Trade Liberalization and Labor Demand Elasticities: Empirical Evidence for Egypt

By: Hanan Nazier[1]*

May 2012

1- Introduction

During the last three decades, the international economy witnessed the spread of a wave of market-oriented moves that was accompanied by a trend of liberalization of capital account, foreign exchange, credit, domestic consumption and trade. In light of these fundamental changes in the economic policy at the global level, the concept of trade liberalization became the key feature of any development policy since the late 1970s (Yasmin and Khan 2005).

The concept of trade liberalization stems from the Neo-liberalism view that has supported market oriented economic reforms for social and economic development. Accordingly, liberalization policies through the removal of restrictions on trade between countries generate various benefits including; access to inputs to produce more efficiently, opening new foreign markets to exporters and expanding opportunities for existing export industries. There is also reallocation of resources according to comparative advantage and economies of scale that result in large-scale operations and cost minimization (Yasmin and Khan 2005).

Over the last two decades, many developing countries have liberalized their trade regimes. Proponents of this liberalization usually argue that workers in these countries are considered one of the main beneficiaries of greater openness to trade. Given abundant supplies of labor in these countries, trade liberalization promotes producers to reallocate output toward labor-intensive goods. Depending on labor markets conditions, this increase in the demand for labor results in an increase in employment and/or wages. While this argument is quite convincing and is in general supported by the experience of the early-liberalized newly industrialized economies of East Asia (Hong Kong, Korea, Singapore and Taiwan), more recent experiences of trade liberalization were not associated with the expected improvement for the typical worker (Robbins 1996 and Wood 1997).

In the case of Egypt, trade reforms started in August 1986 and continued with the announcement of the Economic Reform and Structural Adjustment Program (ERSAP) in 1991. Since then trade policy in Egypt has been dynamic with an obvious trend towards being more liberal. Trade policy witnessed significant reforms mainly in 1998 and 2004.Over the years, tariffs have been heavily reduced. In 1991, the highest rate was 110% (except, tobacco, alcoholic beverages, and motor vehicles, which remained outside any frame of tariff reform). While in 1998, the maximum rates were reduced to a maximum of 40% with some exceptions, which was further reduced to 30% in 2008 (Ghoniem, 2010).

The tariff policy objectives in Egypt started to change considerably after the year 2000. It was not considered anymore as a main policy to increase tariff collection revenue. Tariff policy

[1]Assistant professor, Faculty of Economics and Political Science, Economic department, Cairo University.E-mail: hanan.nazier@feps.edu.eg.

was used in other perspective aiming at enhancing exports, helping to lift the economy out of its recession, and achieving social aims. For example, the tariff reduction undertaken in 2004 was part of the expansiory fiscal policy initiated to lift the Egyptian economy out of its recession, which has affected it starting 2000. The expansiory fiscal policy, which included tariff reductions, aimed at both poverty reduction and employment enhancement. The further reductions in 2006, 2007 were also part of the expansiory fiscal policy but also aimed at reducing the high inflation rates resulting from the high market concentration and anti-competitive behavior. In 2008, tariff reduction was undertaken as a policy to reduce the negative impact of the food crisis. In 2009, selected tariff reduction was part of the government policy to face the financial crisis as an expansiory fiscal policy (Ghoniem, 2010). In this context, social consequences of trade liberalization in general and on the labor market in specific are crucial especially after the 25th of January revolution given the fact that main drivers behind the revolution were unemployment and inequality.

Concerning the literature on the effects of trade liberalization on the labor market, most of the attention has been dedicated to evaluate the impact of trade liberalization on poverty, income distribution, employment, inequality, and its direct effects on skilled and unskilled workers. Nevertheless, there is no agreement on the forces behind these changes. (Bhagwati 1994; Freeman 1994; Currie 1997; Feenstra 2000; Feenstra and Hanson 1996, 1997; Harrigan 1998; Harrison and Hanson 1999; Hanson and Harrison 1999; Haskel and Slaughter 2001; Lawrence and Slaughter 1993; Revenga 1992, 1997; Slaughter 1999; Friedman, J. et al. 2011; Campos-Vázquez, R. and J. Rodríguez-López 2011; Meschi, et al 2008 and Zaki 2011) .

However, in recent years, a new aspect of the trade-labor linkage has emerged and received attention; this is the impact of international trade on labor demand elasticity. Rodrik (1997) highlighted the possibility for the labor demand elasticity to be higher with greater openness without changing price of labor. In particular, the increased competitiveness of product markets and the greater access to foreign inputs resulting from trade liberalization could lead to a more elastic demand for workers, which, in turn, could have both positive and negative impacts on labor market outcomes. On the positive side, the increase in labor demand elasticity resulting from trade liberalization means more employment generation opportunities with productivity or output demand booms. However, on the negative side, there are increasing fears that the claimed increase in labor demand elasticity arising from trade liberalization would have significant implications for the labor market outcomes, especially in developing countries. Rodrik (1997) was the first to emphasize the importance of this element of the labor-market impact of trade. He argued that trade makes the demand for labor more elastic, that in turn leads to larger employment and wage shocks resulting from productivity or output demand shocks and hence increase the volatility of employment. Moreover, this increase in elasticity leads to the erosion of the bargaining power of labor in comparison with capital in the sharing of profits and lessen the bargaining power of unions. Finally, it results in shifting non-wage labor costs toward labor and worsens income distribution. Thus, workers are placed under greater pressure because of trade liberalization.

There are two main channels highlighted by Rodrik (1997) through which an increase in openness can lead to an increase in labor-demand elasticity. First, the scale effect which explains the employment variation due to the wage-induced change in the demanded output resulting from openness (Hasan et al 2007). The second channel is the substitution effect, which

explains the employment variation due to substitution by other inputs for constant output. The substitution effect is generated by modifying the firm production possibility set to include new foreign and domestic inputs or to increase the efficiency of the existing ones (Bruno et al 2004).

There have been a number of studies that tried to examine the effect of trade liberalization on labor demand elasticity. Some of these focused on the developed countries (e.g., Slaughter, 2001; Bruno et al., 2003) while others were undertaken in the context of developing countries (e.g., Krishna et al., 2001; Haouas and Yagoubi, 2004; Fajnzylber and Maloney, 2005; Hasan et al., 2007). However, the majority of empirical literature in this regards has mainly a developed country focus. In contrast, the linkages between trade and labor demand elasticity are yet to be explored comprehensively in the context of developing countries. This paper takes a step in this direction by analyzing the relationship between labor demand elasticity and international trade in the Egyptian context. To date and as far as the author's knowledge no attempt has been made to test this link between trade openness and labor demand elasticities in the Egyptian context. As previously mentioned, protection declined in Egypt as a result of a substantial liberalization of trade policy, thereby providing a unique opportunity to test the above mentioned link.

Accordingly, this study aims to investigate the impact of trade liberalization on the labor market in Egypt. An attempt is made to empirically examine the effect of the Egyptian trade reforms, initiated in 1991, on labor-demand elasticities in the Egyptian manufacturing sector, using a panel data approach for the years from 1989-90 to 2009-2010. It is anticipated that trade liberalization may stimulate an increase in employment generation. It is also expected to increase labor demand elasticity through the scale effect resulting from the increased competition in output market and through substitution effect created by expanding firms production possibility sets to include additional inputs.

The rest of the paper is organized as follows. Sections 2 and 3 present a critical review of both theory and empirical work on the relationship between international trade and labor demand elasticity. Section 4 provides an overview of recent trends in trade in Egypt. The econometric procedure adopted is presented in section 5. Section 6 discusses data and variable construction issues, followed by section 7 that presents and analyzes the empirical results. Finally, section 8 includes concluding remarks and policy implications.

2- Theoretical background

According to the Labor demand theory, demand for labour is a derived demand; workers are hired for their contribution to the production of goods or services. Both the substitution and scale effect suggests that the demand curve for labour is a downward sloping function of the wage rate. One concern of Labor economics theory is the responsiveness of employment to different factors particularly changes in wages, usually measured as own-wage elasticity. Rodrik (1997) highlighted three fundamental implications of an increase in the absolute value of the price-elasticity of labour demand. First, higher elasticities modify the sharing of non-wage cost towards labor away from employers. Any increase in non-wage costs (e.g. imposing social protection and/or an improvement in working conditions, payroll taxes, etc.) would bring a stronger decrease in firm's labour demand the higher the labour demand elasticities. Employees would then be constrained to bear a larger part of adjustment through their employment levels or through their wages. Second, more elastic labour demand lessens the bargaining power of unions

and employers. Thus, rent distribution is shifted against workers. As a result, the functioning of the regulations of the labour market may be also distorted. Finally, higher labour demand elasticities cause more-volatile responses of wages and employment to any exogenous shock to labor demand. Certainly, an exogenous shock to labour demand has a stronger effect on wages when the elasticity of demand is higher (Yasmin and Khan 2005 and slaughter 2001).

From a labour theory perspective in partial equilibrium and under competitive conditions, Hammermesh (1993) summarized what determines an industry's equilibrium own price labour-demand elasticity. Accordingly, labour demand elasticity is positively affected by its two main determinants: the elasticity of substitution between labour and other factors "the substitution effect", and the elasticity of demand for goods to prices or product demand elasticity "the scale effect" (Bruno et al. 2004). The equation used for estimating labour demand elasticities is given as,

$$\eta_{LLj} = -[1-s]\,\sigma_{LL} - s\eta j \quad \ldots\ldots\ldots\ldots\ldots (1)$$

Where, η_{LLj} is industry j's total own-price labour-demand elasticity defined to be negative; s is labor's share in j's revenue; σ_{LL} is elasticity of substitution between labour and other factors of production and ηj is the industry j's product demand elasticity. Accordingly, an increase in wage rate affects demand for labour in two ways.

- The first part of Equation (1), "$-[1-s]\,\sigma_{LL}$"[1], deals with the "Substitution Effect" [2], which explains employment variation due to wage-induced substitution toward other inputs for constant output, often called the constant-output labour-demand elasticity. It shows for a given level of output, how much the industry substitutes away from labour towards other factors when wages rise (Yasmin and Khan 2005). If wages increase, given a fixed output, employers will want to substitute away labour towards other factors of production whose price is relatively lower (change in the technique of production along the same isoquant). The extent of this effect depends on s. The higher share of labour in j's revenue, the smaller the pass-through from σ_{LL} to η_{LLj}.
- The second part "$s\eta j$" [3] refers to the "Scale Effect", which explains the employment variation due to the wage-induced change in the demanded output. Since industry's output is

[1] Differentiation of (1) with respect to σ_{LL} $(\partial\ \eta_{LLj}/\partial\ \sigma_{LL}) = -[1-s] < 0$. That is the smaller the share of labor in firm's costs and revenues the stronger the pass through from σ_{LL} to η_{LLj} (Slaughter 2001).

[2] With reference to the substitution effect, greater international openness enables firms to employ a larger variety of intermediate products and capital equipment, produced both domestically and abroad, and potentially to directly substitute foreign to domestic factors of production. Furthermore, in an economy, that is more open to foreign trade and investment, increased "familiarity" – that is a reduction in informational barriers to trade (Rauch and Trindade, 2003) - can expand business opportunities and make international transactions easier. In addition, trade may be a vehicle for technological spillovers, through both the import of goods embodying foreign knowledge and/or the acquisition of useful information that would be otherwise costly to obtain (Coe and Helpman, 1995). All these factors contribute to expand the business and technological opportunities of the firm, enhancing not only the substitutability among factors of production, but also technical efficiency.

[3] Differentiation of (1) with respect to $\eta j = \partial\ \eta_{LLj}/\partial\ \eta j = -s < 0$. That is the larger the share of labor in firm's costs and revenues the stronger the pass through from ηj to η_{LLj}.

not fixed this second part shows how much labour demand changes after the industry's output changes due to a wage changes. Indeed, for a given technique of production, an increase in wages raise commodity prices in the industry which in turn reduce industrial production (the isoquant moves inward.) This reduces the demand for all factors including that for labour. The extent of this decrease in labour demand following the adjustment of production to the new prices again depends on the share of labour in *j*'s revenue[1] (Yasmin and Khan 2005 and slaughter 2001).

As suggested by Rodrik (1997) and further elaborated by Slaughter (2001), a higher responsiveness of labour demand to changes in wages i.e. higher labor demand elasticity might be a direct consequence of international trade, regardless of economic structure and the identity of the trade partners (Rodrik, 1997). In theory, an increase in openness leads to an increase in labor demand elasticities through two channels either by increasing product demand elasticity "ηj" or by increasing elasticity of substitution "σ_{LL}" as follows:

1. The first channel, works through Hicks Marshallian Law of Factor Demand, which can be stated as follow: "the demand for anything is likely to be more elastic, the more elastic is the demand for further thing which it contributes to produce" (Akhter and Ali 2007). In this context, trade might theoretically influence the total own-price labour demand elasticity "η_{LLj}" via the scale effect "ηj" due to the increased competition on the output market. Opening up the domestic markets to imports is expected to raise the price elasticity of demand for products of domestic firms since there is greater availability of substitutes for any product (Goldar 2008 and Bruno et al. 2004). However, different trade models predict different magnitudes of "ηj", models with perfectly competitive product markets like Hecksher-Ohlin models predict the extreme result of infinitely elastic "ηj" and hence infinitely elastic "η_{LLj}". However, empirical estimates of "ηj" never approach infinity. Several trade models of imperfect competition predict that trade liberalization makes factor demand more elastic but not infinity[2] (Slaughter 2001).

2. The second channel through which international trade can increase "η_{LLj}" is through the constant output elasticity of substitution between labor and all other factors "σ_{LL}". Trade reforms allow cheaper imports of intermediate, capital inputs, semi finished goods and unassembled parts for assembly in the importing country. All these imports are substitute for the services of domestic labor. Hence, trade modifies the firm production possibility set to include new foreign and domestic inputs (Bruno et al. 2004). Thus, increase the set of factors firms can substitute towards in response to higher domestic wages beyond domestic factors to include foreign factors.

3- Literature Review

Studies undertaken to study the hypothesis that trade liberalization raises the labour demand elasticity is not conclusive. In what follows, we briefly review a number of such studies. Slaughter (2001) is considered the first paper that provided a very systematic and careful empirical examination of positive impact of trade on labor-demand elasticities. By adopting a two-stage approach on four-digit industry level data for the period from 1961 to 1991 for the US, he found mixed support for this hypothesis. In the first stage, own price elasticities of the labor demand for production workers have increased overtime while the same trend was not true for

[1] In a competitive setting, Marshall's well-known fundamental law of factor demand predicts a monotonic relation between factor and output demand elasticities (Fajnzylber and Maloney 2005).

[2] For more details on these models see Slaughter (2001), and Fajnzylber and Maloney (2005).

non-production workers. However, in the second stage, the introduction of time dummies turned explanatory variables to be weak. That is time by itself, was found to be a better predicator of the elasticities than trade related variables, for both production and non-production workers.

Similar empirical results were obtained in the studies undertaken by Krishna et al. (2001) for Turkey, Haouas and Yagoubi (2004) for Tunisia, Fajnzylber and Maloney (2005) for Mexico, Chile and Columbia and Bruno et al (2004) for a group of industrialized countries. These studies provided no or only weak support to the hypothesis that trade liberalization raises labour demand elasticity. Krishna et al. (2001) studied the effect of trade liberalization on labor-demand elasticities using micro-panel firm level data from Turkish manufacturing industries for major trade liberalization period. They found that the effect of openness on labor demand elasticities seem to be quite weak. A result that proved robust to the subset of workers under consideration, and to the use of alternative openness measures—including trade reform dummy variables, tariff rates and import penetration ratios. They explained this weakness by the variety of frictions that affect labor demand decisions of firms. Haouas and Yagoubi (2004) estimated employment demand equation by using data from 1971 to 1996 for manufacturing industries in Tunisia. Results found a weak support for the idea that trade liberalization lead to an increase in labor demand elasticities: in the vast majority of the industries considered, the hypothesis of no relationship between trade openness and labor-demand elasticities could not be rejected. This weakness of labor demand elasticity was explained by the tight labor market regulations in place during the years 1987-96. Fajnzylber and Maloney (2005) used firm level data to provide consistent dynamic estimates of labour demand functions for three Latin American countries (Chile, Colombia and Mexico) all of whom have experienced large changes in trade regime across the period of the study. The results showed that labor demand elasticities do change greatly in magnitude- although not significantly - overtime. Furthermore, the effects of trade openness on long run labor demand elasticities yield either non-significant or mixed results. Regulation of the market also affects the labor market, the more flexible labor regulation is the stronger the impact of on elasticities. Bruno et al 2004 focused on the measurement of constant output own-price labour demand elasticity while evaluating the impact of globalization using an industry-year panel for a number of industrialized countries, including major European countries, Japan and the US over the period 1970-96. Overall, their findings suggested a significant effect of trade in increasing the labour demand elasticity only for the U.K. For Italy and France, the evidence was mixed depending on the estimator used. In all remaining countries globalization seemed not to have significantly affected labour demand elasticity. The results confirmed, on a more general ground, the findings of Slaughter (2001) for the US.

By contrast, some other few studies found empirical evidence of a positive impact of trade liberalization on labour demand elasticity. A study undertaken by Hasan, Mitra and Ramaswamy (2007) using Indian industry-level data disaggregated by states found empirical evidence of a positive impact of trade liberalization on labour demand elasticity. By distinguishing between states with “rigid” and “flexible” labor markets they examined the relationships between labor demand elasticities, trade liberalization, and labor market rigidity. Results of the study showed that labor demand elasticities increase with reduction in protection. Unlike Slaughter (2001), time was not found to determine their result. Moreover, the response of labor demand elasticities to protection is conditioned by the nature of labor institutions; states with more flexible markets witnessed larger increases in the labor demand elasticities in response

to reduction in protection. These results were confirmed by Goldar 2008 who tried to verify the findings of Hasan et al. (2007) using a somewhat different dataset[1] for Indian industries.

In case of Pakistan, Yasmin and Khan (2005) examined how trade liberalization has affected employment and labor demand elasticities in the manufacturing sector over the period 1970-71 to 1995-96. Their results indicated that trade liberalization has positively contributed towards employment generation in the manufacturing sector. Labour-demand elasticities also increased with reduction in protection and appear to have the effects predicted in theory. However, Akhter, and Ali (2007) using more disaggregated data by 11 industries from Pakistan reached different results. Their analyses suggested that the supposed linkage between greater trade liberalization and labor demand elasticities (as suggested by theory) is empirically weak. No significant relationship between these variables for both production and non-production workers was found.

4- Trade Liberalization in Egypt

Egypt has applied a gradual approach to trade liberalization with the initiation of economic reforms in 1986 then with the announcement of the Economic Reform and Structural Adjustment Program (ERSAP) in 1991. However, profound trade liberalization efforts were only applied after joining the WTO agreements in 1994/5[2] and the signing of several multi and unilateral trade agreements in the mid-1990s[3]. Accordingly, over the last two decades, the country has made significant developments in its tariff structure. These developments included tariff reductions, restructuring customs procedures, implementation of WTO-based customs valuation rules, and the removal of all customs service fees and charges on imports. In 1998, most tariffs were lowered by 5 to 10 percent and the maximum tariff rate was reduced from 110% at the end of the 1980s to reach 40% in the end of 1990's (Abdel Rahman 2011).

As part of the 2004 economic reforms, the Egyptian government initiated the second wave of liberalization to achieve two main objectives: first, to reduce tariffs and rationalize the tariff structure; and second, to reduce the number of products subject to non-tariff barriers (Zaki 2011). A new tariff structure was applied, cutting the number of tariff brackets from 27 to 6, with rates ranging from 0 to 40 percent depending on the degree of processing. The weighted average tariff rate was also reduced from 14.6 to 9.1 percent. This new structure lowered tariff dispersion measured by standard deviation from 16.1 in 2000 to 12.7 in 2004. Additionally, to ensure compliance with international standards, the government replaced its 10-digit tariff structure with a 6-digit structure and tariff lines were reduced from 8,000 to 6,000 ((Abdel Rahman 2011). All those measures should in turn simplify procedures, minimize tariff evasion, and remove possibilities of discretion and corruption (Zaki, 2011).

[1] Hasan et al. (2007) have used state-level two-digit industry data. This study makes use of three-digit industry data at All-India level. The source of data on tariff rates also differs. The period covered in the study also differs than that covered by Hasan et al 2007 (1980-81 to 1997-98). In addition, inter-temporal changes in labour demand elasticity were studied for a period extending to more recent years to judge whether any marked increase in the elasticity has taken place in the post-reform period and to assess the contribution of trade liberalization to the observed changes in labour demand elasticity.

[2] Egypt became a member of the World Trade Organization (WTO) in 1995 and has pledged to be in full compliance with its trade commitments to the WTO by 2005.

[3] For example, COMESA, EFTA, and PAFTA.

Generally, Egypt commitments within the WTO have been more or less to bind tariff rates at levels that in many cases exceed existing levels. Almost 99% of Egypt's tariff lines are bound, the average bound rate fell from 45% in 1998 to 36.7% in 2009 (WTO 2011). Tariffs on non-agricultural products are generally lower than that on agricultural products. In 2009, the average bound rate on agricultural products stands at 95.2% in contrast to 27.7% for non-agricultural products. Similarly, MFN tariffs on non-agricultural products are generally lower, with an average of 9.4%, while tariffs on agricultural goods remain high, with an average of 66.3% (WTO 2011). This higher average tariff on agricultural goods is strongly determined by average tariffs of over 1,000% on beverages and spirits (Zaki, 2011).

According to Table (1) both simple and weighted average MFN tariff rates[1] declined significantly, with the liberalization waves throughout the period from 1995 to 2009, reaching 16.81% and 8.53% respectively in 2009 compared to 34.64% and 16.65% in 1995. This is also true for both agriculture and industrial sectors. As tariff rates fell from 80.62% in 1995 to 66.33% in 2009 for the agriculture sector and from 27.69% to 9.41% for the industrial sector during the same period. However, as previously mentioned the agriculture sector remains relatively protected compared to the industrial sector. Finally, the difference between simple and weighted tariff rates is larger for the agriculture sector (66.3% and 13.6% respectively) than for industrial sector (9.41% and 7.49% respectively). This is explained by the fact that some products in the agriculture sector are subject to high tariffs (such as tobacco and alcohol) while their weights in international trade are considerably low (Zaki, 2011).

Table (1) MFN Tariff Rate by Sector (1995-2009)

		1995	1998	2002	2004	2005	2008	2009
Total Trade	MFN Simple Average	34.64	25.14	19.92	19.93	19.58	16.94	16.81
	MFN Weighted Average	16.65	13.72	13.79	13.1	13.7	8.86	8.53
WTO HS Agricultural	MFN Simple Average	80.62	50.64	22.53	67.09	66.73	66.36	66.33
	MFN Weighted Average	7.75	7.6	7.08	26.29	27.06	13.72	13.66
WTO HS Industrial	MFN Simple Average	27.69	21.14	19.5	12.83	12.48	9.55	9.41
	MFN Weighted Average	20.08	15.5	15.54	10.4	11.19	7.88	7.49

Source: WITS database

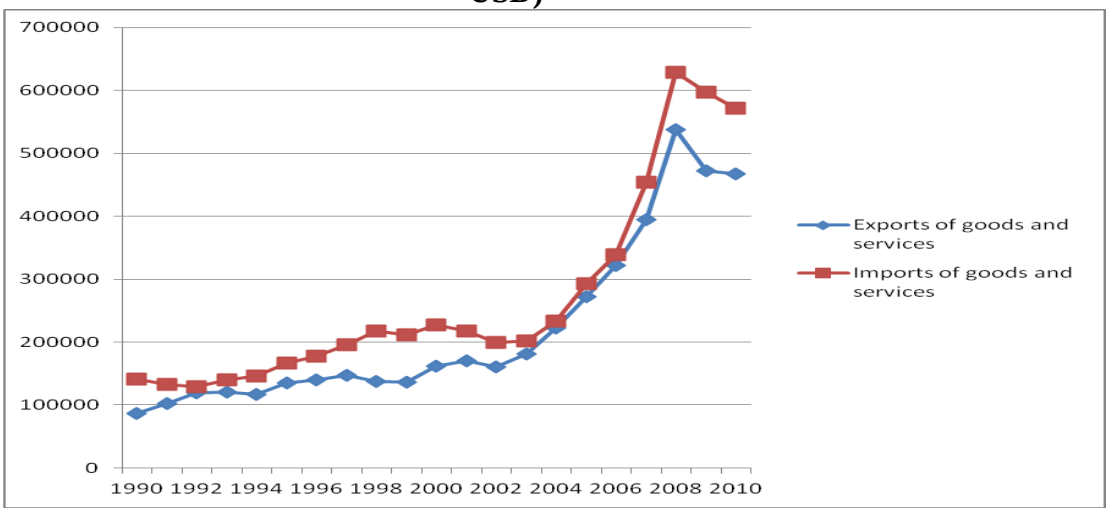
In line with its 1990's trade liberalization efforts, Egypt has signed several trade agreements with its trade partners. At the regional level, Egypt joined the Greater Arab Free Trade Area (GAFTA), the Common Market of Eastern and Southern Africa (COMESA) and the Agadir Free Trade Agreement (with Tunisia, Jordan and Morocco). In addition, Egypt signed bilateral free-trade agreements with the European Union (2004), the members of EFTA (the Republic of Iceland, the Principality of Liechtenstein, the Kingdom of Norway, the Swiss

[1] MFN tariffs are what countries promise to impose on imports from other members of the WTO, unless the country is part of a preferential trade agreement. This means that, in practice, MFN rates are the highest (most restrictive) that WTO members charge one another. Applied tariff rates are the average of effectively applied rates for all products subject to tariffs calculated for all traded goods. Weighted mean tariff is the average of tariff rates weighted by the product import shares corresponding to each partner country. Simple mean tariff is the unweighted average of tariff rates for all products subject to tariffs calculated for all traded goods.

Confederation, 2004), Turkey, some Arab countries including Lebanon, Syria, Morocco, Tunisia, Libya, Jordan and Iraq. Finally, Egypt has also signed the Qualified Industrial Zones (QIZ) Protocol in December 2005 with the United States and Israel (Elshennawy and Said 2010).

These trade liberalization efforts were reflected in the performance of Egyptian imports and exports as shown in figure (1). Both exports and imports experienced significant increases since the early 1990s and in a more obvious way after 2004. Figure (1) shows that both exports and imports growth after 2004 were much higher than those before 2004. On average, exports increased annually by 7.4% before 2004 versus 14.4% after this date, while imports increased by 3.9% versus 17.4% respectively.

Figure (1) Exports and Imports during the period 1990 to 2010(million current USD)



Source: WDI 2011

5- Model specification and estimation issues

The model used in this study is based on a labor demand equation that is obtained from the firm's cost minimization problem. It is based on the approach used by Giovanni, *et al.* (2002) and has the advantage of producing labour demand elasticities in one stage.

Since the focus is on domestic labor demand, we will start directly by specifying domestic labor demand as follows;

$$ln\ L_{it} = \beta_w\ ln\ w_{it} + \beta_y\ ln\ y_{it} + \beta_k\ ln\ k_{it} + \beta_{wg}\ ln\ g_{it}\ ln\ w_{it} + \beta_g\ ln\ g_{it} + \beta_t\ ln\ t + \varepsilon_{it} \ldots\ldots (2)$$

Where, *L is level of employment in sector i, y is level* of production, *w* is labor price, k is the level of capital, t stands for time , *g is* the measure of trade liberalization and ε_{it} is a random error term. $t = 1, ..., T$, is the number of time periods and $i = 1, ..., N$, the number of sectors. β_y, β_w, β_k, β_{wg} and β_g are constant parameters.

Several model specification issues are worth noting**. First**, our choice of estimating conditional labor demand functions (conditional on output) is to control for product demand

shocks and their effects on labor demand function i.e. industry-specific shocks to labor demand,. These shocks are expected to move labor demand for an industry in the same direction. Hence, estimating labor demand equation without controlling for these shocks would result in biased parameter estimates. The inclusion of output in the conditional labor demand functions is likely to control for at least a part of the product demand shocks thus lessening biasness (Hasan et al. 2007 and Fajnzylber and Maloney 2005).

Second, the year effects are introduced to capture common aggregate shocks that affect all industries equally, mainly technological shocks that are not otherwise captured by our specification. In addition, it takes into account unobserved year specific variables that could affect labor demand and labor demand elasticity alongside trade reforms such as labor market regulation. The omission of these year effects may result in bias parameter estimates (Mouelhi and Ghazali 2012 and Yasmin and Khan 2005).

Third, our specification assumes no significant time lags between factor-price changes and firms' demand responses i.e. it is static in nature. One shortcoming of this is that it fails to include slow adjustment of employment to changes in relative wage in the presence of adjustment cost. This is usually accounted for by a including lags on employment into the model. However due to data availability this was not possible. Still our static specification may be justified based on Hamermesh (1983) who reported that adjustment lags range between six months and one year, so in the annual data used here lags should not be too crucial. In addition Slaughter (2001) found that specification with one-year employment lag generated similar results to the ones reached when not accounting for lags (Slaughter 2001).

Forth, one identification problem in estimating equation (2) is that both labor demand and labor supply depends on real wage, hence, wage is endogenous. Since both labor demand and labor supply depend on wages, shocks to the labor demand will result in shocks to the wage. Thus, the wage and the disturbance term in our estimating equation may be correlated, thereby raising the possibility of a bias in our estimates. In order to interpret the estimated coefficients of equation (2) as parameters of the labor demand function, we need to assume that the supply of labor to each industry unit is perfectly elastic, i.e., that shifts in the labor supply curve (resulting in changes in wages) trace out the labor demand schedule and shocks to the labor demand do not affect wages, so that wages are exogenous[1]. This assumption may seem strong however it could be defended theoretically in at least two ways. First, Nickell and Symons (1990) have argued that the identification problem does not exist since labor supply and labor demand depend on two rather different real wages. On one hand, industry's labor demand depends on nominal wages deflated by the producer price because the industry values productivity at the industry's output price. On the other hand, industry's labor supply depends on nominal wages deflated by the consumer price index; as consumers care about their real income in terms of their overall consumption basket. Thus using the appropriate real wage implies that simultaneity should not be a real problem (Akhter and Ali 2007 and Slaughter 2001). Second, Hammermesh (1993) noted that the suitability of this identifying assumption depends on the degree of disaggregation of the data. Most individual firms face perfectly elastic labor supplies as they choose

[1] An alternative and a more satisfactory approach would be to allow wages to be endogenous and use instruments for these. However, this approach is not applied in this study due to the absence of any good instruments for wages in our dataset. That is the data set does not include a variable that is included in the labor-supply equation but excluded from the labor-demand equation. In addition, the data does not allow using lagged variables as instruments due to the unavailability of a continuous time series.

employment at a given exogenous wages. In contrast, the whole economy chooses wages based on given exogenous quantities; hence, it faces almost perfectly inelastic labor supply. Given that our data is at the level of 2-digit ISIC industries, it is in some sense closer to firms than to the entire economy in terms of their labor supply schedule, thus this schedule is probably closer to perfectly elastic than perfectly inelastic[1]. Finally even if this assumption is violated then the estimated labor demand elasticities will be biased upwards because of positive correlation between wages and labor supply. However, the main concern of this paper is trends over time in elasticities rather than levels of elasticities. Thus, if the resulting bias in levels is relatively constant over time, then the true pattern in trends should be relatively unaffected by this bias (Slaughter 2001).

Finally, as our main objective is to investigate trade liberalization effects on labor demand elasticities in Egypt, we introduce trade liberalization variable g both alone and interacted with wages w. The interactive term captures several effects exerted by trade openness such as broadening the set of firm's production techniques and inputs and increasing the productivity of existing inputs by new foreign knowledge and useful information (Yasmin and Khan, 2005). In other words, it captures the change in labor demand elasticity due to trade liberalization. We also choose to include our trade liberalization indicator without interaction with other variables in order to account for the direct effect of openness as labor demand shifter. In this context, β_g measures the impact of g as a demand shifter, whereas β_{wg} measures the impact of g on the wage elasticity of the labor demand function "εl_w", which is given as

$$\varepsilon l_w = \partial \ ln\ L \ / \ \partial \ ln\ w = \beta_w + \beta_{wg}\ lng \ \ldots \ldots \ldots \ldots \ (3)$$

The economic interpretation of β_g parallels that of β_w, in that β_g is the intercept of the labor demand elasticity with respect to g. In fact,

$$\varepsilon lg = \partial \ ln\ L \ / \ \partial \ ln\ g = \beta_g + \beta_{wg}\ lnw \ \ldots \ldots \ldots \ldots \ (4)$$

Two types of panel data models were considered: fixed effect and random effect models. Pooled OLS model was not considered as it is very restrictive given that it assumes same intercept and slopes of all independent variables for all cross-sections and overtime. The fixed effect model, overcomes this problem of constant intercept for all cross-sections overtime by allowing the intercept to change through introducing dummy variables that measure the difference between one cross-section and the other. This model yields consistent parameter estimates whether or not the explanatory variables are correlated with the error term. As for the random effect model, it tries to detect the source of variation across cross-sections overtime by keeping the intercept constant and thus the variation in the error term will either be due to variation in cross-sections or in time-series or in both. Thus, the random effect model is obtained from the fixed effect if it is assumed that the mean effect of the random time-series and cross-

[1] This approach has been used widely; almost all industry-level studies in Hammermesh's 1993 literature survey regress quantities on prices and interpret the results as labor demand only (Slaughter 2001).

section variables is included in the intercept term and the random deviations around the mean (variances) are equated to the error component. This model has higher degrees of freedom and is more efficient than the fixed effects model, however, it is more appropriate to use only when there is no correlation between the explanatory variables and the error term. Conversely, the intercept terms in the fixed effect model are treated as two random variables, one as time-series and the other as cross-section (Greene, 2003 and Esam 2010).

To choose between fixed effect and random effect models, a Hausman (1978) specification test is used to check for orthogonality of the random effects (error component) and the regressors. If the result is to apply random effect model, the estimation will be carried out using Generalized Least Squares (GLS) method. The estimation of the model is carried out in STATA 11.

6- Data Sources and variables construction:

6-1- Variables construction:

Table (2) provides the definition, method of construction and the expected signs of the variables in details.

Table (2) *Variables Construction*

Variables	Definition	Construction
Employment: Dependent Variable (L)	Average daily persons engaged in total manufacturing include employees, working proprietors, unpaid family workers, family workers, and home workers.	This variable is measured in 1000.
Real Production (y)	Consists of the value of finished products and by-products, value of semi-finished products and byproducts, receipts for work done for others and other receipts.	The gross value of manufacturing production is measured in 1000 and is converted into real values by deflating with wholesale price index (WPI = 2005 = 100). The output is expected to have positive impact on employment due mainly to nature of derived demand for labour.
Real Wages (w)	Includes wages, salaries paid and cash, and non-cash benefits paid to the workers.	This is measured by dividing the annual wages and salaries- converted into real values- by the total number of employees in manufacturing, in 1000. The expected sign is negative according to standard labour demand theory.
Real Capital Stock (K)	Gross Capital formation	Measured in 1000 and converted into real values by deflating with wholesale price index (WPI = 2005 = 100).
Trade Liberalization (g)		

(a) tariffs	Simple average of most favored nation applied tariff rate	This variable is taken as independent and in interaction with wage. The coefficient of the interaction term indicates the change in labor demand elasticity in respond to change in tariff rates. It is expected to have a positive sign indicating an increase in **absolute value** of labor demand elasticity as a respond to increase in liberalization (decrease in tariff rate).
(b) Openness	This is measured as exports plus imports as percentage of manufacturing production.	Imports plus Exports are measured in 1000, converted into real values and taken as ratio of production in manufacturing. The variable is used alone and in interaction with wage. The coefficient of the interaction term is expected to have a negative sign indicating an increase in **absolute value** of labor demand elasticity as a respond to increase in liberalization (increase in openness).

g is the key variable of the model; a measure of trade liberalization. Highlighting the difficulty to identify a perfectly satisfactory openness measure, Edwards (1998) suggests different proxies as robustness checks. Accordingly, in order to measure trade liberalization, we relied on two alternative measures of liberalization: openness, which is exports plus imports as percentage of GDP, and MFN applied tariff rates[1]. Tariff rate is considered a better indicator compared to openness, as it is more direct while openness is considered the consequence of trade liberalization (Yasmin and Khan 2005).However, since tariff data is not available for the whole study period we chose to estimate the model using the two alternative liberalization measures one at a time.

6-2- Data Sources

The study covers the time-period from 1989-90 to 2009-2010 for 18 manufacturing sectors in Egypt. The data on output (y), wages (w) and employment (L) is collected from The Annual Bulletin Industrial Production Statistic (various issues) published by Central Agency for Public Mobilization and Statistics (CAPMAS).As a continuous time series data is not available at industry level, it is used with a gap of 3 years. The industries used are at 2-digit level of ISIC3

[1] One advantage of using MFN applied tariff rate is that its movements in Egypt, as in many other developing countries, result from a governmental decision to fulfill the GATT and WTO obligations. This would have the effect of minimizing the endogeneity risk (Mouelhi and Ghazali 2012).

classification[1] (table 3). Data for the wholesale price index and exchange rate comes from the IFS 2010, while data for manufacturing production comes from the WDI 2010.

Data on imports, exports and tariffs comes from the World Integrated Trade Solution (WITS) online statistical database. However tariff data could not be obtained at two-digit industry level for the entire period, as it is only available starting 1997 and therefore the model using tariff rates as a liberalization measure had to be confined to the period from 1997-98 to 2009-10.

Table (3) Industries' Description and Codes

No	Product ISIC3 code	Product Name
1	15	MANUFACTURE OF FOOD PRODUCTS AND BEVERAGES
2	16	MANUFACTURE OF TOBACCO PRODUCTS
3	17	MANUFACTURE OF TEXTILES
4	18	MANUFACTURE OF WEARING APPAREL
5	19	TANNING AND DRESSING OF LEATHER
6	20	MANUFACTURE OF WOOD AND OF PRODUCTS OF WOOD AND CORK,EXCEPT FURNITURE
7	21	MANUFACTURE OF PAPER AND PAPER PRODUCTS
8	22	PUBLISHING, PRINTING AND REPRODUCTION OF RECORDED
9	23	MANUFACTURE OF COKE, REFINED PETROLEUM PRODUCTS AN
10	24	MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS
11	25	MANUFACTURE OF RUBBER AND PLASTICS PRODUCTS
12	26	MANUFACTURE OF OTHER NON-METALLIC MINERAL PRODUCTS
13	27	MANUFACTURE OF BASIC METALS
14	28	MANUFACTURE OF FABRICATED METAL PRODUCTS, EXCEPT M
15	29+30+31+32+33	MANUFACTURE OF MACHINERY AND EQUIPMENT N.E.C.
16	34	MANUFACTURE OF MOTOR VEHICLES, TRAILERS AND SEMI-T
17	35	MANUFACTURE OF OTHER TRANSPORT EQUIPMENT
18	36	MANUFACTURE OF FURNITURE

7- Estimation results and interpretation

The first step is to carry out the Hausman specification test to choose between fixed and random effects model. The result implied that the null hypothesis of orthogonality of the random effects (error component) and the regressors could not be rejected. Hence, the random effect specification is the appropriate one. This result is true for our two models representing the two alternative trade policy measures previously mentioned.

[1] The Annual Bulletin Industrial Production Statistic data for the study period comes in three different ISIC classifications; ISIC2 for 1989-90 to 1995-96, ISIC3 for 1996-97 to 2006-2007 and ISIC4 for 2007-08 to 2009-10. For this study, concordance was applied to change all data to ISIC3, and comparable series for various two-digit industries were prepared.

Table (4) Random effects estimates for labor demand equation

Variables	(1) (Openness)	(2) (MFN tariff)
Ly	0.733 (0.063)***	0.641 (.062)***
Lw	-0.667 (0.152) ***	-0.406 (0.226) **
Lk	0.88 (0.385)**	0.478 (0.266)*
Llib1	0.063 (0.066)	
Lwllib1	-0.037 (0.027)	
Llib2		-0.034 (0.227)
Lwllib2		0.011 (.063)
1993	0.513 (0.253)	
1997	0.432 (0.176)	
2001	0.354 (0.163)	0.025 (0.078)
2005	0.212 (0.192)	-0.581 (0.301)
2009		-0.229 (0.176)
R-squared	0.80	0.78

Note: Standard errors between parentheses: (*) Significant at 10%, (**) Significant at 5% and (***) Significant at 1%. All variables are in log form.

Table (4) reports the Random effects estimation results for our two models. The parameter of interest here is elasticity change due to trade liberalization, i.e., the parameter corresponding to the wage variable interacted with the liberalization variable. The results are quite similar across both types of specifications. As column 1 in table (4) shows, our estimate of the interaction term involving wages and openness is small in magnitude and insignificant. Thus, the null hypothesis that the change in elasticity after the reforms is zero cannot be rejected at all levels of significance. Using the second proxy for trade protection, which is MFN tariff rates (column 2 in table (4)) confirms this previous findings. Moreover, the coefficients for trade liberalization measure alone appeared to be insignificant in both models. This lower responsiveness of labor demand elasticities to trade liberalization in the Egyptian case can probably be explained by the job security regulations in force. Even if there were increase in wage costs, employers could not easily fire workers. Moreover, despite recent progress government role is still important and the number of layoffs is still controlled for both private and public firms.

Regarding the contribution of other variables in equation (2) to labor demand changes, the coefficient of the wage variable is negative and significant in both specifications, and fall well within what Hammermesh (1993) has identified as being a reasonable range of values for labor demand elasticities and hence in line with standard trade theory. The coefficient of the output variable, which controls for business cycle fluctuations, is positive and statistically significant in both specifications, independently of the liberalization measure used. This means that an increase in output raises the labor demand. Finally, the coefficient on capital stock appears to be positive and statistically significant. This suggests that labor is complementary to the use of machines and equipments.

8- Conclusions

This paper investigated how trade liberalization affects employment and labour demand elasticities in the manufacturing sector in Egypt over the period from1989-90 to 2009-2010. According to theory, trade liberalization may affect labor demand through two channels: the direct effect and the indirect effect via elasticity. However, for the Egyptian case our findings did not support the theoretical hypothesis that total labor demand elasticities increase with trade openness. Moreover, our results also suggested that openness do not have a direct effect on labor demand given the statistically insignificant coefficients on openness (Llib1) and custom MFN tariff rates (Llib2). This may contribute to explain the low employment response to trade liberalization shock in many studies on developing countries neglecting the elasticity channel.

Keeping in view these results, it is clear that the move towards trade liberalization in Egypt has not affected labour demand in the manufacturing sector neither by increasing its elasticity nor through its direct impact. This non-responsiveness of labor demand elasticity to trade liberalization could possibly be explained by the rigid labor market regulations in place.

These results imply important implications for public policy and emphasize some challenge for policy-makers. Although our results suggest that rigid labor regulations for example through restrictions on layoffs can decrease the impact of trade liberalization on labor demand elasticities, extensive use of such regulations cannot be recommended as a desirable policy response. Given Egypt's growing integration with the international economy, exposing Egyptian firms to more import competition but hampering their ability to adjust their inputs in response is likely to put domestic firms at a severe disadvantage in terms of their ability to compete. Hence, labor regulations in Egypt should be revisited to achieve a balance between protecting workers and enabling firms to compete in international markets.

4- References

- Abdel Rahman, M. (2011), "The Effects of Trade Liberalization on Sectoral Wage Disparity in Egypt between 1998-2006", Master Thesis, Tilburg University.
- Akhter, N and A. Ali (2007), "Does Trade Liberalization Increase the Labor Demand Elasticities? Evidence from Pakistan", MPRA Paper No. 3881, available online at http://mpra.ub.uni-muenchen.de/3881.
- Bhagwati, J. and , V. Dehejia (1994), Freer trade and wages of the unskilled — is Marx striking again?. In: Bhagwati and Kosters, Edited. Trade and Wages: Levelling Wages Down?, AEI Press, Washington, DC.
- Bruno, G., A. Falzoni,. and R. Helg (2004), "Measuring the effect of globalization on labor demand elasticity: An empirical application to OECD countries," CESPRI Working Paper 153, Centre for Research on Innovation and Internationalization, Universita' Bocconi Milano, Italy.
- Campos-Vázquez, R. and J. Rodríguez-López (2011), "Trade and Occupational Employment in Mexico since NAFTA", OECD Trade Policy Working Papers, No. 129, OECD Publishing. http://dx.doi.org/10.1787/5kg3nh5q7p5k-en.
- Central Agency for Public Mobilization and Statistics (CAPMAS), The Annual Bulletin Industrial Production Statistic data, (Various Years).
- Coe, D. and E. Helpman, (1995), "International R&D spillovers," European Economic Review, 39, 859-87.
- Currie, J. and A. Harrison (1997), "Sharing costs: the impact of trade reform on capital and labor in Morocco", Journal of Labor Economics, 15 (3), 44–71.
- Edwards, S. (1998), "Openness, Productivity and Growth: What do We Really Know?", The Economic Journal, Vol. 108, No. 447, March.
- Elshennawy, and M. Said (2010), "The Impact of Trade Liberalization on Manufacturing Employment and Wages in Egypt 1990-2007", International Research Journal of Finance and Economics, Issue 46.
- Fajnzylber, P. and W. Maloney (2005), "Labor Demand and Trade Reform in Latin America," Journal of International Economics 66(2): 423–46.
- Feenstra, R. (2000), The impact of international trade on wages, NBER Conference Report series. Chicago and London: University of Chicago Press.
- Feenstra, R. and G. Hanson (1996), "Globalization, Outsourcing, and Wage Inequality," American Economic Review 86(2), 240-45.
- Feenstra, R. and G. Hanson (1997), "Productivity Measurement and the Impact of Trade and Technology on Wages: Estimates for the U.S., 1972-1990," National Bureau of Economic Research Working Paper: 6052.
- Freeman, R., Katz, L., (1994), Rising wage inequality: the United States vs. other industrial countries. NBER Research Project Report, Russell Sage Foundation, New York.

- Friedman, J. et al. (2011), "Openness, Wage Gaps and Unions in Chile: A Micro Econometric Analysis", OECD Trade Policy Working Papers, No. 134, OECD Publishing. http://dx.doi.org/10.1787/5kg3h0gcjkf1-en.
- Ghoneim A. (2010), Promoting sub regional growth-oriented economic and trade policies towards achieving the Millennium Development Goals in Arab countries of West Asia and North Africa Case Study: Egypt, UNCTAD unpublished Project.
- Goldar, B. (2008), "Trade Liberalization and Labor Demand Elasticity in Indian Manufacturing, Institute of Economic Growth, University of Delhi Enclave, North Campus, Delhi, India.
- Greene, W. H. (2003), Econometric Analysis, Fifth Edition, Englewood Cliffs, New Jersey: Prentice-Hall.
- Hammermesh, D. (1993), Labor Demand, Princeton, NJ: University Press.
- Hanson, G. and A. Harrison (1999), "Trade Liberalization and Wage Inequality in Mexico," Industrial and Labor Relations Review 52(2), 271-88
- Haouas, I. and M. Yagoubi (2004), Trade Liberalization and Labor-Demand Elasticities: Empirical Evidence from Tunisia, IZA Discussion Paper no. 1084, Institute for the Study of Labor, Bonn, Germany
- Harrigan, J. (1998). "International Trade and American Wages in General Equilibrium, 1967-1995," National Bureau of Economic Research Working Paper: 6609. 41
- Harrison, A. (1994). "Productivity, Imperfect Competition, and Trade Reforms," Journal of International Economics 36, 53-73.
- Harrison, A. and G. Hanson (1999), "Who Gains from Trade Reform? Some Remaining Puzzles," Journal of Development Economics 59(1), 125-54.
- Hasan, R., D. Mitra and K.V. Ramaswamy (2007), "Trade Reforms, Labor Regulations and Labor-Demand Elasticities: Empirical Evidence from India," Review of Economics and Statistics, 89(3): 466-81.
- Haskel, J. and M. Slaughter (2001), "Trade, Technology and U.K. Wage Inequality," Economic Journal 111(468), 163-87.
- International Financial Statistics (IFS) (2011), International Monetary Fund.
- Krishna, P. Mitra, D. and Chinoy, S. (2001), "Trade Liberalization and Labor- Demand Elasticities: Evidence from Turkey", Journal of International Economics, 55(2), 391-409.
- Lawrence, R. and M. Slaughter (1993), "International Trade and American Wages in the 1980s: Giant Sucking Sound or Small Hiccup? Brookings Papers on Economic Activity (Microeconomics 1993)", 161-210.
- Meschi, et al (2008), "Trade Openness and the Demand for Skills: Evidence from Turkish Micro data," IZA Discussion Paper Series No. 3887.

- Mouelhi, R. and M. Ghazal (2012), "Impact of trade reforms in Tunisia on the elasticity of labor demand", paper presented at the Economic Research Forum 18th annual conference, Corruption and Economic Development, Cairo.
- Nickell, S. and Symons, J. (1990), "The real-wage employment relationship in the United States" Journal of Labor Economics 8, 1–15.
- Rauch, J.E. and V. Trindade, (2003), "Information, International Substitutability and Globalisation", American Economic Review, 93, 775-791.
- Revenga, A. (1997), "Employment and Wage Effects of Trade Liberalization: The Case of Mexican Manufacturing", Journal of Labor Economics 15(3).
- Revenga, A. L. (1992), "Exporting Jobs? The Impact of Import Competition on Employment and Wages in US Manufacturing," Quarterly Journal of Economics 107:1, 255–284.
- Robbins, D. (1996), "HOS Hits Facts: Facts Win; Evidence on Trade and Wages in the Developing World," HIID, Development Discussion Paper No. 557.
- Rodrik, D. (1997), Has Globalization Gone Too Far? Washington DC: Institute for International Economics.
- Rodrik, D., Subramanium, A. and Trebbi, F. (2002), "Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development," NBER Working Paper.
- Slaughter, M. (1999), "Globalization and Wages: A Tale of Two Perspectives," World Economy 22(5), 609-29.
- Slaughter, M. (2001), "International Trade and Labor-demand Elasticities," Journal of International Economics 54, 27–56.
- Wood, A. (1997), "Openness and Wage Inequality in Developing Countries: The Latin American Challenge to East Asian Conventional Wisdom," The World Bank Economic Review 11:1.
- World Development Indicators (WDI) (2011), World Bank, Washington D.C. available online at http://data.worldbank.org/data-catalog/world-development-indicators.
- World Integrated Trade Solution (WITS), World Bank, Washington D.C. available online at https://wits.worldbank.org/WITS/WITS/Restricted/Login.aspx.
- World Trade Organization (2012) "Egypt Tariff Profile", Geneva, available online on at http://stat.wto.org/TariffProfile/WSDBTariffPFHome.aspx?Language=E.
- Yasmin, B. and A. H. Khan (2005), "Trade Liberalization and Labor Demand Elasticities: Empirical Evidence for Pakistan," The Pakistan Development Review 44: 4 Part II, Winter, 1067–1089.
- Zaki, C. (2011), "On Trade Policies and Wage Disparity in Egypt: Evidence from Microeconomic Data," Gender and Work in the MENA region working paper series no. 15, Population Council, JUNE.