037						0.029					
	(3.3)						(2.1)					
log real trade-weighted exchange rate		-0.006						0.044				
		(-1.2)						(3.3)				
log trend real trade-weighted exchange rate			0.044		0.044				0.152		0.134	
			(1.9)		(1.6)				(4.1)		(-2.9)	
real trade-weighted exchange rate deviation from trend				-0.005	-0.016					0.043	0.013	
				(-0.4)	(-1.1)					(2.5)	(0.6)	
Control variables												
Lagged log employment	-0.199	-0.152	-0.190	-0.245	-0.310	-0.251	-0.141	-0.107	-0.257	-0.081	-0.220	-0.126
	(-3.1)	(-2.3)	(-2.2)	(-3.5)	(-3.0)	(-3.4)	(-1.7)	(-1.3)	(-3.5)	(-0.9)	(2.3)	(-1.0)
log GDP	0.148	0.121	0.121	0.176	0.191	0.185	0.079	0.059	0.018	0.087	0.002	0.091
	(3.0)	(2.4)	(2.3)	(3.4)	(3.2)	(3.5)	(1.5)	(1.1)	(0.3)	(1.5)	(0.4)	(1.2)
Lagged employment growth	0.101	0.126	0.137	0.153	0.179	0.195	0.095	0.055	0.030	0.082	0.031	0.109
	(1.6)	(1.8)	(1.9)	(2.1)	(2.3)	(2.7)	(0.8)	(0.5)	(0.3)	(0.7)	(0.3)	(0.8)
Lagged log wages	0.000	-0.007	-0.002	-0.022	-0.019	-0.013	-0.058	-0.050	-0.060	-0.051	-0.056	-0.062
	(0.0)	(-0.4)	(-0.2)	(-1.1)	(-1.0)	(0.1)	(-2.1)	(-1.8)	(-2.4)	(-1.8)	(-2.1)	(-1.5)
N	194	207	204	207	205	210	91	92	92	92	92	92
Adj. Rsq.	0.375	0.284	0.223	0.264	0.197	0.259	0.217	0.296	0.295	0.250	0.310	-0.010
F on joint lagged residuals=0	1.23	1.14	0.68	2.05	2.82	2.98	0.54	0.42	0.46	0.54	0.37	0.75
Prob. > F	0.300	0.340	0.560	0.110	0.040	0.030	0.660	0.739	0.712	0.660	0.780	0.528

	Different measures of real exchange rate with black market						Different measures of real exchange rate with trade reform					
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Openness												
Tariffs												
Black market premium	-0.001	0.000	-0.003	-0.001	-0.001	-0.001						
	(-0.9)	(-0.3)	(-1.9)	(-0.5)	(0.9)	(-0.5)						
Trade reform index							0.005	0.003	0.005	0.002	0.007	0.006
							(0.7)	(0.3)	(0.6)	(0.3)	(0.8)	(0.7)
log real exchange rate (dom. currency vs. US$)	0.040						0.038					
	(3.0)						(3.5)					
log real trade-weighted exchange rate		-0.008						0.041				
		(-1.6)						(4.0)				
log trend real trade-weighted exchange rate			0.060		0.041				0.098		0.098	
			(2.2)		(1.3)				(3.5)		(3.5)	
real trade-weighted exchange rate deviation from trend				-0.003	-0.011					0.042	0.015	
				(-0.2)	(-0.8)					(3.0)	(1.0)	
Control variables												
Lagged log employment	-0.260	-0.225	-0.301	-0.313	-0.427	-0.295	-0.295	-0.249	-0.203	-0.246	-0.331	-0.292
	(-3.5)	(-3.4)	(3.2)	(-4.4)	(3.7)	(-4.1)	(-3.5)	(3.0)	(2.2)	(-2.8)	(-3.4)	(-3.2)
log GDP	0.159	0.147	0.148	0.199	0.243	0.189	0.173	0.139	0.092	0.162	0.153	0.181
	(2.9)	(2.9)	(2.5)	(3.7)	(3.6)	(3.5)	(3.3)	(2.6)	(1.5)	(2.8)	(2.8)	(3.0)
Lagged employment growth	0.098	0.114	0.118	0.130	0.168	0.176	0.032	0.050	0.041	0.063	0.063	0.083
	(1.3)	(1.5)	(1.5)	(1.7)	(1.9)	(2.3)	(0.5)	(0.7)	(0.6)	(0.9)	(0.9)	(1.1)
Lagged log wages	-0.004	-0.016	-0.003	-0.024	-0.022	-0.012	-0.071	-0.066	-0.043	-0.074	-0.071	-0.083
	(-0.3)	(-0.8)	(-0.2)	(-1.2)	(-1.1)	(-0.6)	(-3.4)	(-3.0)	(-1.6)	(-3.2)	(3.2)	(-3.5)
N	171	180	177	180	178	183	182	198	192	198	198	198
Adj. Rsq.	0.347	0.317	0.197	0.254	0.096	0.268	0.296	0.300	0.338	0.263	0.290	0.205
F on joint lagged residuals=0	0.22	0.1	0.36	0.4	2.26	0.25	2.66	0.85	1	0.99	1.2	3.24
Prob. > F	0.884	0.960	0.783	0.754	0.086	0.860	0.050	0.469	0.395	0.397	0.311	0.024

Table 3: Regression results for economy wide aggregate employment without controlling for output

	Different measures of real exchange rate with openness measured as imports + exports as a fraction of GDP						Different measures of real exchange rate with average level of tariffs					
	(1)	(2)	(4)	(3)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Openness	-0.037	-0.039	-0.052	-0.031	-0.040	-0.037						
	(-1.1)	(-1.0)	(-1.0)	(-0.8)	(-1.0)	(-1.0)						
Tariffs							0.009	0.010	-0.002	0.016	0.000	0.018
							(0.8)	(1.1)	(-0.2)	(1.6)	(0.0)	(1.9)
Black market premium												
Trade reform index												
log real exchange rate (dom. currency vs. US$)	0.045						0.032					
	(4.0)						(2.2)					
log real trade-weighted exchange rate		-0.005						0.044				
		(-1.0)						(3.3)				
log trend real trade-weighted exchange rate			0.035		0.006				0.157		0.138	
			(1.5)		(0.2)				(4.5)		(3.2)	
real trade-weighted exchange rate deviation from trend				-0.004	-0.005					0.041	0.011	
				(-0.3)	(-0.3)					(2.3)	(0.6)	
Control variables												
Lagged log employment	-0.037	-0.014	-0.045	-0.043	-0.036	-0.044	-0.059	-0.039	-0.250	0.018	-0.204	-0.041
	(-1.0)	(-0.4)	(-0.9)	(-1.1)	(-0.7)	(-1.1)	(-1.0)	(-0.6)	(-3.7)	(0.3)	(-2.2)	(-0.6)
Lagged employment growth	0.064	0.098	0.099	0.111	0.103	0.141	0.089	0.048	0.029	0.072	0.028	0.102
	(1.0)	(1.3)	(1.4)	(1.5)	(1.4)	(2.0)	(0.8)	(0.4)	(0.3)	(0.6)	(0.3)	(0.8)
Lagged log wages	0.035	0.027	0.022	0.027	0.025	0.035	-0.033	-0.029	-0.055	-0.021	-0.050	-0.029
	(3.0)	(1.9)	(1.7)	(1.9)	(1.8)	(2.8)	(-1.6)	(-1.4)	(-2.7)	(-1.0)	(-2.3)	(-1.3)
N	194	207	204	207	205	210	91	92	92	92	92	92
Adj. Rsq.	0.333	0.213	0.184	0.225	0.178	0.231	0.189	0.272	0.308	0.190	0.324	0.111
F on joint lagged residuals=0	0.009	0.67	0.74	0.53	0.62	0.42	0.5	0.45	0.43	0.65	0.36	1.14
Prob. > F	0.967	0.572	0.529	0.665	0.605	0.736	0.684	0.720	0.736	0.587	0.782	0.341

	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Openness												
Tariffs												
Black market premium	-0.001	-0.001	-0.003	-0.001	-0.001	-0.001						
	(-1.1)	(-0.4)	(-2.0)	(-0.6)	(-0.5)	(-0.6)						
Trade reform index							0.005	0.006	0.008	0.006	0.009	0.010
							(0.6)	(0.7)	(1.0)	(0.7)	(1.1)	(1.2)
log real exchange rate (dom. currency vs. US$)	0.049						0.038					
	(3.9)						(3.4)					
log real trade-weighted exchange rate		-0.006						0.033				
		(-1.3)						(3.3)				
log trend real trade-weighted exchange rate			0.052		-0.008				0.079		0.074	
			(2.0)		(-0.3)				(3.5)		(2.8)	
real trade-weighted exchange rate deviation from trend				-0.005	-0.003					0.034	0.014	
				(-0.4)	(-0.2)					(2.4)	(0.9)	
Control variables												
Lagged log employment	-0.078	-0.058	-0.112	-0.081	-0.067	-0.076	-0.061	-0.067	-0.107	-0.041	-0.115	-0.065
	(-2.2)	(-1.8)	(-2.5)	(-2.4)	(-1.4)	(-2.3)	(-1.5)	(-1.5)	(-2.2)	(-0.9)	(-2.1)	(-1.4)
Lagged employment growth	0.062	0.096	0.073	0.102	0.094	0.132	-0.017	0.006	0.010	0.011	0.013	0.025
	(0.8)	(1.3)	(1.0)	(1.3)	(1.2)	(1.8)	(-0.3)	(0.1)	(0.1)	(0.2)	(0.2)	(0.4)
Lagged log wages	0.034	0.027	0.025	0.030	0.026	0.039	-0.024	-0.025	-0.026	-0.025	-0.026	-0.028
	(2.6)	(1.9)	(1.9)	(2.2)	(1.7)	(3.2)	(-1.6)	(-1.6)	(-1.7)	(-1.6)	(-1.7)	(-1.8)
N	171	180	177	180	178	183	182	198	198	198	198	198
Adj. Rsq.	0.343	0.270	0.235	0.271	0.211	0.276	0.279	0.251	0.277	0.216	0.280	0.204
F on joint lagged residuals=0	0.36	0.02	0.98	0.08	0.23	0.09	0.76	1.93	2	1.59	1.91	1.12
Prob. > F		0.995	0.403	0.971	0.876	0.967	0.517	0.126	0.117	0.194	0.130	0.343

Table 4: Regression results for manufacturing controlling for output

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Openness	-0.105	-0.144						
	(-1.4)	(-1.9)						
Tariffs			-0.021	-0.032				
			(-0.7)	(-0.9)				
Black market premium					-0.001	-0.001		
					(-0.4)	(-0.4)		
Trade reform index							0.011	0.014
							(0.4)	(0.5)
log real exchange rate (dom. currency vs. US$)	0.122		0.053		0.152		0.122	
	(3.8)		(1.7)		(3.3)		(3.5)	
Control variables								
Lagged log employment	-0.306	-0.272	-0.232	-0.241	-0.177	0.009	-0.207	-0.087
	(-3.6)	(-3.1)	(-3.2)	(-2.3)	(-1.5)	(0.2)	(-1.7)	(-1.1)
log of real wages	-0.034	0.025	-0.005	0.003	-0.041	-0.021	-0.010	0.012
	(-1.1)	(0.7)	(-0.2)	(0.1)	(-1.4)	(-0.7)	(-0.2)	(0.3)
log GDP	0.390	0.301	0.272	0.386	0.033	0.009	0.048	0.026
	(3.5)	(2.6)	(2.9)	(2.8)	(2.3)	(1.4)	(2.1)	(1.7)
Trend (year)	-0.006	-0.001	-0.013	-0.021	0.001	-0.001	-0.001	0.000
	(-1.9)	(-0.5)	(-2.4)	(-3.1)	(0.5)	(-0.3)	(-0.2)	(0.1)
Lagged employment growth	0.071	0.099	0.147	0.191	0.005	-0.049	0.020	0.031
	(0.8)	(1.1)	(1.4)	(1.4)	(0.0)	(-0.5)	(0.2)	(0.3)
N	138	144	69	69	121	121	135	141
Adj. Rsq.	0.195	0.082	0.427	0.111	0.175	0.083	0.168	0.065
joint F for lagged residuals=0	1.44	1.67	2.88	2.56	2.40	3.40	4.03	2.24
Prob. > F	0.236	0.179	0.047	0.067	0.077	0.023	0.009	0.088

Note: wages are instrumented by its lagged values

Table 5: Regression results for manufacturing without controlling for output

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Openness	-0.102	-0.106						
	(-1.27)	(-1.41)						
Tariffs			0.001	0.032				
			(0.04)	(1.70)				
Black market premium					-0.003	-0.002		
					(-0.96)	(-0.66)		
Trade reform index							0.004	0.006
							(0.14)	(0.24)
log real exchange rate (dom. currency vs.	0.097		0.069		0.080		0.082	
	(2.99)		(2.09)		(2.17)		(2.57)	
Control variables								
Lagged log employment	-0.119	-0.148	-0.187	-0.190	0.084	0.069	0.050	0.043
	(-1.97)	(-2.47)	(-2.57)	(-2.22)	(3.70)	(3.18)	(2.22)	(1.87)
log of real wages	-0.013	0.034	0.015		-0.046	-0.023	-0.061	-0.024
	(-0.39)	(1.01)	(0.60)		(-1.45)	(-0.74)	(-1.88)	(-0.75)
Trend (year)	0.002	0.004	-0.001	0.029	-0.002	-0.002	-0.001	0.000
	(0.90)	(1.82)	(-0.29)	(0.98)	(-0.94)	(-0.68)	(-0.43)	(0.05)
Lagged employment growth	-0.009	0.052	0.114	0.134		-0.078	-0.074	-0.013
	(-0.10)	(0.58)	(1.03)	(0.97)		(-0.76)	(-0.79)	(-0.14)
N	138	144	69	69	121	121	135	141
Adj. Rsq.	0.125	0.062	0.368	0.041	0.029	0.016	0.029	0.018
joint F for lagged residuals=0	2.88	1.64	5.29	4.89	1.98	2.93	2.81	2.72
Prob. > F	0.040	0.184	0.003	0.005	0.126	0.041	0.043	0.049

Note: wages are instrumented by its lagged values

Table 6: Regression results for unemployment

	(1)	(6)	(7)	(12)	(10)	(15)	(16)	(21)
Openness	0.003	-0.001						
	(0.3)	(-0.0)						
Tariffs			0.000	0.000				
			(-0.1)	(-0.1)				
Black market premium					0.000	0.000		
					(-1.1)	(-1.0)		
Trade reform index							0.013	0.011
							(3.5)	(3.2)
log real exchange rate (dom. currency vs. US$)	-0.002		-0.005		-0.006		-0.006	
	(-0.4)		(-0.8)		(-0.9)		(-1.3)	
Control variables								
Lagged unemployment	-0.461	-0.450	-0.341	-0.427	-0.660	-0.651	-0.651	-0.652
	(-6.3)	(-6.3)	(-2.9)	(-3.6)	(-7.2)	(-7.0)	(-7.9)	(-8.0)
log of real wages	0.009	0.007	-0.008	-0.009	0.020	0.017	0.021	0.017
	(1.5)	(1.2)	(-1.0)	(-1.2)	(2.5)	(2.1)	(2.4)	(1.9)
log GDP	-0.062	-0.055	0.000	0.000	-0.081	-0.078	-0.106	-0.100
	(-4.2)	(-4.3)	(-0.1)	(0.3)	(-4.9)	(-5.1)	(-6.4)	(-6.3)
Lagged unemployment increase	0.126	0.139	0.160	0.213	0.208	0.217	0.245	0.278
	(1.9)	(2.1)	(1.6)	(2.0)	(2.8)	(2.9)	(3.4)	(3.9)
N	236	245	108	109	185	192	200	208
Adj. Rsq.	0.244	0.230	0.255	0.241	0.301	0.284	0.265	0.237
joint F for lagged residuals=0	0.17	0.22	3.37	1.10	3.47	5.08	2.28	4.31
Prob. > F	0.914	0.879	0.023	0.356	0.019	0.002	0.082	0.006

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