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The Impact of Trade Liberalisation on Manufacturing Sector Performance in Developing Countries: A Survey of the Literature

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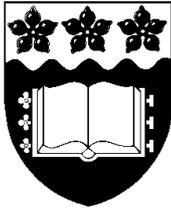
by

Kankesu Jayanthakumaran[*]

Abstract

Empirical studies that have examined the relationship between trade reforms and manufacturing performance have tended to use productivity growth, export growth and changes in price-cost margins as yardsticks of performance measures. We have examined the available literature for the purpose of drawing some conclusions and have obtained mixed results.

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Introduction

Trade liberalisation is intended to promote exports and productivity by exploiting comparative advantages that can be gained through exposure to foreign competition, enhanced technical development and access to economies of scale. It is often argued that alignment of domestic and foreign prices can generate industrial efficiency by increasing importing capacity, reducing forced idleness of resources, eliminating allocative and 'X-inefficiency', abolishing monopoly profits and allowing optimum resource allocation in the economy.

The need for dynamic analysis, which links trade and manufacturing growth, is recent and emerged following the inadequacies of using traditional static analysis. Reviews of surveys examining the impact of trade liberalisation on productivity growth are concerned with the various methodologies used and have suggested that a more efficient focus for future research would be country specific, using disaggregated industrial sector data extending over longer time periods. There is no clear-cut picture emerging from the existing studies (Pack, 1988: Havrylyshyn, 1990: Kirkpatrick and

Maharaj, 1992). Reviews of recent surveys on the import discipline hypothesis warned of the need for caution in interpreting the association between profitability and international trade variables. The underlying connections, which link market structure-conduct-performance (SCP) in an international environment, are complex and insufficiently identified (Lee, 1992).

This paper examines the available literature for the purpose of drawing some general conclusions relating this field of study. Empirical evidence based on developing countries is reviewed next. Finally, the lessons drawn from the literature are explored.

Trade Liberalization and Manufacturing Performance:

Empirical Evidence

Three major approaches have been used in empirical analysis designed to capture trade effects: first, static efficiency measures for individual countries such as effective rate protection (ERP) and domestic resource cost (DRC); secondly, two different types of cross-country studies, one of which compares the performance before and after liberalisation (or trade policy reformers and non-reformers) and the other of which links policy differences and performance and finally, single country analysis which is mainly based on Structure-Conduct-Performance (SCP) approach.

Static Efficiency Measures

Considerable literature is available on the ERP and DRC of individual countries; whereas ERP is indicative of various levels of protection and resource-use efficiency, DRC goes beyond that and measures industrial efficiency on estimated shadow prices and reveals the comparative cost advantages. Static evidence indicates that protection shelters high-cost producers from import competing industries and generates unanticipated effective protection in export oriented industries (Weiss 1991). By favoring the manufacturing sector, the agricultural sector has been penalised strongly as a result of negative effective protection (Weiss 1991). Balassa (1971) for seven

import-substituting countries, Bhagwati and Desai (1970) and Bhagwati (1978) for the Indian economy and Pack (1993) for the Sub-Saharan African industry came to a similar conclusion: that protection creates costs and generates unanticipated effective protection and profit incentives to import competing industries.

Cross-Country Comparison

Before and After Liberalisation

Michaely, Papageorgiou and Choksi (1991) used a before-and after-liberalisation approach on 17 countries and 36 substantial and long-lasting liberalisation "episodes".[1] Seven of these 'episodes' brought a relaxation of quantitative restrictions. They were in Chile 2, Greece 1, Singapore, Sri Lanka 2, Turkey 2, Uruguay and the Philippines 1. Seven other 'episodes' had low quantitative restrictions to begin with. They were in Brazil, Greece 2, Israel 3, New Zealand, Portugal, Turkey 1 and the Philippines 2. The authors noted that about sixteen 'episodes' had tariff cuts. However, there appears to be not a single case in which higher tariffs were consciously used to improve neutrality.

Table 1 shows the extent of liberalisation and performance in manufacturing. The authors found a fall in manufacturing output in the first year and then a recovery after the second year, surpassing the pre-liberalisation level in most of the episodes, especially those named "strong liberalisation". The average manufacturing output growth rate for the three years after liberalisation was 7.3 per cent compared to 6.7 per cent before liberalisation and 5.3 per cent in the first year of liberalisation. Sustained 'episodes' have relatively more success than weak 'episodes'.

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[1] By computing a liberalisation index (a synthetic description of the experience of individual countries) for each episode intensity was derived (strong versus weak, fast versus slow). A period of six years was allowed for the dividing line between sustained, partially sustained and collapsed episodes.

Table 1: Characterisation of Trade Liberalisation and Performance

Episode	Period	Strong or weak	sustained	manufacturing growth*			Export growth*		
				PB	PA	PA1	PB	PT	PC
Argentina1	1967-70	Weak	no	9.14	7.88	6.29	4.4	-1.4	7.3
Argentina2	1976-80	Strong	no	3.31	-1.37	0.92	-1.2	42.2	16.1
Brazil1	1965-73	Strong	no	3.83	10.33	6.92	2.5	11.7	8.0
Chile1	1956-61	Strong	no	12.07	5.65	3.71	1.7	1.9	6.4
Chile2	1974-81	Strong	yes	2.70	-1.92	-2.08	-1.6	7.9	13.6
Colombia2	1968-82	Strong	partially	5.75	7.26	6.34	4.5	4.7	1.8
Greece1	1953-55	Strong	yes	9.84	10.48	11.69	3.1	17.8	14.0
Greece2	1962-82	Weak	yes	6.37	10.39	9.11	2.5	2.5	6.3
Indonesia2	1966-72	Strong	yes	-1.37	8.78	7.08	3.0	-0.2	8.1
Israel2	1962-68	Strong	yes	14.61	8.26	9.43	26.7	20.5	12.3
Israel3	1969-77	Strong	yes	7.95	7.67	7.94	16.0	7.5	13.8
Korea1	1965-67	Weak	yes	12.33	22.3	21.72	14.5	52.3	43.2
Korea2	1978-79	Weak	Yes	16.48	5.14	8.85	24.7	-0.3	9.6
NewZealand3	1982-84	Weak	Yes	2.64	3.29	4.38	4.1	-1.1	6.0
Pakistan1	1959-65	Weak	Partially	6.65	8.86	7.83	-2.3	49.1	10.0
Pakistan2	1972-78	Weak	Partially	7.49	6.23	3.79	-3.4	-21.6	-3.0
Peru	1979-80	Strong	No	-2.07	0.91	1.66	7.4	-2.7	1.2
Philippines1	1960-65	Strong	Partially	7.73	5.10	4.35	0.9	-3.7	9.9
Phillippines2	1970-74	Weak	Partially	6.57	8.97	8.85	-3.0	9.0	2.4
Portugal	1970-74	Weak	No	8.32	11.59	11.04	8.0	1.2	5.0
Singapore	1968-73	Strong	Yes	15.89	20.8	20.78	-	-	-
Spain2	1970-74	Weak	Partially	7.56	6.27	6.64	9.8	13.0	11.4
Spain3	1977-80	Strong	Partially	2.83	0.90	1.23	3.2	10.7	5.9
Sri Lanka1	1968-70	Weak	No	5.30	6.14	7.03	2.1	-2.6	0.2
Sri Lanka2	1977-79	Strong	Yes	2.62	4.43	3.17	3.0	9.5	8.9
Turkey1	1970-73	Weak	No	11.97	9.14	7.63	5.2	7.4	17.6
Turkey2	1980-84	Strong	Yes	4.40	6.79	3.63	-4.4	85.5	46.4
Uruguay	1974-82	Strong	Yes	0.41	4.81	4.13	-11.3	13.9	16.3
Yugoslavia	1965-67	Strong	No	4.47	5.83	2.60	13.5	12.6	7.6
Average				-	-	-	4.4	11.8	10.5

Episode	strong	weak	Performed well
Sustained	9	4	9
Collapsed	5	4	4
Partially sustained	3	4	3
Total	17	12	16

Note: * Real annual growth, PT = one year after liberalisation, PB = average of three years prior to liberalisation, PA = average of three years excluding first year after liberalisation, PA1 = Averages of four years after liberalisation and PC = average of three years after liberalisation.

Source: Michaely, Papageorgiou and Choksi (1991)

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Fast 'episodes' were associated with large increases in the rate of growth of both exports and imports. The strong 'episodes' led to an improvement in the balance of trade for the respective countries. The stronger the sustainability the greater was the export growth. Countries in which devaluation of the real exchange rate was the most important element of the liberalisation package have realised higher rates of export growth. The authors, also found a strong correlation between trade liberalization and rapid export growth; in most cases manufacturing export growth fell for the first year after liberalisation then increased more than the rate before liberalisation.

Although the above study approached trade liberalisation extensively, there is a causation problem with this approach and under close examination it proven not to be very meaningful. Pre-liberalisation developments have had some effect on post-liberalisation and it is wrong to conclude, without further analysis, that liberalisation was the cause of subsequent manufacturing growth.

Reformers and Non-Reformers

Thomas and Nash (1991) employed a cross-country analysis and found a general increase in manufacturing exports among the group of trade policy reformer countries when compared to non-reformers. They found that factors such as macroeconomic stability around a real exchange rate that is compatible with long-term expansion of exports and output and access to inputs at tax-free international prices for exports were important in determining export expansion.

However, a simple comparison of this nature is not meaningful for various reasons: first the pre-liberalisation development process could have had some impact on the post-liberalisation experience; and secondly, factors other than trade policy reforms might have influenced the performance differential between the groups of countries.

Linking Policy Differences

Three types of studies have been used to link trade policy and performance: first, regressions which pool a sample of countries with differences in trade policies at different periods; secondly, regressions based on individual country experiences, by type of economic policy (i.e more open or less open); and finally, regressions of plant-level data for chosen countries.

Sample of Countries

Nishimizu and Page (1991) analysed trade policy and productivity growth by incorporating dummy variables - quantitative import restrictions and non-market allocation of resources - with growth of export demand and growth of total domestic demand, less import demand (import penetration) in a multiple regression framework. The authors came to the following conclusions. First, export growth in industries was positively associated with total factor productivity growth and this was absent in import-substituting regimes that used quantitative restrictions. Second, industries protected by primarily quantitative barriers to trade seem to have some difficulties in adjusting to external shocks compared to industries that were in an open trading environment. Finally, dynamic gains can accompany superior productivity performance in a more open and market-oriented policy environment. This study seems to be sensitive to slight alterations in policy variables and to small changes in the chosen sample. The results of this type of study may be misleading unless care is taken, particularly in defining policy regimes when examining the interactions among policies and their effect on growth.

Nishimizu and Robinson (1984) found a positive link between higher exports and TFP growth arising from competitive cost-reducing incentives and a positive link between export expansion, import liberalisation and TFP growth arising from the importance of foreign exchange constraints and non-substitutable imports of intermediate inputs and capital goods. A growth decomposition measure was used in this study to explain

productivity growth in a multiple regression framework of four semi-industrialised countries: Japan, South Korea, Turkey and Yugoslavia.[2] At the two-digit ISIC level South Korea's total factor productivity grew more rapidly than those of Turkey and Yugoslavia. South Korea selectively promoted infant industries and these exhibited superior performance by following an outward-looking strategy.

In Turkey, the export phase from 1970 to 1973 turned out to be abortive largely because the government allowed incentives to move against exports. Turkey entered into rapid and successful export promotion during 1963-76. If this is true, then it can be argued that Turkey experienced a successful period of import substitution, in which its infant industries reached maturity. This is contradictory to Krueger and Tuncer's (1982A p.1149) findings that protection did not elicit the growth in productivity. The assumption that there are well-defined production technologies describing all plants within an industry may not be true.

Tybout (1992) went beyond this and measured productivity growth at plant level in Chile, Colombia and Morocco. Tybout's model revealed that output expansion not only came from productivity growth, but also that productivity change was accompanied by changes in scale or net entry. Under the influence of plant heterogeneity, all three components were further decomposed in his study.[3] Tybout

[2] The authors found that South Korea selectively promoted infant industries and showed superior performance from following an outward-strategy. They also suggest that a positive impact on Turkey indicates the possibility that they could have followed the Korean example of selective protection.

[3] Tybout formed a simple discrete model in which he defined change in output from previous year as a function of productivity growth, changes in the average scale of operations (measured by factor use) and net entry. Then Tybout decomposed each variable by their attributes. For example, the productivity growth index reflects three influences: first the proportion of total factor use accounted for by plants that were in the industry in both the last period and the current period, second average productivity among plants and third the difference between the productivity among plants that have entered the industry in the current period and the productivity among plants that were in the industry in the last period, but exist also in this period.

found that output growth was positively correlated with entry but did not correlate significantly with the exit of firms, and higher effective protection rates were associated with large plant size, especially at the low end of the size distribution.

Structure-Conduct-Performance: Individual Countries

The theory of industrial organisation has increasingly recognised the role of foreign 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 domestic market. Individual country studies track a single country through time.

Productivity Growth

Studies of the effect of trade reforms on productivity growth have only been recent. They focus on the link between trade and dynamic productivity growth in a multiple regression framework.[4] This process allows them to show the explanatory significance of productivity growth across manufacturing industries due to the change in trade policy variables in a single country.

The general expectation was that those sectors with a higher nominal/effective rate of protection would tend to achieve greater gains in efficiency under liberalisation since they are subject to change in market conditions. Based on the above argument, the hypothesis that trade opening had a positive impact on manufacturing's total factor productivity growth has been tested and obtained some support in the following countries: South Korea (Kim, 2000: Dongsuk 1992), Mexico (Weiss, 1992: Tybout and Westbrook, 1995: Iscan, 1998), Chile (Rodrigo, 1995), Sri Lanka (Weiss and Jayanthakumaran, 1994), Thailand (Urata and Tokota, 1994), Cote d'Ivoire (Harrison, 1993), Indonesia (Kristiono, 1997: Sjoholm, 1997), and India (Krishna and Mitra,

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[4] See for example Nishimizu and Robinson (1984), Handoussa, Nishimizy and Page (1986), Goldar (1986), Krueger and Tuncer (1982) and Weiss (1991).

1997).

Protection attracts a large number of small, high-cost producers and results in a fragmentation of the home market. Import-substitution policies had a negative impact on total factor productivity; this was tested and supported in the case of Turkish industries (Krueger and Tuncer 1982) and Indian industries (Goldar 1986). Due to foreign exchange constraints and non-substitutability between imports and domestic intermediate and capital inputs, the fixed capacity level may become idle in an economy where import-substitution policy is pursued. In the Chilean economy (Condon, Corbo and de Melo 1984) and Egyptian industry (Handoussa, Nishimizu and Page 1986), this was found to be an important reason for TFP growth during trade opening.[5] Malawi, Mulaga and Weiss (1996) argue that the slight improvement in TFP as a result of trade reforms between 1987-91 can be explained in terms of higher capacity, as firms previously facing a shortage of foreign exchange were able to stock up on parts and raw materials. The authors did not establish any link between TFP and the fall in protection when they used TFP estimates adjusted for change in capacity utilisation. In this case TFP does not reflect genuine productivity improvement, as a shift from one production frontier to other occurs and does not appear to correlate systematically with exposure to foreign competition.

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[5] Condon, Corbo and De Melo (1984) used multi sectoral general equilibrium model to approximate the likely magnitude of the sources of growth of productivity gains of whole economy during 1977-81. Most of the other studies concerned about industries and used multiple regression type analysis except Krueger and Tuncer (1982) who used simple comparison of TFP in different periods of import-substitution and export-promotion.

Table 2: Trade Reform and TFP: A Summary of Empirical Tests

Author	Year	Country	Major findings
Nishimizu & Robinson (1984)	1955-73 1960-77 1963-76 1965-78	Japan, Korea Turkey Yugoslavia	No support for Verdoorn's law: a support for the hypothesis that export expansion leads to higher TFP growth through competitive incentives: a support for the hypothesis that foreign trade increase TFP growth through relaxing the foreign exchange constraints.
Kim (2000)	1966-88 3-digit	Korea	During 1966-88, annual average growth 0.5. During the period 1985-88, trade reform has increased the TFP growth by about 2 percentage points.
Dongsuk (1992)	1983-88	Korea	Average ERP for the manufacturing sector has reduced from 61.7% in 1983 to 38.5% in 1988: highly protected industries are inefficient than less protected industries: trade reform has enhanced manufacturing efficiency.
Urata & Yokota (1994)	1976-82 1982-88 (2-digit)	Thailand	Obtained a strong evidence of an increase in TFP due to trade reform: the degree of trade reform, initial ERP, scale effect and the strength of domestic competitive pressure have been used to represent trade reform.
Sjoholm (1997)	1980-91 (Firms)	Indonesia	Indonesian establishments engaged in imports as well as exports have comparable high productivity level: the larger the share of output that goes in exports the higher the productivity growth.
Kristiono (1997)	1992 (Firm)	Indonesia	Import competition forces the domestic firms to improve their technical efficiency.
Goldar (1986)	1960-70	India	A support for Verdoorn's law: import substitution to change in output has a negative and significant effect on TFP growth.
Krishna & Mitra (1998)	1986-93 (Firms)	India	Obtained some weaker evidence of an increase in the rate of growth of productivity due to trade reform
Sharma, Jayasuriya & Oczkowski (2000)	1972/73 - 1993/94	Nepal	The association between TFP and coefficient of both protection variables (NRP and Quantitative restrictions) is statistically insignificant.
Weiss and Jayanthakumaran (1994)	1985-89 (4-digit)	Sri Lanka	A support for Verdoorns law: change in nominal protection has a negative and significant effect on labour productivity and TFP growth.
Handoussa, Nishimizu and Page (1986)	1973-79	Egypt	A support for Verdoorn's law: a support for the hypothesis that foreign trade increases TFP growth of public sector through increasing the capacity utilisation.
Krueger and Tuncer (1982)	1963-76 (4-digit)	Turkey	A support for the hypothesis that Turkish manufacturing would have experienced a decreasing rate of TFP as import substitution policies pushed resources into increasingly inefficient, high cost industries.
Weiss (1992)	1975-87 (4-digit)	Mexico	A support for Verdoorn's law: a reduction in protection has a negative and significant effect on labour productivity growth and a negative but not significant effect on TFP growth.
Tybout, Westbrook (1995)	1984-90 (Plant)	Mexico	Most sectors showed improvement in productivity: reductions in average cost were largest in open sectors: open sectors did relatively well in shifting market shares toward the more productive plants: increases in openness are associated with relatively small-scale efficiency gains.
Iscan (1998)	1973-90 (47 industries)	Mexico	Productivity growth is significantly correlated with the share of imported intermediate inputs in sectoral output: there was a positive and significant association between reductions in rate of protection and sectoral productivity level: increasing share of exports in total output increased average productivity level by about 5%.
Harrison (1993)	1985-87 (Firm)	Cote d'Ivoire	A positive association between more open trade policies and productivity growth; productivity growth tripled after the reform; productivity growth was four times higher in the less protected sector.
Jenkins (1995)	1980-91 (4-digit)	Bolevia	There was no evidence that trade liberalisation have led to improved productivity performance: A support for Verdoorns law.
Rodrigo (1995)	1974-79	Chile	A support for the hypothesis that greater competition from imports enhances productivity growth among the more liberalised industries.
Haddad, deMelo and Horton (1996)	1984-89 (3-digit)	Morocco	No evidence that greater competition from imports enhances productivity.
Mulaga and Weiss (1996)	19786-91 (Firm)	Malawi	Average ERP for manufacturing has reduced from 79.5% in 1986 to 48.9% in 1991. When TFP estimates adjusted for change in capacity utilisation, Authors did not find a link between TFP growth and fall in protection.

The hypothesis that expansion of output results in a higher level of productivity, commonly known as Verdoorn's law, has been widely tested. The argument behind this hypothesis is that expansion of output creates economies of scale, specialisation and a favorable environment for innovation, and these factors eventually result in higher levels growth and of productivity. The expectation is that liberalisation will increase efficiency and thereby allow a sufficiently greater scale of production. This hypothesis has been supported for Indian industries (Goldar 1986), Egyptian industries (Handoussa, Nishimizu and Page 1986), Mexican industries (Weiss 1991) and Sri Lankan industries (Weiss and Jayanthakumaran 1994).

An industry with a high degree of concentration may have some advantages in terms of size and in having a secure market for innovation. This does not mean that the particular industry experiences a higher productivity. In a situation where there is less competition, there may be less inducement to reduce cost and improve technology. In fact the relationship between productivity growth and concentration is ambiguous. Golder (1986) for Indian industries and Weiss (1991) for Mexican industries have not established any significant relationship between these two variables.

The association between exports and productivity is ambiguous. One can argue that growth of exports brings higher growth of productivity through an educative process. For example a higher level of contact with foreign competitors as a result of export growth can motivate rapid technical changes and managerial know-how and reduce 'x-inefficiency' locally. If this is true, then trade liberalisation is a precondition for improvement in productivity. Alternatively, high growth of productivity is essential for high growth of exports. For example, highly sophisticated management techniques may originate within local firms/industries regardless of any government policy towards exports. Haddad, deMelo and Horton (1996) for Morocco accepted the hypothesis that export growth causes productivity growth and rejected the causality in

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the opposite direction.[6] Sjoholm (1997) for Indonesian manufacturing industries, Iscan (1998) for Mexican manufacturing industries and Nishimizu and Robinson (1984) for Japan, Turkey, Yogoslavia and South Korea concluded that the larger the share of output that goes in to exports the higher the productivity growth.

If domestic infant industries are not competent enough to face competition and face a decline of productivity due to overwhelming import penetration, then one would expect negative correlation to exit between trade opening and productivity growth. Haddad, de Melo and Horton (1996) for Morocco studied trade liberalisation between 1984-88 at the industry level. Their analysis used growth in import penetration as a proxy for imports and found no evidence that greater competition from imports enhances productivity. Sharma, Jayasuriya and Oczkowski (2000), based on their analysis of Nepalese manufacturing, claim that while trade and exchange rate policy reforms may be a necessary condition for improving productivity growth in "least developed" economies, they are not sufficient conditions. Other factors such as appropriate investment policies, shortages of human capital and physical infrastructure need to be addressed if potential productivity improvements are to be reaped. Jenkins (1995) found very little evidence from the Bolivian case and concluded that trade liberalisation is neither a necessary nor sufficient condition for rapid productivity growth. Only the spinning and weaving industries have increased productivity through the elimination of high cost producers and the scrapping of obsolete capacity. Bolivia experienced lack of investment, a high real rate of interest and lack of organisational change during this period. As a result, increased productivity through these factors was insignificant.

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[6] The authors computed F-ratios of 0.65 for the equations that used growth in total factor productivity as dependent variable and 3.30 for equations that used growth in export as dependent variable, where 3.0 is the critical value of F.

Change in Price-Cost Margins

A number of arguments have been discussed in the empirical literature with regard to the impact of imports, exports and protections on the profitability of domestic firms in an open economy. One can argue that there would be a negative relationship between import penetration and profitability, as foreign competition should restrain the exercise of market power by domestic firms in the domestic market. Katrak (1980) for India, Amjad (1977) for Pakistan, Haddad, de Melo and Horton (1996) for Morocco, and Foroutan (1996) for Turkey has obtained support for their hypothesis that, in industries faced with significant degrees of actual import competition, the ability of domestic firms to maintain prices above average cost is reduced. Beng and Yen (1977) for Malaysian, Weiss (1991) for Mexico and Krishna and Mitra (1997) for India obtained support for their hypothesis that tariffs enable producers to reap high domestic profits.[7] Grether (1996) for Mexico concluded that less protective sectors behaved more competitively.

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[7] De Melo and Urata (1984) and Weiss (1992) and Weiss and Jayanthakumaran (1994) tested the reform induced PCM, but other studies merely tested the relationship between the trade policy variable and PCM.

Table 3: Trade Reform and PCM: A Summary of Empirical Tests

Author	Year	Country	Major findings
Beng & Yen (1977)	1968-71	Malaysia	Increase in one point in ERP ratio would increase PCM ratio by 0.0004 point**, increase in one point in export-ouput ratio would reduce PCM ratio by 0.0049 point**, increase in one point in capital-output ratio would increase PCM ratio by 0.25 point*.
Kristiono (1997)	1992 (Firm)	Indonesia	The association between PCM and import penetration ratio was insignificant.
Amjad (1977)	1965-70	Pakistan	Increase in one point in import competition ratio would reduce PCM ratio by 0.12 point***
Katrak (1980)	1963	India	Increase in one point in import intensity would reduce PCM ratio by 0.72 points*, increase in one point in export-orientation would increase PCM ratio by 0.54 point*, increase in one point in capital-intensity would increase PCM ratio by 0.21 point**
Krishna & Mitra (1998)	1986-93 (Firms)	India	Markups are found to be positively correlated with the tariff level (correlation coefficient of 0.49)
Weiss & jayanthakumaran (1994)	1985-89 (4-digit)	Sri Lanka	Increase in one point in nominal protection ratio would reduce the change in PCM ratio by 1.16 point between 1985-89 period***
De Melo & Urata (1984)	1967 & 1979	Chile	Increase in one point in import share would increase PCM ratio by 0.05 point in the liberalized regime (1979)***, one point increase in export share would reduce PCM ratio by 0.05 point in the liberalized regime**, increase in one point in capital-output ratio would increase PCM ratio by 0.34 point*
Tybout (1996)	1979-86 (industry & Plant)	Chile	Model 1: Increase in one point in import share would increase PCM ratio by 0.114 point**. Model 3: When industry effects are controlled, increase in one point in import share would reduce PCM ratio by 0.093 points.**
Haddad, deMelo & Horton (1996)	1984-89 (3-digit)	Morocco	Increase in one point in import penetration would reduce PCM ratio by 0.200 points**
Weiss (1992)	1975-87 (4-digit)	Mexico	Increase in one point in nominal rate of protection ratio would increase the change in PCM ratio by 0.05 point*** after reform
Grether (1996)	1985-90 (industry & plant)	Mexico	Increase in one point in import licences would increase PCM ratio by 0.224 points**
Forovtan (1996)	1976-85 (3-digit)	Turkey	Increase in one point in import share would reduce PCM ratio for private sector by 0.002 points.*** Not a significant result for public sector.
Jenkins (1995)	1980-91, 1987-91 (4-digit)	Bolevia	There was no evidence for import discipline hypothesis.

* 1%, ** 5%, and *** 10% significant levels

A small number of oligopolistic firms are likely to be simultaneously engaged in both continual production and continual importing, even after reform. Right after the

reform importers utilise the current inelastic demand due to the shortages of imported commodities for years by selling small amounts at high prices. In these circumstances, one can argue that the PCM will positively correlate with import share. De Melo and Urata (1984) found support for the above argument in Chilian manufacturing.[8] Tybout (1996) for Chile found that there was no evidence to support the proposition that allowing additional imports into a specific industry would affect margins, and concluded that market structures were not competitive and that imports did not affect market power. Weiss and Jayanthakumaran (1994) for Sri Lanka used price ratios instead of import shares as liberalisation measures and obtained inverse, but weakly significant, association with PCM. The authors argued that continued monopolisation of distribution, in conjunction with trade liberalisation, might have contributed to the slow reduction in the price ratios underlying the nominal and effective protection estimates.

One may expect positive correlation between imports and concentration, as threat of import competition is expected to induce mergers among domestic firms. As long as imports are close substitutes for domestic producers, there would be a high degree of defensive concentration of domestic producers. Contrary to this argument, there may exist a negative relationship, if inefficient producers improve their productive efficiency in response to an increase in imports. In this situation, import competition may weaken the collusive agreements of domestic firms and thereby lead these firms to cut their prices in order to avoid loss of market share. If costs are fairly constant over the relevant range of output, price-cost margins will be reduced.

The relationship between the rate of exports, concentration and PCM is more complex. Two alternative arguments found in empirical studies are:

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[8] De Melo and Urata (1984) found import share positively and significantly correlated with the PCM in 1979 (after liberalisation), but not significantly in 1967 (before liberalisation).

- There would be an inverse relationship between exports and PCM since the export market will provide a difficult environment for effective collusion. Beng and Yen (1977) for Malaysian manufacturing between 1968-71 and De Melo and Urata (1984) for Chilean manufacturing in 1979 found an inverse relationship to exist, based on the above argument. Siddharthan and Dasgupta for Indian manufacturing obtained an inverse relationship by testing a slightly different hypothesis: that Indian exporters did not export in response to higher profits, but were obliged to do so under governmental regulations and contracts. Haddad, de Melo and Horton (1996) for Morocco between 1984-89 obtained an inverse relationship between the export share of export-oriented sectors and PCM. Their argument is that the result could reflect either more competitive pressures in the export markets than in domestic markets or lower productivity in exporting activities.

- There would be a positive relationship between exports and PCM since exporting may involve relatively greater risks and firms may attempt exporting only if the return is higher than for domestic sales. Katrak (1980) obtained a positive and significant result between exports and PCM. In the Indian context, Katrak argued that a number of exporting firms have received import licenses and therefore they have generated higher margins than comparable non-exporting firms.

Export Growth

A few studies recently attempted to explain export growth across manufacturing sectors due to trade liberalisation. Weiss (1992) obtained support for the hypothesis that trade liberalisation has improved the export performance of Mexico. A decline in internal demand was the major factor in export growth.

Roy (1991) related export performance to exchange rate, devaluation and effective rate of assistance in Bangladesh between 1976/77 and 1986/87 and obtained a strong positive and significant association. Roy (1991) for Bangladesh and Jayanthakumaran (1994) for Sri Lanka have shown that liberalisation of trade and industrial policies has

important consequences for the composition of exports as well as their growth and stability.[9] In Sri Lanka, export diversification led to uneven growth in the clothing sector and this growth can be interpreted as the resource allocation response to export-quota availability, reform in trade and investment and relatively cheap workers. The expansion of clothing cannot be sustained in the light of the elimination of the Multi Fibre Arrangement (MFA) quota. The author suggested greater diversification of manufacturing products.

Table 4: Trade Reform and Export Performance: A Summary of Empirical Tests

Author	Year	Country	Major findings
Roy (1991)	1976/77-1986/87	Bangladesh	Obtained expected negative and significant association between exports and ERP.
Sharma, Oczkowski & Jayasuriya (2001)	1972/73 - 1993/94	Nepal	Nepal had Protectionist regime (1956-85) and liberal regime (since 1985/86). Authors did not find any link between NRP and export performance during the liberal regime.
Jayanthakumaran (1994)	1976-90	Sri Lanka	Trade reform in 1977 has resulted in export diversification and has reduced export earnings instability. A positive and significant association between export growth and intermediate input import to GDP ratio. Since 1985, real exchange rate depreciation strengthened manufacturing exports.
Weiss (1992)	1985-89, 1985/86-1988/89 (industry & firm)	Mexico	Obtained an expected negative and significant result between export growth and for both NRP and internal demand. The relative contributions correspond to an increase in exports of 14.7 percentage points due to competitiveness and 5.1 percentage points due to changes in internal demand.
Jenkins (1996)	1986-91 (4-digit)	Bolivia	Obtained expected negative association between export growth and reductions in NRP, but results are inconclusive. Neither the arguments concerning the elimination of an anti-export bias nor those based on greater access to imported inputs receive empirical support.

Sharma, Oczkowski and Jayasuriya (2001) argue that "least developed" economies having weak institutions and poor infrastructure may not respond to trade liberalisation positively. The authors examined the consequences of trade liberalisation and export incentives on trade intensity in Nepal. They found no link

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[9] Jayanthakumaran (1994) has estimated Gini-Hirchman Coefficient and earnings instability indices for the period 1966-77 and 1977-88.

between reductions in protection and export performance, but did find links between export incentives and export performance. They also found that lower protection and public sector dominance led to higher import penetration. For Bolivia, Jenkins (1996) did not find any link between reductions in protection and export performance. Exports have grown, largely due to a more realistic and more stable real exchange rate after 1985. Bolivia has depended on few commodities based on comparative advantage with relatively low levels of processing for exports. The nature of exports has not changed and has not promoted increased value added and backward and forward linkages.

Lessons for Industrial Performance

Before-and after- liberalisation (or trade policy reformers and non-reformers) studies indicate that the stronger and speedier the liberalisation, the greater the manufacturing output and export growth. However, one should be careful in interpreting the results, mainly because there is no direct evidence that liberalisation causes this improvement. Alternatively, cross-country regressions relating productivity growth and policy variables seem to be sensitive to slight alterations in the policy variables and to small changes in the sample of countries chosen.

In our review, inconsistency in time, country and methodology put up a barrier against a meaningful comparison among studies, although the majority of studies indicated a positive impact in the short-run. Long-term TFP growth is ambiguous as there is a vast range of changes in both technical conditions and prices internationally. Individual country studies track a single country through time, by removing the complicating influence of country-specific effects. The majority of the empirical studies referred to in this paper obtained support for the hypotheses that 'trade opening had a positive impact on manufacturing TFP growth', 'import-substitution had a negative impact on TFP growth', and 'expansion of output results in a higher TFP

growth'. However, 'least developed' country-based evidence indicates that trade liberalisation is a necessary but not a sufficient condition for rapid TFP growth. These countries need to address deficiencies such as shortages of human capital, physical infrastructure and institutions to strengthen the case for trade liberalisation. In the extreme, the Bolivian case indicates that trade liberalisation is neither a necessary nor sufficient condition for rapid TFP growth. Further work in this tradition may lead to stronger conclusions on the effects of liberalisation.

The expectation of "Challange Response" among domestic industries is to increase efficiency on the one hand, and reduce price-cost margins on the other hand. There are strong reasons to believe that the degree of concentration will reduce, followed by an opening to trade, which imply a negative relationship between imports and price markups. However, some studies argued that opening to trade increases "Collusive Agreements" between the domestic firms, thus implying a negative association between imports and domestic price markups. Further, some studies argued that, with trade liberalization, due to continued monopolisation price markups had risen rather than fallen. The majority of studies established an inverse relationship between exports and domestic profit margins, as oligopolistic firms tend to face greater difficulties in achieving tacit collusion with importers, largely because of differences in market environment and problems of communication.

The evidence from South Korea indicates that the export drive preceded import liberalisation and imports played a secondary but supporting role (Donsuk, 1992). South Korea anticipated comparative advantage by intervening both to promote exports and to promote domestic industries. South Korea and other Newly Industrialising Countries (NICS) manipulated import liberalisation for the sake of promoting exports. The experience of the majority of other developing countries contrasts markedly. By the time import liberalisation takes place countries are subject to a number of limitations, such as lack of investment, weak institutions and poor

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infrastructure facilities. Countries like Nepal and Malawi are landlocked and have high external transportation cost with a small domestic market. In this circumstance, one can anticipate lower productivity growth, higher markups and lower export performance.

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