# Agriculture Trade Openness and Poverty Reduction: A Cross-Country Analysis

## M. Bakhshoodeh[1**] and M. Zibaei[1*]

[1]Dept. of Agricultural Economics, College of Agriculture, Shiraz University, Shiraz, I.R.Iran

**ABESTRACT**- This paper explores the effects of general and agricultural trade openness on economic freedom and alongside with the quality of institutions, on income and poverty. Recent cross-country data for over 200 nations in global regions were used to estimate equations for income, poverty and economic freedom. Economic freedom appears to have positive impacts on income levels, which together with good institutions reduce poverty. It is also concluded that poverty is determined both directly and indirectly by institutions. A typical finding of this paper is that, in general, economic freedom is associated with trade openness and with agriculture trade liberalization.

Keywords: Economic freedom, Agriculture trade openness, Cross-country, Poverty

## INTRODUCTION

The problem of poverty is one of the oldest economic challenges, but has gained prominence in recent decades as some countries, and certain groups within other countries, have achieved high levels of prosperity through economic development. Considering that the vast majority of the population in developing countries live in rural areas, where poverty is highest, agricultural growth can have a positive effect on poverty reduction. The key to sustained poverty alleviation is economic growth (17) and economic freedom is as much important for economic growth as for poverty reduction. In its broad definition, economic freedom refers to the quality of a free private market in which people voluntarily carry out exchanges in the most productive ways and individuals are free to work, produce, consume, and invest in their own interests. According to Miles et al., (13), *"Economic freedom is defined as the absence of government coercion or constraint on the production, distribution, or consumption of goods and services beyond the extent necessary for citizens to protect and maintain liberty itself"*. Trade openness refers to a trade system where all trade distortions are eliminated and is a major element and/or important indicator of economic freedom. Trade openness index TOI shows the degree of free trade and can be measured by two broad categories: measures of trade volumes and measures of trade restrictions (19) and according to Baldwin (3), measures of openness can either be based on outcome or incidence. The former infers information on the policy-induced trade barriers from data on the variables they presumably affect (prices or trade flows), while the latter are constructed from data on the actual barriers themselves. There are various measures of openness (see for instance, Andriamananjara and Nash, (2)) including sophisticated indices such as the adjusted

---

*   Associate Professors
** Corresponding Author

ratio of trade (4), the Leamer index and some more comprehensive indices; however, the simplest outcome-based measure as the most basic measure of openness is the ratio of trade, which is exports plus imports divided by GDP.

According to the Economic Freedom of The World 2001 Annual Report, the economic freedom index EFI correlates positively with income per capita, economic growth, human development, and longevity and correlates negatively with indexes of corruption and poverty. Based on Hasan et al. (9), trade openness and small size of the government are robustly associated with poverty reduction. As reviewed in (8), a large number of studies found a positive and strong relationship with growth. Consistently with the findings of theoretical growth and development literature, (19) found a positive and significant relationship between trade barriers and growth and thus concluded that, under certain conditions, developing countries can actually benefit from trade restrictions. Despite the fact that many developing countries are said to lose from trade liberalization in agriculture and textiles (18), global agriculture trade liberalization is critical for improving the lives of the poor in developing countries (2) and trade policy in this sector is of particular importance to major exporters and importers of developing countries (12).

This paper seeks to discover the extent to which poverty is determined by economic growth and to investigate the robustness of economic freedom on improving the growth. Furthermore, it intends to explore whether the degree of economic freedom really differs among the countries regarding their levels of trade openness. Moreover, sources of trade openness are investigated through the decomposition of the growth of trade openess index to its components, i.e. trade growth and GDP growth. The liberalization of agriculture seems likely to have a larger impact on poverty than liberalization in any other area (12). To show the importance of agriculture trade liberalization on economic freedom and therefore poverty reduction, particular attention is given to the role of agriculture trade openness in economic freedom in the last section.

## MATERIALS AND METHODS

Cross-country data available online at the Nation Master database[1], mainly in 2004 were used in this study. For some cases, the entries are reported in 2003 but all countries are ranked in the database by the same manner regardless of availability of their corresponding figures in 2003 and 2004. In this regard, we assume that the values of considered indices remain unchanged for these two years. Although the basic statistics are calculated and discussed for 204 countries, a total of 26 countries with missing values were dropped from further econometric analysis. The final list includes 48 countries in Africa, 20 in Asia, 20 in central America and the Caribbean, 35 in Europe, 11 in the Middle East, 4 in North America, 12 in Oceania, 11 in South America and 8 countries in South Asia.

The country-level indices used as the major variables in this study include the Public Institutions Index (PII), the Economic Freedom Index (EFI), the Human Development Index (HDI), the Gini index of income distribution, the headcount poverty index POV and the Trade Openness Index (TOI). We used the simple ratio as TOI despite the fact that this index can be affected by structural characteristics of the economy, as well as external factors such as location that affect the cost of

---

1-http://www.nationmaster.com

trading. Country imports and exports are gathered from the FAO database (http://apps.fao.org). Agricultural trade openness (AGR-TOI) or the share of agriculture in trade liberalization, is defined here as the ratio of the sum of agriculture import and export figures to the GDP. The means of the main economic indices by global region, which are indices for data for these regions separately indexed, are shown in Table 1. As shown, whilst PII and EFI values are relatively high in North America, Europe, Oceania and the Middle East, a lower share of the population are relatively poor in these regions. People in Oceania, where the PII is 6.26 in average, enjoy the best public institutions, while the second-best PII scores are enjoyed by Europe, the Middle East and North America. As represented by the EFI, economies are mostly free in North America, Europe, Oceania, and Central America and the Caribbean, but less free in Africa and Asia. The TOI is 0.90 in average and is highest in South East Asia and lowest in North America.

**Table 1. Selected economic indices by global region**

|  | PII | | EFI | | GINI | | POV | | HDI | | TOI | | AGR-TOI | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Africa | 4.03 | 0.67 | 1.75 | 0.34 | 0.36 | 0.36 | 0.52 | 0.16 | 0.49 | 0.13 | 0.36 | 0.55 | 0.05 | 0.05 |
| Asia | 4.04 | 1.16 | 1.70 | 0.58 | 0.24 | 0.24 | 0.33 | 0.15 | 0.68 | 0.14 | 0.24 | 0.22 | 0.02 | 0.02 |
| Central America and Caribbean | 4.00 | 0.50 | 2.28 | 0.42 | 0.54 | 0.54 | 0.42 | 0.20 | 0.75 | 0.10 | 0.54 | 0.43 | 0.07 | 0.04 |
| Europe | 5.23 | 1.00 | 2.51 | 0.60 | 0.63 | 0.63 | 0.23 | 0.22 | 0.86 | 0.11 | 0.63 | 0.37 | 0.05 | 0.03 |
| Middle East | 5.26 | 0.63 | 1.99 | 0.65 | 0.63 | 0.63 | 0.29 | 0.11 | 0.76 | 0.10 | 0.63 | 0.47 | 0.04 | 0.03 |
| North America | 5.29 | 0.87 | 2.80 | 0.53 | 1.25 | 1.25 | 0.30 | 0.15 | 0.89 | 0.08 | 1.25 | 1.22 | 0.05 | 0.07 |
| Oceania | 6.26 | 0.22 | 2.39 | 0.91 | 0.45 | 0.45 | 0.30 | 0.06 | 0.69 | 0.16 | 0.45 | 0.32 | 0.10 | 0.07 |
| South America | 4.22 | 0.87 | 1.99 | 0.51 | 0.24 | 0.24 | 0.46 | 0.20 | 0.76 | 0.05 | 0.24 | 0.15 | 0.04 | 0.02 |
| South-East Asia | 4.65 | 1.06 | 2.14 | 0.82 | 0.73 | 0.73 | 0.31 | 0.12 | 0.68 | 0.13 | 0.73 | 0.96 | 0.03 | 0.02 |
| World | 4.62 | 1.04 | 2.08 | 0.62 | 0.55 | 0.55 | 0.39 | 0.20 | 0.69 | 0.18 | 0.55 | 0.64 | 0.05 | 0.05 |

**Source: calculated from the entries at: www.nationmaster.com**

The hypothsis in this study is that decline in poverty depends on economic growth, which in turn depends on the degree of oppenness of the economy in general, and the agricultural sector specifically, as well as the degree of economic freedom that affects the quality of institutions within a country. Thus, following Gaiha and Imai (2005), we developed an equation system based on the main hypothesis of this study that states poverty depends on income, which is partly determined by institutions, and that economic freedom is a function of human development and trade openness as a whole and in the agriculture sector:

$$Y_i = \alpha_0 + \alpha_1 LAB_i + \alpha_2 EFI_i + \alpha_3 PII_i + \alpha_4 D^1_i + \alpha_5 D^2_i + \mu_i \qquad (1)$$

$$POV_i = \beta_0 + \beta_1 Y_i + \beta_2 G_i + \beta_3 PII_i + \beta_4 D^1_i + \beta_5 D^3_i + \varepsilon_i \qquad (2)$$

$$EFI_i = \gamma_0 + \gamma_1 TOI_i + \gamma_2 AGR\text{-}TOI_i + \gamma_3 D^4_i + \gamma_4 D^5_i + \nu_i \qquad (3)$$

In equation 1, $Y_i$ is log GDP-PPP (USD per person) and LAB denotes log of labor force per 1000 people. Considering that the mean GDP-PPP per person is

lowest in Africa (USD 2376) and highest in Europe (USD 17226) and North America (USD 22308), we defined two dummy variables for location, i.e. non-African ($D^1_i$) countries and non-European/North American ($D^2_i$) in Equation 1. The α's are parameters to be estimated, and μ is an independent and identically distributed error term.

In equation 2, POV is the proportion of population below the poverty line, and G represents the Gini index of inequality. All these entries are taken directly from the NationMaster database. On average, the proportion of the population below the poverty line in African countries is 50.48 per cent, the highest in the globe. The corresponding figure for Europe is low, at 21.22 per cent. So, in addition to $D^1_i$ for non-African countries, we defined a further dummy variable for non-European countries ($D^3_i$). The β's are parameters, and $ε_i$ is the noise term that is assumed to be independent and identically distributed as a Gaussian random variable.

PII is included in both the income and poverty equations to show the effect of legal and public-contracting independence, and the level of corruption on poverty, either directly or indirectly through their impact on income.

In equation 3, EFI is the index of economic freedom; TOI and AGR-TOI are the indices of trade openness in the whole country and in agriculture respectively. $D^4_i$ and $D^5_i$ are dummy variables for European and North American countries, where the scores are higher than those in other global regions. $v_i$ is the error term and $γ_s$ are the parameters to be estimated.

In this study, the average growth of TOI, $G_{TOI}$ is defined as the sum of export growth $G_X$ and import growth $G_M$, minus the GDP growth $G_{GDP}$, that is $G_{TOI} = G_X + G_M − G_{GDP}$ (where $G_X$ and $G_M$ are annual growths of real exports and exports of goods and services rate in 2002, and $G_{GDP}$ is GDP growth on an annual basis adjusted for inflation and expressed as a percentage). For those countries that represent a positive annual trade openness growth, the average growth of trade is greater than that of their trade including both imports and exports.

The Univariate GLM procedure was used in this study to test the hypothesis that the means of the dependent variable EFI are equal among the countries grouped by their TOI score and the proportion of agriculture sector in TOI (AGR-TOI). For simplicity, we classified the countries by their TOI scores into six groups considering the range of the TOI: 1) less than 0.1, 2) 0.1-0.2, …., 5) 0.4-0.5 and 6) 0.5 and higher. Countries are classified into five groups with respect to their AGR-TOI scores: 1) .0-0.01, 2) 0.01-0.02, …, 4) 0.03-0.04 and 5) 0.04 and over.

The three-step Hausman approach was performed to test variables' exogeneity. This revealed that variables Y, POV and EFI are endogenous and the others are exogenous. Whilst the EFI equation (3) contains exogenous variables, neither income nor poverty on the right-hand side of the income equation (1) contain PII as an explanatory variable along with others. Poverty equation (2) contains PII and income as regressors along with others absent in equations (1) and (3). Moreover, applying the procedure discussed by Seddighi *et. al.* (16), the variance-covariance matrix of the error terms of the three equations was found to be diagonal. Therefore, as also discussed by Gujarati (7), the problem of simultaneous estimation does not exist for above three-equation systems and so Ordinary Least Squares (OLS) can be applied to each equation separately.

## RESULTS AND DISCUSSION

The OLS estimates of income, poverty and economic freedom equations are represented in Table 2. As shown, all coefficients in income equation except labor are significantly different from zero. Both Economic freedom EFI and public institutions PII appear to have positive and robustly significant impacts on income. As expected, the per capita incomes in non-African countries are higher and in non-European/non-North American lower than other countries. The OLS estimates of the poverty equation 2 are shown in the middle of Table 2. As indicated by the negative coefficient of the relevant variable, the higher the GDP, the lower the level of relative poverty. As represented by the coefficient of PII, good institutions may also reduce poverty.

**Table 2. OLS estimation of income, poverty and economic freedom equations**

| Income equation | | | |
|---|---|---|---|
| | **Coefficients** | **Std. Error** | **t** |
| **Constant ($\alpha_0$)** | 5.178*** | 1.007 | 5.143 |
| **LAB ($\alpha_1$)** | -0.132*** | 0.128 | -1.035 |
| **EFI ($\alpha_2$)** | 0.761*** | 0.177 | 4.290 |
| **PII ($\alpha_3$)** | 0.333*** | 0.138 | 2.414 |
| **Non-African countries ($\alpha_4$)** | 0.628*** | 0.201 | 3.129 |
| **Non-European/Non-N. American countries ($\alpha_5$)** | -0.417*** | 0.165 | -2.517 |
| **$R^2 = 0.665$** **Adj. $R^2 = 0.612$** **F = 40.234** | | | |
| Poverty equation | | | |
| **Constant ($\beta_0$)** | 0.612*** | 0.115 | 5.299 |
| **GDP-PPP ($\beta_1$)** | -0.050*** | 0.024 | -2.082 |
| **GINI ($\beta_2$)** | 0.010*** | 0.003 | 3.331 |
| **PII ($\beta_3$)** | -0.042*** | 0.018 | -2.324 |
| **Non-African countries ($\beta_4$)** | -0.055*** | 0.023 | -2.380 |
| **Non-European countries ($\beta_5$)** | 0.027*** | 0.044 | 0.616 |
| **$R^2 = 0.430$** **Adj. $R^2 = 0.412$** **F = 21.222** | | | |
| Economic freedom equation | | | |
| **Constant ($\gamma_0$)** | 0.383*** | 0.269 | 1.068 |
| **PII ($\gamma_1$)** | 0.359*** | 0.104 | 3.453 |
| **TOI ($\gamma_2$)** | 2.011*** | 1.112 | 1.808 |
| **AGR-TOI ($\gamma_3$)** | 0.225*** | 0.126 | 1.784 |
| **European countries ($\gamma_4$)** | 0.119*** | 0.092 | 1.288 |
| **N American countries ($\gamma_5$)** | 0.418*** | 0.203 | 2.057 |
| **$R^2 = 0.746$** **Adj. $R^2 = 0.702$** **F = 48.220** | | | |

\* Significant at 10%;     \*\* Significant at 5%;     \*\*\*significant at 1%

Considering these findings, it can be concluded that poverty in a country is determined both directly and indirectly by the quality of its public institutions. After allowing for income levels and distribution, and for public institutions quality, poverty is still low in non-African countries but not significantly higher in non-

European countries. In summary, good institutions as well as economic freedom result in higher income levels, which in turn reduces poverty.

As indicated in the last section of Table 2, the EFI variable is highly affected by the trade openness index of TOI and also by the agricultural trade openness index of AGR-TOI as well as by public institution PII. The most interesting coefficients are those for the first two.

As expected, trade liberalization in general highly affects economic freedom which is also determined by the AGR-TOI itself. The dependent variable EFI in North American countries is significantly higher than those in other countries.

As reviewed earlier in the literature, some countries may not be very keen on (agriculture) trade liberalization due to the extent by which a country is a major importer or exporter and because of the different sources of trade openness whose average annual growth rates are illustrated in Table 3. As shown, the entries required for calculating all the components were unavailable for all countries and contrary to data on GDP growth, only few entries were found for import and export growths. Nevertheless, as indicated before, the TOI growth in some regions, such as the Middle East (Israel) and Oceania is mainly due to import increase. The annual growths of GDP and export are the main sources of trade openness in Europe.

**Table 3. Average annual growth rates of the TOI and its components**

| | Annual growth (%) | | | |
|---|---|---|---|---|
| | **Export** | **Import** | **Real GDP** | **TOI** |
| **Asia** | 7.10 (2) | 5.40 (2) | 6.00 (22) | 9.25 (2) |
| **Central America and Caribbean** | - | - | 1.73 (29) | - |
| **Europe** | 1.86 (22) | 1.15 (22) | 3.49 (41) | 1.33 (22) |
| **Middle East** | 6.5 (1) | 11.5 (1) | -0.11 (15) | 10.20 (1) |
| **North America** | 1.23 (3) | 2.53 (3) | 1.72 (4) | 1.63 (3) |
| **Oceania** | 5.65 (2) | 8.35 (2) | 1.65 (17) | 10.55 (2) |
| **South America** | - | - | -1.20 (12) | - |
| **South-East Asia** | - | - | 5.61 (14) | - |

**Total numbers of countries are in brackets**
**Source: calculated from the entries at: www.nationmaster.com**

## The EFI by the TOI scores

More than one forth (30 out of 117) of the countries with a maximum TOI score of at least 0.50 (mean TOI of 1.34) have the highest level of EFI which is 2.51 on average. TOI is more than one for many of these 30 countries. In general, with little exception, the means of EFI appear to increase consistently with the levels of TOI scores revealing that economic freedom is determined by trade openness as a whole. A test of between-subjects effects, which is part of GLM output, revealed that the means of EFI are significantly different among the countries grouped by their level of TOI, and the higher the levels of trade openness in general and in the agriculture sector, the freer the countries.

The results of multiple comparison of the GLM univariate that allows for testing the means of EFI differences among the countries grouped by their TOI score, is shown in Table 4.

20

**Table 4. Multiple comparison of the GLM analysis for EFI by TOI**

| (I) | (J) | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| 1 | 2 | -.049 | .187 | .794 | -.420 | .322 |
| | 3 | .050 | .207 | .811 | -.361 | .460 |
| | 4 | -.232 | .210 | .271 | -.647 | .183 |
| | 5 | - 504* | .223 | .026 | -.946 | -.062 |
| | 6 | -.542* | .188 | .005 | -.915 | -.170 |
| 2 | 1 | .049 | .187 | .794 | -.322 | .420 |
| | 3 | .099 | .168 | .558 | -.233 | .431 |
| | 4 | -.183 | .171 | .286 | -.521 | .155 |
| | 5 | .455* | .187 | .017 | -825 | -.084 |
| | 6 | .493* | .143 | .001 | -.777 | -.209 |
| 3 | 1 | -.050 | .207 | .811 | -.460 | .361 |
| | 2 | -.099 | .168 | .558 | -.431 | .233 |
| | 4 | -.282 | .192 | .146 | -.663 | .099 |
| | 5 | -.553* | .207 | .009 | -.964 | -.143 |
| | 6 | -.592* | .169 | .001 | -.926 | -.258 |
| 4 | 1 | .232 | .210 | .271 | -.183 | .647 |
| | 2 | .183 | .171 | .286 | -.155 | .521 |
| | 3 | .282 | .192 | .146 | -.099 | .663 |
| | 5 | -.272 | .210 | .198 | -.687 | .144 |
| | 6 | -.310 | .172 | .074 | -.650 | .030 |
| 5 | 1 | .504* | .223 | .026 | .062 | .946 |
| | 2 | .455* | .187 | .017 | .084 | .825 |
| | 3 | .553* | .207 | .009 | .143 | .964 |
| | 4 | .272 | .210 | .198 | -.144 | .687 |
| | 6 | -.038 | .188 | .839 | -.411 | .334 |
| 6 | 1 | .542* | .188 | .005 | .170 | .915 |
| | 2 | 493* | .143 | .001 | .209 | .777 |
| | 3 | .592* | .169 | .001 | .258 | .926 |
| | 4 | .310 | .172 | .074 | -.030 | .650 |
| | 5 | .038 | .188 | .839 | -.334 | .411 |

**Based on observed means**

**\*The mean difference is significant at the .05 level**

The significant mean differences are shown by asterisks in the Table. As shown, the mean EFIs for the first, second and third groups are significantly less than those of the last two groups. The figures for the forth group where the TOI score is between 0.3 and 0.4 are not significantly different from those of other groups.

Evidence supports that open-to-trade societies tend to be richer than nations that are not; hence it can be concluded that trade openness (TOI index) is a significant factor in determining economic freedom (EFI index).

## Agriculture and economic freedom

In this section, the link between agricultural trade openness and trade liberalization is discussed followed by the role of agricultural trade on economic freedom. The Pearson correlation between TOI and the proportion of agriculture on TOI (AGR-

TOI) is found to be 0.377, revealing the direct linear association between the two. The means of both AGI-TOI and TOI were found to be significantly different among the global regions. As shown, in Asia and North America with the lowest levels of trade openness index of 0.24, the AGR-TOI indices are respectively 0.2 (the lowest) and 0.4, indicating that more agricultural trade liberalization is made in the latter countries.

**The EFI by the AGR-TOI scores**

Countries are classified into five groups with respect to their AGR-TOI scores. The TOI and EFI of these groups are shown in Table 5. The mean of TOI for the countries whose agricultural openness trade index is 0.0 or less (group 1), is 0.519 and their EFI is 1.932 on average. More than 35% of the countries (39 out of 117) enjoy a TOI score of at least 0.4 (group 5) ranging between 0.431 and 3.254. The EFI is 2.082 in these countries.

**Table 5. The TOI and EFI of the countries classified by the AGR-TOI scores**

|     |   | Mean | Std. Deviation | Minimum | Maximum |
|-----|---|------|----------------|---------|---------|
| TOl | 1 | .519 | .256 | .262 | .937 |
|     | 2 | .661 | .293 | .203 | 1.195 |
|     | 3 | .818 | .323 | .359 | 1.565 |
|     | 4 | .775 | .325 | .216 | 1.397 |
|     | 5 | 1.188 | .629 | .431 | 3.254 |
| EFI | 1 | 1.932 | .600 | 1.300 | 3.200 |
|     | 2 | 1.905 | .347 | 1.250 | 2.650 |
|     | 3 | 2.117 | .647 | 1.050 | 3.550 |
|     | 4 | 2.419 | .599 | 1.400 | 3.200 |
|     | 5 | 2.082 | .614 | 1.050 | 3.300 |

The test of between-subjects effects revealed that the means of EFI is significantly different among the countries grouped by their AGR-TOI scores. The effect of AGR-TOI on EFI is significant revealing that keeping other factors constant, economic freedom is determined by agriculture trade openness.

Table 6 represents the results of the multiple comparison of the GLM for EFI by the AGR-TOI. The asterisked mean differences indicated where the EFI is significantly different among the countries grouped by their AGR-TOI score.

As can be seen, on average, the EFI for the first group of the countries, where the AGR-TOI has a maximum value of 0.01, and for the second group with a score between 0.01 and 0.02, are different from that of the forth group but not significantly different from those of the other groups. There are no other significant differences among the means of EFI anywhere else in the table. In general, it can be said that the lower the level of agriculture trade openness, the lower the level of economic freedom.

**CONCLUSIONS**

The results of this study confirmed that poverty, which is a rural dominant phenomenon in low and middle income contries, is well determined by appropriate

public institutions as well as by economic growth that in turn is determined by variables such as economic freedom. As expressed in the litereture, trade openness was recognized as a major determinant of economic freedom and in particular, the findings revealed that agriculture trade liberalization has an important role in this context. Because of the fact that almost two third of the world's poor live in rural areas and their livelihoods depend to agriculture, faster economic freedom is achievable through agriculture trade openness and without significant reforms in agricultural sector, poverty may become worse. Bearing in mind that food and nutrition security of the poor is affected by market and trade reforms in agriculture, access to free market and economy seems to be amongst the most important approaches towards acheivng such goal .

**Table 6. Multiple comparison of the GLM analysis for EFI by the AGR-TOI**

| (I) | (J) | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|-----|-----|-----------------------|------------|------|-------------|-------------|
| | | | | | Lower Bound | Upper Bound |
| 1 | 2 | .027 | .224 | .904 | -.416 | .470 |
| | 3 | -.198 | .217 | .364 | -.629 | .232 |
| | 4 | -.459$^*$ | .222 | .041 | -.898 | -.020 |
| | 5 | -.171 | .203 | .403 | -.572 | .231 |
| 2 | 1 | -.027 | .224 | .904 | -.470 | .416 |
| | 3 | -.225 | .178 | .208 | -.577 | .127 |
| | 4 | -.486$^*$ | .183 | .009 | -.849 | -.123 |
| | 5 | -.198 | .160 | .219 | -.514 | .119 |
| 3 | 1 | .198 | .217 | .364 | -.232 | .629 |
| | 2 | .225 | .178 | .208 | -.127 | .577 |
| | 4 | -.261 | .176 | .140 | -.609 | .087 |
| | 5 | .028 | .151 | .855 | -.272 | .327 |
| 4 | 1 | .459$^*$ | .222 | .041 | .020 | .898 |
| | 2 | .486$^*$ | .183 | .009 | .123 | .849 |
| | 3 | .261 | .176 | .140 | -.087 | .609 |
| | 5 | .289 | .157 | .069 | -.023 | .600 |
| 5 | 1 | .171 | .203 | .403 | -.231 | .572 |
| | 2 | .198 | .160 | .219 | -.119 | .514 |
| | 3 | -.028 | .151 | .855 | -.327 | .272 |
| | 4 | -.289 | .157 | .069 | -.600 | .023 |

**Based on observed means**
**\* The mean difference is significant at the .05 level**

From a broad look at episodes of trade reforms in the globe and the literature presented above e.g. Perry and Olarreage (15) and Husain, (10), it can be concluded that although generally positive, the impact of trade reform on poverty, wage and income inequality seem to vary among the countries. According to Akmal et al (1), despite the fact that trade openness and GDP per capita do not have any significant temporary relation with poverty, trade liberalization reduces poverty levels in the long run.

To sum up, as Conway (5) argues, while there may be winners and losers from trade reform in the short term, the losers are not necessarily the poor and poverty is expected to decrease significantly. Therefore, governments need to pursue active trade openness policies accomplished by domestic development policies to benefit the poorer people in the country.

# REFERENCES

1. Akmal, M. S., M. A. Qazi, M. H. Ahmad and M. S. Butt. 2007. An Empirical Investigation of the Relationship between Trade Liberalization and Poverty Reduction: A case for Pakistan, The Lahore Journal of Economics 12 (1): 99-118.

2. Andriamananjara, S., and J. Nash. 1997. Have Trade Policy Reforms Led to Greater Openness in Developing Countries? Evidence from Readily Available Trade Data, The World Bank, International Economics Department, International Trade Division, Policy Research Working Paper 1730.

3. Baldwin, R. 1989. Measuring Nontariff Trade Policies. NBER Working Paper No. 2978. (May): 34-39, Cambridge, Massachusetts.

4. Balassa, B. 1985. Exports, Policy Choices and Economic Growth in Developing Countries after the 1973 Oil Shock. Journal of Development Economics, May- June.

5. Conway T. 2004. Trade Liberalization and Poverty Reduction, Overseas Development Institute London, At: http://www.odi.org.uk/resources/specialist/doha-working-papers/2-trade-liberalisation-poverty-reduction.pdf

6. Gaiha R., and K. Imai. 2005. Do Institutions Matter in Poverty Reduction? Prospects of Achieving the MDG of Poverty Reduction in Asia, Faculty of Management Studies, University of Delhi and School of Social Sciences, University of Manchester.

7. Gujarati D. N. 2003. Basic Econometrics. Tata McGraw-Hill $4^{th}$ ed 1002 p.

8. Harrison, A. 1996. Openness and Growth: A Time Series, Cross-Country Analysis for Developing Countries. Journal of Development Economics, 48: 419– 447.

9. Hasan, R., M. G Quibria and Y. S Kim. 2003. Poverty and Economic Freedom: Evidence from Cross-Country Data, East-West Center Working Paper, Economic Series No 60.

10. Husain, I. 2007. Trade Liberalization, Economic Growth and Poverty Reduction: recent Evidence from Pakistan, National Level Seminar on Trade and Economic Growth Linkages, Quaid-e-Azam University at Islamabad on June 27, 2007.

11. Leamer, E. 1988. Measures of Openness p. 147-200. ***In:*** Robert Baldwin, **(*ed*.),** Trade Policy Issues and Empirical Analysis, Chicago: University of Chicago Press.

12. McCulloch N., L. A. Winters and X. Cirera. 2001. Trade Liberalization and Poverty: *A Handbook*, Centre for Economic Policy Research, London, UK, 405 p, At: www.ids.ac.uk/ids/global/pdfs/tlpov.pdf

13. Miles M. A., E. J. Feulner and M. A. O'Grady 2005. Index of Economic Freedom, Ch. 5: Explaining the Factors of the Index of Economic Freedom, the Heritage Foundation and Dow Jones & Company, Inc., At: http://www.heritage.org/research/features/index/chapters/Chapter_5.cfm

14. NationMaster database At: www.nationmaster.com.

15. Perry, G., and M. Olarreage. 2006. Trade Liberalization, Inequality and Poverty Reduction in Latin America, Paper presented at ABCDE, San Petersburg, January 2006.

16. Seddighi, H. R., K.A. Lawler and A. V. Katos. 2000. Econometrics A Practical Approach. Routledge, London and New York. 396p.

17. Winters, L. A, N. McCulloch and A. McKay, 2002. Trade Liberalization and Poverty: The Empirical Evidence, University of Sussex, Discussion Paper 88.

18. Weisbrot, M., and D. Baker. 2002. The Relative Impact of Trade Liberalization on Developing Countries, Center for Economic and Policy Research (CEPR).

19. Yanikkaya, H. 2003. Trade Openness and Economic Growth: A Cross-Country Empirical Investigation, Journal of Development Economics 72: 57– 89.

# آزاد سازی تجاری کشاورزی و کاهش فقر: تجزیه وتحلیل بین کشورها

## محمد بخشوده[1]** و منصور زیبایی[1] *

[1] بخش اقتصاد کشاورزی، دانشکده کشاورزی، دانشگاه شیراز، شیراز، جمهوری اسلامی ایران

**چکیده** – این مقاله اثرات آزاد سازی تجاری در کل اقتصاد و در بخش کـشاورزی را بـا در نظـر گـرفتن کیفیـت بنیادها بر روی آزادی اقتصادی، درآمد و فقر دنبال می کند. برای تخمین توابع درآمد، فقر و آزادی اقتـصادی، تـازه ترین داده های بین کشوری بیش از ۲۰۰کشور در قالب مناطق جهانی مورد استفاده قرار گرفت. بر اساس یافته ها، آزادی اقتصادی اثر مثبتی بر سطوح در آمد دارد که همراه با کیفیت خوب بنیادها باعـث کـاهش فقـر مـی شـود. همچنین فقر بصورت مستقیم و غیر مستقیم به بنیادها بستگی دارد. یکی از یافته های مهم این مقاله آنستکه بطور کلی آزادی اقتصادی به آزادی تجاری در کل و نیز در بخش کشاورزی وابسته است.

**واژه های کلیدی: آزاد سازی اقتصادی، آزاد سازی تجاری کشاورزی، بین کشوری، فقر**

---

\* به ترتیب  دانشیار و دانشیار

\*\* مکاتبه کننده