EFFECTS OF ECONOMIC REFORMS AND OPENNESS ON STRUCTURE CONDUCT AND PERFORMANCE OF AGRO-BASED INDUSTRIES IN PAKISTAN

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Abstract

According to the latest Census of Manufacturing Industries (CMI: 2005-06) conducted by the Federal Bureau of Statistics (FBS), government of Pakistan; the share of agro-based industries in gross value added by the large-scale manufacturing sector is almost 52.0 percent. These industries have an important role in earning foreign exchange and creating jobs and are expected to play important role in the future development of the economy. Cotton, sugarcane, wheat and rice are the major crops of Pakistan and are the important source of raw material for the agro-based industries. The spillover effects of agro-based industries are expected to have important effects on other industries in general and the agricultural sector in particular. Agro-based industries have a large potential for growth and development because the natural endowment of the country (availability local raw material and cheap labor) is favorable. The agro-based industries in Pakistan operate under imperfect market conditions, earn monopoly profits; have high concentration ratios and these ratios have not changed much overtime. During mid 1990s Pakistan implemented various reforms to achieve macroeconomic stability including IMF supported structural adjustment program and trade liberalization policies under WTO regime. The main focus of this paper is to analyze the effects of trade related domestic reforms and the degree of openness on the structure, conduct and performance of agro-based industries in Pakistan. The study of structure, conduct and performance of these industries is important for policy prescription because if concentration leads to collusion then this suggests intervention and if concentration arises due to technological innovation then no intervention is needed. Census of Manufacturing Industries (CMI) data from 1996 to 2006 has been used for analyzing the effects of economic reforms and openness on structure, conduct and performance (SCP) of agro-based industries. Eleven agro-based industries of three digit level of industrial classification have been used for this purpose. Our analysis shows that domestic economic reforms and openness policies adopted under IMF and WTO regime in the mid 1990s have produced some favorable effects on structure, conduct and performance of agro-based industries.

1. Introduction

At the time of independence in 1947 Pakistan had no industrial base. There were only a few simple industries like flour and rice mills, cotton ginning factories and only two cement factories. Over the past sixty three years Pakistan followed the policies which were heavily biased towards the industrial sector especially during the fifties and the sixties. Private sector was supposed to play the leading role during the earlier periods of industrialization in Pakistan. During 1950s and 1960s the industrial sector developed rapidly but generous fiscal incentives high rates of protection, export subsidies and favorable exchange rates led to the creation of an industrial structure which was highly inefficient both economically as well as technically. The Economic Reform Order (ERO) of 1972, issued by the government of Z. A. Bhutto, started an unprecedented nationalization of industries.

The constant fear of nationalization shook the confidence of the private sector resulting in marked decline in investment and production. Post 1977-78 period, was that of the return of the private sector. High priority was given to privatization process for revitalizing and restructuring the economy. The industrial policy during the 1990s remained focused on broadening and diversification of industrial base. Present industrial policy is characterized by the continuation of privatization process and provision of support and regulatory framework for industrialization. Pakistan's economy is still agrarian in nature with 21% share in GDP and 45% share in employment being contributed by the agricultural sector.[1] Cotton, sugar cane, rice, wheat and maize are the main crops of Pakistan. Agricultural sector provides raw material for industries like cotton textiles, food processing and manufacturing, paper and paper products, leather and leather products etc. Economic reforms, in general, include trade and industrial policy reforms, fiscal policy reforms, monetary policy and exchange rate policy reforms.

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[1] Pakistan Economic Survey 2009-10, Finance Division, Economic Advisor's Wing, Government of Pakistan, Chapter 2, p. 13.

For the present study by economic reforms we mean specifically the trade and industrial policy reforms. The literature on trade liberalization differentiates between static and dynamic gains from trade policy reforms. It is generally acknowledged that the magnitude of the static gains is fairly low. Static gains arise when misallocation of resources under protection and import substitution is corrected and resources shift from inefficient to efficient sectors. The dynamic or long-term gains accrue due to correction of anti competition, anti export bias of protectionism. Increased levels of competition are believed to generate innovative activity and productivity gains across all sectors. The main objective of this study is to analyze the effects of economic reforms and openness on structure-conduct-performance of a panel of eleven agro-based industries in Pakistan. Agro-based industries have an important place in the large-scale manufacturing sector of Pakistan. These industries are the main source of employment and foreign exchange earnings. The share of agro-based industries in large-scale manufacturing output at constant prices of 1999-2000 is more than fifty percent (textiles 25.6%, food products 15.3%, wearing apparel 3.9%, ginning pressing and bailing 3.2%, paper and paper products 2.7% and tobacco 2.2%).[2]

Trade liberalization is believed to promote exports and productivity through innovations and technological changes associated with foreign trade. Through exposure to external markets industrial efficiency can be increased by abolishing monopoly profits, increasing capacity utilization and allowing optimal resource allocation in the economy. The theory of industrial organization has recognized the role of international trade in the determination of imperfect competition and industrial efficiency. The argument is that international trade variables can have an impact on productivity, profitability and exports by introducing changes in the structural characteristics of the economy. Kim (2000), Weiss (1992), Krishna and Mitra (1993) and Tybout and Westbroke (1995) have found some support in favor of the hypothesis that trade opening has a positive impact on manufacturing sector's total factor productivity growth. Goldar and Aggarwall (2005), Weiss (1992) and Weiss and Jayanthakumaran (1994) tested the reform induced price cost margins (PCM) and obtained some support in favor of their hypotheses that in more open economies the ability of the domestic firms to hold price above the average cost is reduced. Section-2 of the study is devoted to a brief review of literature; Section-3 is devoted to methodology and econometric specification, results obtained are discussed in Section-4 and section-5 concludes.

2. Economic reforms openness and price cost margins: a brief review of literature

It is a well known fact that protection reduces efficiency and absence of foreign competition allows domestic firms to enjoy monopoly power and earn excess profits. Literature on the study of the effects of policy reforms on productivity and efficiency of industries in different developing countries of Asia, Africa and Latin America has provided mixed results. Some Researchers have found significant positive effects of trade and industrial policy reforms and openness on industrial productivity and efficiency while some others have found positive and significant effects of protectionist policies. Some of the researchers have found that industrial policy reforms and openness have significantly reduced the Price Cost Margins in the industrial sectors of many developing countries.

Hadad, de Melo and Horton (1996) using 3 digit industry data for the period from 1984 to 1989 studied the impact of import penetration on market power in Morocco and found that there was a negative association between price cost margins (PCM) and imports. They found that a one point increase in import penetration would reduce PCM ratio by 0.20 points. Foroutan (1996) studied the impact of trade liberalization on Turkey's 3 digit industries and found a week negative relationship between imports growth and price cost margins. He found that for privately owned industries one point increase in import share would reduce PCM by 0.002. For public sector industries this relationship was found to be insignificant.

Empirical research has extensively examined the effects of trade liberalization and industrial policy reforms on growth, productivity and efficiency at cross country, industry and firm level. The country-level research consists of cross-section 'before and after reforms' studies (Greenaway et al, 1997) and 'with and without reforms' studies (Mosley et al. 1991) as well as country specific time-series analysis (Greenaway and Spasford, 1994). Many of these studies suggest that the effects of trade liberalization on growth are ambiguous and complex. Some countries show an improvement in growth as well as other indicators such as investment, others show a marked deterioration. Greenaway et al. (2001) using panel data and alternative measures of liberalization suggest a J-curve type effect of liberalization on GDP growth.

[2] Census of Manufacturing Industries (2005-06), Federal Bureau of Statistics, Government of Pakistan.

A substantial body of empirical literature has focused on the dynamic effects of trade liberalization and has investigated the effects of trade policy and openness on total factor productivity (TFP) and efficiency at industry level. Evidence from these studies, however, is inconclusive. Some studies find support for the view that the efficiency levels are highest amongst the industries experiencing the largest decline in protection (Tybout et al, 1991). Several studies have found exporting firms to be more efficient than their domestically oriented counterparts. Hadad (1993), Tybout and Westbrook (1995) and Aw and Batra (1998) have attributed this result to the positive learning effects which accrue from contact with foreign buyers.

In the early periods of the 20th century protectionist theories became dominant and many of the developing countries implemented industrialization policies with a very limited degree of openness. These policies had their origins in the thinking of Raul Prebisch (1950) and Hans Singer (1950). During 1960s and 1970s a large number of development economists advocated protectionist view based on import substitution ideas. The debt crisis in 1982 played an important role in reshaping policy views regarding development strategies. Policies based on market orientation, tariff reduction and opening of international trade took over the inward oriented policies. Trade and industrialization policies adopted by the countries like South Korea, Taiwan, Hong Kong and Singapore have gradually created a formidable case for trade and industrial reforms in other developing countries of the world. World Bank and IMF conditionality also links external financing to such reforms.

Amsden (1989) describes the Korean government's use of trade protection, export subsidies, selective credit subsidies, export targets, public ownership of banking sector and price controls to achieve technological capabilities and building industries that will eventually compete in world markets. She argues that a key element in the success of government policy in Korea was that in exchange of trade protection and subsidies the government also set stringent performance standards. Balassa (1981) has demonstrated that export-oriented countries are better positioned to deal with external shocks than inward-oriented countries.

Rodrik (1995a) has identified the following four broad objectives of trade and industry related reforms.

1. Improvements in static resource allocation.
2. Dynamic benefits in the form of learning and growth.
3. Improved flexibility in face of external shocks.
4. Reduced rent seeking.

Economic liberalization reduces static inefficiencies which are mainly due to misallocation and waste and enhances technological change and economic growth. Market based open economies are batter able to absorb adverse external shocks, prevent rent-seeking behavior and other governance issues.

Wade (1990) describes government's role in the development of trade and industry in Taiwan. He calls Taiwan a government market economy, characterized by high levels of investment, more investment in certain key industries and exposure of many industries to international competition. He concludes that import restrictions, entry requirements, domestic content requirements, concessional credit and fiscal incentives had played an important role in the Taiwanese strategy. Bardhan (1990), Biddle and Milor (1992), Biggs and Levy (1990) and Westphal (1990), all emphasize the usefulness of activist industrial policies. World Bank (1993) confirmed that intervention was rampant in East Asian economies nonetheless found it unlikely that other developing countries could successfully replicate this experience. Kreuger (1983), Bhagwati (1993), Meier and Steel (1989) and Frischtak (1989) have attributed dismal export performance of many developing countries to domestic economic policies. Balasa (1988) and Grossman and Horn (1989) have demonstrated that anti export and anti competition policies have discouraged innovation, cost-cutting, technological capabilities and eventual growth.

Edwards (1993) reviewed a large volume of literature on trade and development policies and concluded that cross-country aggregate data sets have little information regarding the relationship between trade policy and growth. Romer (1992) and Helpman (1991) have emphasized the role of freer trade and supported the view that more open economies grow faster than more restricted ones even in the long run. The study of the effects of openness on productivity and growth has proven to be elusive and controversial. Krugman (1994) and Rodrik (1995a) argue that the effects of openness on growth are doubtful. On the other hand, Barro and Sala-i-Martin (1995) and Edwards (1998), among others, have demonstrated that openness has positive effects on growth and productivity. Gains from trade are based on the concept of allocative efficiency. In a static sense protection is costly because resources are not allocated in areas where a country has a comparative advantage.

In a protected market dominated only by few domestic firms trade reforms increase competition but improving the allocation of resources or curbing the excess market power generates a one time increase in growth. Endogenous growth theories, however, suggest that trade policies also effect long-run growth rates by accelerating the rate of technological change.[3]

3. Methodology

As stated earlier the main objective of the study is to analyze the effects of economic reforms and openness on structure-conduct-performance (SCP) of a panel of eleven agro-based industries in Pakistan. Following Ravenscraft (1983), de Melo and Urata (1984), Weiss (1992) and Tybout (1996); concentration ratio (CR), capital output ratio (COR) will be used as independent variables with price cost margins (PCM) as dependent variable. Unemployment rate (UR) will be used as proxy for domestic reforms and effective tariff rates (ETR) will be used as proxy for the degree of openness. Both UR and ETR are expected to have a reducing effect on price cost margins. The reduction in price cost margins will thus indicate an improvement in static resource allocation and improved performance at industry level. The ultimate goal of economic reforms is to improve welfare through improving resource allocation and removing inefficiencies. Both unemployment rate and effective tariff rates are expected to reflect the effects of economic reforms and openness on price cost margins. An increase in employment level and a reduction in effective tariff rates are expected to have a favorable effect on SCP of agro-based industries.

The following specification of the model using pooled time series and cross sectional data for eleven agro-based industries will be tested for studying the effects of economic reforms and openness on structure conduct and performance of these industries during the study period.

$$PCM_{it} = \alpha_0+\beta_1 CR_{it}+ \beta_2 COR_{it}+\beta_3 UR_{it} +\beta_4 ETR_{it} + \varepsilon_{it} \quad \text{with } i = 1,\ldots,11;\ t = 1,...,11$$

Where,

PCM = price cost margins
α_0 = common intercept
CR= 4 firm concentration ratios
COR= industry capital output ratio
UR= unemployment rate
(ETR)= effective tariff rate
ε_{it} = random error with zero mean and constant variance.

Economic reforms in developing countries like Pakistan basically include trade and tariff reforms, privatization and deregulation reforms, financial sector and capital market reforms and tax reforms. The ultimate goal of economic reforms is to increase the welfare of the society by improving static resource allocation and removing inefficiencies and rent seeking behavior. Foroutan (1992) found a positive correlation between growth in import penetration and total factor productivity growth in Turkey. He also found that import penetration was correlated with lower price cost margins. Tybout et al. (1991) observed that total factor productivity growth was better in industries that experienced the largest decline in protection in Chile. The purpose of our study is to investigate the effects of domestic economic reforms and openness on the structure conduct and performance of agro-based industries in Pakistan.

The main objective of the study is to analyze the effects of economic reforms and openness on structure-conduct-performance (SCP) of a panel of eleven agro-based industries in Pakistan. Trade liberalization is believed to promote exports and productivity through innovations and technological changes associated with foreign trade. Through exposure to external markets industrial efficiency can be increased by abolishing monopoly profits, increasing capacity utilization and allowing optimal resource allocation in the economy. The theory of industrial organization has recognized the role of international trade in the determination of imperfect competition and industrial efficiency. The argument is that international trade variables can have an impact on productivity, profitability and exports by introducing changes in the structural characteristics of the economy. Weiss (1992), Krishna and Mitra (1993) and Tybout and Westbroke (1995) have found some support in favor of the hypothesis that trade opening has a positive impact on manufacturing sector's total factor productivity growth.

[3] See, for example, Grossman and Helpman (1990), for an overview.

De Melo and Urata (1984), Weiss (1992), and Weiss and Jayanthakumaran (1994) tested the reform induced price cost margins (PCM) and obtained some support in favor of their hypotheses that in more open economies the ability of the domestic firms to hold price above the average cost is reduced. The theory of industrial organization has recognized the role of policy reforms in the determination of imperfect competition and industrial efficiency. The argument is that international trade variables can have impact on productivity, profitability and exports by introducing changes in the structural characteristics of domestic market. Over the past two decades, a substantial body of literature has accumulated on firm/industry level effects of openness in developing countries. It is generally believed that trade liberalization squeezes price-cost margins among import competing firms, increases productivity gains and efficiency gains from market-share reallocation. Empirical studies that have used productivity growth, export growth and changes in Price Cost Margins as yard stick of performance have obtained mixed results. Kim (2000), Krueger (1982), Edwards (1993), Balassa (1991) and Westphal (1990) have emphasized the role of policy reforms in improving industrial growth and efficiency. Rodrick (1995_b), Wade (1990) and Amsden (1989), on the on the other hand, have shown that interventionist policies played important role by changing comparative advantage and were the important source of growth in developing economies.

4. Estimation and results

Both the fixed effects model (FEM) and the random effects model (REM) models were estimated using data obtained from the census of manufacturing industries of Pakistan. Equation 4.1 shows the results obtained through pooled least square FEM. The coefficients of unemployment rate (UR) and effective tariff rates (ETR) have expected signs. Values in parenthesis are t-values.

PCM = 0.28 + 0.62 CR + 0.14 COR – 1.48 UR – 0.87 ETR (4.1)
(3.74) (3.87) (1.73) (-2.53) (-5.75)

R squared = 0.947
Adjusted R squared = 0-940
F statistic = 135.99
D.W statistic = 0.43

Equation 4.2 shows the results obtained through pooled generalized least squared (GLS) Random effects model (REM). Both the coefficients of UR and ETR have expected signs with t-values in parenthesis.

PCM = 0.30 + 0.58 CR + 0.13 COR – 1.52 UR – 0.88 ETR (4.2)
(3.22) (3.90) (1.60) (-2.59) (-5.86)

R squared = 0.42
Adjusted R squared = 0.40
F statistic = 21.03
D.W statistic = 0.40

To choose among the FEM and the REM we conducted correlated Fixed/Random effects Hausman test. The test statistic was set equal to zero, rejecting the existence of correlation between individual effects and other regressors. Hence the random effects model provides more consistent estimators. The low value of D.W statistics, however, is most probably due to measurement error or omission of some important explanatory variable like exchange rate or interest rate etc.

5. CONCLUSION

Agro-based industries in Pakistan operate under imperfect market conditions, have positive price cost margins and no remarkable change has taken place in S-C-P of agro-based industries overtime. Agro-based industries are responsible for more than fifty percent of the total output of the large-scale manufacturing sector in Pakistan. These industries are the main source of earning foreign exchange and employment. Cotton, Wheat, rice and sugarcane are the main crops grown in Pakistan. Agro-based industries mostly use locally produced raw material except vegetable ghee and cooking oil industry which currently is dependent on more than 70% of imported raw material. Textile manufacturing is the largest agro-based industry in Pakistan, followed by food manufacturing and processing industry. Ginning, pressing and bailing of fiber, wearing apparel, leather and leather products, wood and wood products, paper and paper products are some other important agro-based industries in Pakistan. The main emphasis of trade and industrial policies in Pakistan has been on improving market access, strengthening trade related infrastructure, skill development and productivity enhancement.

Government has offered various incentives to the private investors in the form of financial and commercial support, R&D support and support for marketing abroad. Despite all these efforts no prominent change has taken place in the structure-conduct-performance of agro-based industries. Under the S-C-P approach we tested the hypothesis that domestic reforms reinforced with openness have a reducing effect on price cost margins. Reduction in price cost margins is a manifestation of increased competitiveness reduced rent seeking and better resource allocation. Our analysis shows a favorable effect of domestic economic reforms and openness on price cost margins of agro-based industries in Pakistan during the study period

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