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## Trade and Income Distribution in Pakistan

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# Trade and Income Distribution in Pakistan

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## I. INTRODUCTION

This paper addresses the influence of foreign trade on inequality or, more generally, on the distribution of income, with a focus on Pakistan. Since the 1980s many developed and developing countries have experienced increases in within-country inequality. The growing income gap has coincided with the period of increasing exposure of countries to globalization through increased flows of goods, services, capital and labour across international borders. These developments have instigated a large debate in the academic and policy circles as to whether globalization is responsible for the growing inequality within countries. A prime objective of globalization is to provide better quality of life around the world by taking advantage of the international market. International trade also provides scope for economic development and poverty reduction. But the anti-globalization processions and demonstrations are commonplace whenever there is a World Trade Organization (WTO) meeting which suggests that all is not well with globalization.

All foreign investments except those directly connected with the importation of goods or services (amounting to deferred payments on imports) supplement the spending power of the receiving country (unless offset by macroeconomic policy, which will be assumed not to occur in what follows), which in general will be separated between imports and domestic goods and services. In general, one would expect an inward capital flow to lead to a rise in the prices of nontaxable goods and services relative to imported goods and services. If the country is a price-taker on world markets, the price of non-tradable will also rise with respect to export products. This change will affect incomes

(e.g. urban land rents) of factors that are used intensively either in non-tradable or in tradable.

Foreign assistance for infrastructure should raise national income; if it is dedicated to the purchase of imported tools, it will simply augment the domestic capital stock, raising factor incomes all around except for capital in direct antagonism with the new investment. If it is devoted in part to local manufacture, it will during the period of construction raise demand for labor, both unskilled and those with relevant construction skills. That will be a transitory effect, but for large projects may last for many years; and when such aid flows continue over decades, they can create the basis for an indefinitely enlarged construction industry. Foreign direct investment (FDI) introduces a wider set of issues. Inflows of capital usually accompany FDI, but in some cases they may be its least important feature. It also may bring improved management, new production techniques, quality control, and access to foreign markets that would otherwise be difficult to develop; as well as providing competitive pressures on local producers, in the market for labor as well as for goods and services. Trade liberalization has a stronger impact on increasing employment elasticity of economic growth and poverty reduction, as compared to import substitution and/or closed economies initiatives. An open economy allows a country to restructure its domestic production in line with its comparative advantage (Krueger, 1998). Nevertheless, staunch critics of globalization usually emphasize that the benefits of this economic growth have little likelihood of being evenly distributed; and thus, its impacts may affect the poor rather adversely.

## II. RESEARCH OBJECTIVES

The main objective of this research is to investigate the effect of trade on income distribution in Pakistan.

### a) Literature Review

Kim(1984) has analysed structure of foreign trade and income distribution (A case study of Mexico). Using Mexico's input-output tables and household survey data, this paper examined various trade strategies and their relationship to commodity production with a view to assessing their effect on the distribution of income. The model incorporates income-induced multiplier effects, taking into account the full range of input import-substitution possibilities. The results of this paper show that the difference in the impact on income, particularly, of the lower incomes, are

most marked in the tensions between exportable and import competing activities. On the whole, production per unit of output in the non-tradable sector produced as much factor income as that in the export sector. Expansion of exportable activities marginally improved the economic position of the poor in relation to other income groups, but only when direct effects were taken into account. If, however, domestic production meets the needs of intermediate imports, then the distribution of income remain unaffected by alternative trade strategies.

Masche and Vivarelle (2009) have analyzed The Trade and Income Inequality in Developing Countries. They used a dynamic specification to estimate the impact of trade on within-country income inequality in a sample of 65 developing countries (DCs) over the 1980–99 period. Their results suggested that trade with high income countries worsen income distribution in DCs, through both imports and exports. These findings provide support to the hypothesis that technological differentials and the skill biased nature of new technologies may be important factors in shaping the distributive effects of trade. Moreover, they observed that the previous results only hold for middle-income countries (MICs); they interpret this evidence by considering the greater potential for technological upgrading in MICs.

Hsu and Wu (2012) Foreign direct investment and income inequality: Does the relationship vary with absorptive capacity? They analyzed the effects of foreign direct investment (FDI) on income inequality and asked whether the relationship depends on absorptive capacity or not, by using a cross-sectional dataset taken from 54 countries over the period 1980–2005. They adopt the endogenous threshold regression model proposed by Hansen (2000) and Caner and Hansen (2004) and find strong evidence of a two-regime split in our sample. That is, FDI is likely to be harmful to the income distribution of those host countries with low levels of absorptive capacity. By contrast, their results supported the perspective that FDI has little effect on income inequality in the case of countries with better absorptive capacity. It is also shown that international trade can lead to more equal income distribution.

Gao (2004) has analysed The FDI, openness and income. This was an empirical study of the impact of foreign direct investment (FDI) on income. That was presents cross-country evidence that inward FDI is positively correlated with income. In addition, an instrument for FDI is constructed to address the issue of endogeneity. The results of the paper showed that instrumental-variables estimates of the impact of FDI on income was positive and greater than OLS estimates, similar to the findings on trade in Frankel and Romer (1999). The evidence in this paper suggested that inward FDI contributes to higher income, and favours the argument of Irwin and Tervio (2002) that trade

openness is subject to measurement error in particular, trade is an imperfect proxy for many income enhancing interactions between countries.

Pose (2010) has examined the relationship between openness and within-country regional inequality across 28 countries over the period 1975–2005, paying special vattention to whether increases in global trade affect the developed and developing world differently. He used a combination of static and dynamic panel data analysis, he found that while increases in trade per se do not lead to greater territorial polarisation, in combination with certain country-specific conditions, trade had a positive and significant association with regional inequality. In particular, states with higher interregional differences in sectoral endowments, a lower share of government expenditure, and a combination of high internal transaction costs with a higher degree of coincidence between the regional income distribution and regional foreign market access positions have experienced the greatest rise in territorial inequality when exposed to greater trade flows. This means that changes in trade regimes have had a more polarising effect in low and middle income countries, whose structural features tend to potentiate the trade effect and whose levels of internal spatial inequality are, on average, significantly higher than in high income countries.

In a seminal paper, Frankel and Romer (1999) examined the impact of trade on income. They used data for 150 countries for the year 1985. In order to correct for the endogeneity of trade, they employed Instrumental Variable (IV) techniques, and used country's geographic characters such as countries' distance from their trading partners as instruments for trade. They showed that trade has statistically significant impact on income across countries.

Rodriguez and Rodrik (2001) studied the impact of trade policies on economic growth and their finding questioned the validity of results obtained by Frankel and Romer (1999). They found little evidence supporting the claim that open trade policies are positively associated with economic growth and also concluded that the existing correlation is unauthenticated. They argued that the geography-based instruments used in the earlier studies might be correlated with other geographic variables that affect income through non-trade channels and the trade estimate is just capturing these non-trade effects. This is well supported by their empirical results that the trade coefficient was not statistically significant when geography indicators are introduced as controls in the income equation.

### III. CONCEPTUAL FRAMEWORK

"Distribution of income" has several quite different meanings, apart from the issue of the specific measurements that are used to describe it. Economic theory has mainly been concerned with the functional

distribution of income, that is, with the returns to different identifiable factors of production and their respective shares in total income of a particular country, such as the share of labor income in national income. Popular and political discourse is more concerned with the size distribution of income, such as the fraction of national income accruing to the top ten percent, or the bottom decile, of residents of the country in question -- and in particular on whether inequality has risen or declined. In recent years, concern with the size distribution of income has extended to the global distribution, where observations are on countries, grouped by per capita income, rather than on individuals.

The two concepts of distribution are related by the ownership of the factors of production, especially land in a predominantly agrarian economy, capital in a modern economy. If ownership of land and capital were evenly distributed across a population, even significant changes in the functional distribution of income would have little impact on the size distribution of income. Somewhat surprisingly, simulated empirical models suggest that the size distribution of income, while significantly influenced by the overall development strategy and the institutional structure of a particular country, is little influenced by economic shocks or by modest changes in policy within a given strategy (Adelman and Robinson, 1989).

Within in the Heckscher-Ohlin framework policy-induced increases in labor-intensive exports would be expected to reduce the demand for labor-intensive production in capital-rich importing countries, and this would reduce the total demand for unskilled labor, leading to a reduction in the unskilled wage and an increased dispersion of income. But the same forces would be expected to increase production of labor-intensive goods in the exporting countries, and that in turn under similar conditions should increase the relative wages of unskilled workers and thus reduce income dispersion in those countries. This does not seem to have happened. Wages of unskilled manufacturing workers in developing countries with rapidly growing exports do indeed seem to have risen, and poverty has declined, but wages of skilled workers seem to have risen even more, contrary to expectation within the H-O framework. Chile, Colombia, Mexico, Turkey, and Venezuela, among others, have experienced increased wage dispersion based on education (Wood, 1994; World Bank, 2001).

The computation of top income share usually relies on historic tax records. Published tax records tabulate information for several income brackets, and for each income bracket report the number of taxpayers, their total income and tax liability. The researchers combine this information with the information on a country's total population, total personal income, some assumptions on taxpayer filing behaviour and the underlying shape of income distribution to compute the

top 1 per cent inequality measure (see Atkinson et al., 2011 for details).

The Stolper-Samuelson mechanism suggests that increased relative demand for skilled labour in countries abundant in skilled labour occurs as a result of shifts in the relative demand for skilled labour across industries. Labour-intensive industries using skilled labour expand and those using unskilled labour contract, with all industries employing an increasing share of less-skilled labour. However, the employment shifts across industries have not been sufficiently large to account for the large increase in wage inequality. Most of the observed increase in demand for educated labour in countries such as the United States is driven by increased relative demand for skilled labour within industries. For example, the wage and employment share of skilled workers increased in virtually all industries during the 1980s and 1990s in the United States, including the non-traded sectors (Lawrence and Slaughter, 1993; Autor and Katz, 1999), which is at odds with the Heckscher-Ohlin mechanism. Berman et al. (1998) find evidence for a within-industry shift in the relative demand for skilled workers for several OECD countries. In addition, studies have documented that, contrary to the predictions of the simple Heckscher-Ohlin model, many developing countries that liberalized their trade during the 1980s and 1990s also observed an increase, rather than a decrease, in wage inequality between education groups (Robbins, 1996; Harrison and Hanson, 1999; Wood, 1999; Goldberg and Pavcnik, 2007). 10 Some developing countries such as Colombia and Mexico tended to protect industries employing unskilled labour intensively, so tariff-induced price declines would be expected to be largest in those sectors. As a result, the observed increase in wage inequality was in principle consistent with the Stolper-Samuelson mechanism (Hanson and Harrison, 1999; Goldberg and Pavcnik, 2007). However, as in the developed economies, the increased relative demand for skilled labour in many developing countries was predominantly driven by increase in the relative demand for skilled labour within industries rather than across industries. The wage-bill share or employment share of skilled workers increased in most traded and non-traded industries during this period in the countries studied (Goldberg and Pavcnik, 2007). Krugman (2008) has recently suggested that international trade accounts for a larger share of the growth in wage inequality in the United States in the 1990s and 2000s because of the rapid increase in the share of imports coming from low-wage countries such as China and India during this period. This view is not shared by researchers such as Irwin (2008) and Katz (2008), who use the evidence above as well as evidence on the polarization of the US labour force from Autor et al. (2008) and Autor (2010) to counteract Krugman's argument in their comments to Krugman (2008). Michaels et al. (2010) examine whether

information and communication technologies (ICT) can account for this polarization of labour markets in many Organisation for Economic Co-operation and Development (OECD) countries, where the demand for middle-skilled workers is declining relative to the demand for high and low-skilled workers. Using data from 1980 to 2004, Michaels et al. (2010) find evidence that industries that increase their use of ICT observe greater increases in demand for high-skilled workers and a greater relative fall in demand for workers with a middle level of skills. Interestingly, trade (as measured by imports and exports as a share of total industry output) also plays a role, but the effect of trade is not robust to controls for differences in research and development (R&D) intensity across industries. The study concludes that ICT can account for a quarter of the increase in the relative demand for college-educated workers between 1980 and 2004 in these countries.

#### IV. METHODOLOGY

The methodology deals with model specification data requirement, data source and variables that we use in our model. This chapter explains the various tools and techniques for determining the Trade and income distribution. We are attempting to explain the Trade and income Distribution in Pakistan. We want to explore the relationship between income distribution and factors that influence it.

##### a) Problem Statement

Our analysis is concern with the Trade and income distribution in Pakistan. The Trade and Income Distribution have been analyses in single model. The research question of our study is to see the factors which are irresponsible for Inequality or unfair income distribution .The empirical analyses will support in depth finding.

##### b) Data

Data used in this study is secondary data which is taken from Pakistan Economic Survey and World Bank.

##### i. Model Selection

The main aim of the model is to explore the effect of alternative trade structure on the income accruing to different group. We use Ols to estimate the variables.

In statistics, ordinary least squares (OLS) or linear least squares is a method for estimating the unknown parameters in a linear regression model, with the goal of minimizing the differences between the observed responses in some arbitrary dataset and the responses predicted by the linear approximation of the data (visually this is seen as the sum of the vertical distances between each data point in the set and the corresponding point on the regression line - the smaller the differences, the better the model fits the data). The resulting estimator can be expressed by a simple

formula, especially in the case of a single regressor on the right-hand side.

##### ii. Economic Model

$$\text{Gini} = f(\text{TO}, \text{GDP}, \text{EL}, \text{POP}, \text{FED}, \text{REMIT})$$

##### iii. Statistical analysis

In addition to descriptive analysis OLS regression model using Eviews software is use to explore the informal economy of Pakistan.

##### iv. Econometric Model

$$\text{Gini} = \text{Bo} + \text{B1}(\text{TO}) + \text{B2}(\text{GDP}) + \text{B3}(\text{FDI}) - \text{B4}(\text{POP}) + \text{B5}(\text{REMIT}) + \text{U}$$

##### c) Variable with economic definition

##### i. Gini Coefficient

Gini(1912 and 1909)The Gini coefficient (also known as the Gini index or Gini ratio) (/dʒɪni/ jee-nee) is a measure of statistical dispersion intended to represent the income distribution of a nation's residents, and is the most commonly used measure of inequality. It was developed by the Italian statistician and sociologist Corrado Gini and published in his 1912 paper "Variability and Mutability" (Italian: Variabilità e mutabilità). The Gini coefficient measures the inequality among values of a frequency distribution (for example, levels of income). A Gini coefficient of zero expresses perfect equality, where all values are the same (for example, where everyone has the same income). A Gini coefficient of one (or 100%) expresses maximal inequality among values (for example, where only one person has all the income or consumption, and all others have none). (Wikipidia) However, a value greater than one may occur if some persons represent negative contribution to the total (for example, having negative income or wealth). For larger groups, values close to or above 1 are very unlikely in practice.

##### ii. Trade openness

The trade-to-GDP ratio is frequently used to measure the importance of international transactions relative to domestic transactions. This indicator is calculated for each country as the simple average (i.e. the mean) of total trade (i.e. the sum of exports and imports of goods and services) relative to GDP. The Openness Index is an economic metric calculated as the ratio of country's total trade, the sum of exports plus imports, to the country's gross domestic product. The interpretation of the Openness Index is the higher the index the larger the influence of trade on domestic activities.

Table 1 : Variable table with economic definition and data source

| Dependent variable              | Economic definition of variables                   | Data source                        |
|---------------------------------|----------------------------------------------------|------------------------------------|
| Gini                            | Gini coefficient                                   | Economic survey of Pakistan        |
| Independent variable            |                                                    |                                    |
| FDI (Foreign direct investment) | Foreign direct investment as % of GDP              | FBS (Federal Bureau of statistics) |
| GDP (gross domestic product)    | Gross domestic product(million RS)                 | Economic survey of Pakistan        |
| EL(Education level)             | Education level(literacy rate) continuous variable | FBS(Federal Bureau of statistics)  |
| POP (population)                | Population (million)                               | Economic survey of Pakistan        |
| REMIT (remittances)             | Remittances (million RS)                           | World bank                         |
| TOPN (Trade openness)           | Trade openness (EXP +IMP)/GDP                      | Economic survey of Pakistan        |

## V. RESULT AND DISCUSSION

In this chapter researcher make analysis using appropriate statistical and econometrics techniques. Along with econometric analysis descriptive and inferential analysis also added in this chapter. The

estimates of the model discussed in this chapter. For the purpose researcher have tabulated and classified the data to get the objective of study. First section of this chapter comprise with such work. In second section researcher discuss relationship among dependent and independent variables.

Table 2 : Result

Dependent Variable: GINI  
Method: Least Squares  
Date: 05/13/15 Time: 12:35  
Sample: 1980 2010  
Included observations: 31

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.     |
|--------------------|-------------|-----------------------|-------------|-----------|
| GDP                | -2.36E-08   | 6.95E-09              | -3.39797*   | 0.0023    |
| FDI                | -1.09E-05   | 4.74E-06              | -2.29792**  | 0.0302    |
| POPL               | 0.001708    | 0.000391              | 4.37073*    | 0.0002    |
| REMIT              | -3.53E-07   | 9.74E-08              | -3.6256*    | 0.0013    |
| TOPN               | -0.032189   | 0.112472              | -2.1861**   | 0.0571    |
| C                  | 0.538455    | 0.046737              | 11.52098    | 0.0000    |
| R-squared          | 0.796169    | Mean dependent var    |             | 0.359032  |
| Adjusted R-squared | 0.755403    | S.D. dependent var    |             | 0.034093  |
| S.E. of regression | 0.016862    | Akaike info criterion |             | -5.155577 |
| Sum squared resid  | 0.007108    | Schwarz criterion     |             | -4.878032 |
| Log likelihood     | 85.91145    | Hannan-Quinn criter.  |             | -5.065104 |
| F-statistic        | 19.53011    | Durbin-Watson stat    |             | 1.773897  |
| Prob(F-statistic)  | 0.000000    |                       |             |           |

Note \*, \*\* indicate the level of significance at 1% and 5% respectively

### a) Trade and Income inequality

There is negative relationship between trade and income inequality and this relationship is statistically significant, when trade increase than income inequality reduced because trade increase income of poor person in this sense when trade increase than competition increase and goods and services available at lower price and income of poor person increase.

Trade openness effect directly or indirectly through its impacts on economic growth should make income distribution more equal and thereby reduce poverty in developing countries. Resources are utilized in better way by allowing the imports of goods and

services at lower costs than it could be produced domestically. It also enables the developing countries like Pakistan to import capital equipment and intermediate inputs which would be costly to produce domestically and also critical role to improve economic growth performance and in poverty alleviation. It also promotes environment of competition and give a chance to local firms to grow and perform efficiently. Local firms get greater access new ideas and technologies of international exposure. Furthermore, country's production possibilities and consumption opportunities become limited without trade. Trade and free flow of capital can extend these possibilities which lead to

growth and development. In fact, trade and penetration of capital bring dynamic forces in the economy that enhances efficiency and competition. Thus, international trade has great potential to invent profitable areas of investment in economy which also attract investment from abroad. (Hussain, 2009)

The foreign markets have not impressive distributional influence on the income inequality in Pakistan. Investments inflows have inverse influence on income inequalities in Pakistan but due to political instability and inconsistent economic policies, FDI was not allowed to rise considerably. (Munir, 2001)

Trade leads to more (less) inequality in land-abundant capital-abundant. Countries; and second, that capital mobility reverses the effects of trade on inequality in the long run. Thus, it seems that free trade should encounter opposition in land-abundant countries if it is not accompanied by a liberalization of capital flows. (Fisher, 2001)

#### b) *Foreign direct Investment and Income inequality*

There is negative relationship between FDI and income inequality and this relationship is statistically significant. Its significant effect implies that inflow and outflow of foreign direct investment can make the distribution of income fairer.

#### c) *Worker Remittances and income inequality*

Remittances and income inequality is negatively related and their relationship is statistically significant. Its significant effect implies that inflow of remittances can make the distribution of income fairer.

#### d) *GDP and income inequality*

GDP and income inequality is negatively related and this relationship is statistically significant. When GDP increase than income inequality reduced and income distribution become fairer.

#### e) *Population and income inequality*

Population and income inequality is positively related and their relationship is statistically significant. When population increase than income distribution become unfair.

## VI. CONCLUSION

This research has discussed the impact of trade flows on within country income inequality in Pakistan. The model and estimation we presented above allows us to analyze the Trade and Income distribution. To test how different parameters have affect income distribution, we estimated OLS model. The conclusion of the study is summarized as below.

- Trade openness and Gini is negatively related.
- FDI and Gini is negatively related.
- Remittances and Gini is negatively related.
- Population and Gini is positively related.
- GDP and Gini is negatively related.

Non-tradable activities rare leading in generating factor income for the poor only when direct effects are considered. Within the category of tradable activities the income effect tends to be largest in primary sector activities. In particularly export oriented agriculture creates substantially more income for poor people. Developing countries which are comparatively well endowed with mineral resources and land (or climate) tend to be less egalitarian than others, although the effect of the agricultural comparative advantage may be offset by the distribution of land. On the other hand, trade protection has also been shown to be a major determinant of income distribution.

## VII. RECOMMENDATION

In this framework, the domestic level of economic and human development plays important role in shaping the direction and the impact of globalization over income distribution in Pakistan. For instance, the role of the physical and human capital is important in minimizing the adverse distributional effects of increasing trade with the more industrialized countries. Conversely, bottlenecks in the supply of highly educated and skilled labor may condemn a developing country to the economic marginalization and to the high levels of domestic income inequality. This means that there is need for active social intervention, such as targeted and high-quality education and training policies addressed to increasing the supply of skilled labor. At the same time, the construction of a welfare system able to create safety nets and insurance schemes for the possible victims of the globalization process would also be advisable. In this context, national policies within Pakistan might be severely constrained as far as domestic public budgets are concerned, while international organizations might instead play a pivotal role (see, for instance, ILO, 2004).

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