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Export Competitiveness and Comparative Advantage of Pakistan's Non-Agricultural Production Sectors: Trends and Analysis

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Abstract

This paper analyses export specialization of Pakistan's non-agriculture production sectors during 1990-2000 by using the revealed comparative advantage (RCA) approach at HS 4-digit level. The aim is to provide a unique understanding of challenges and opportunities that Pakistan's .non-agricultural sectors face, as they becomes rapidly integrated into global markets.

The paper identifies those non-agricultural export categories, in which Pakistan is losing, gaining or maintaining its export competitiveness. The study examines the extent to which Pakistan's leading non-agriculture product lines have witnessed a shift in comparative advantage away from traditional labour-intensive, production to export of technology based production activities. This information is important to gauge if past specialization patterns, have witnessed any change, or if they are being reinforced over time, due to internal and external forces. The study also provides an in-depth investigation of export specialization of Pakistan's non-agriculture production sectors by dividing 978 HS 4-digit non-agricultural product lines into six distinct groups'based upon their position in Pakistan's RCA profile. To assess the relative competitive position of various manufacturing and mining activities, the study also provides a comprehensive analysis at the sectoral level.

The study shows that while Pakistan's witnessed competitive positioning of some of its non-agricultural sectors, these trends have not been uniform across all sectors. Further, a higher revealed comparative advantage or rapid export growth of a sector does not imply that the sector is displaying high demand growth in world markets. The paper concludes that within Pakistan's overall export profile, trade liberalization will exert further competitive pressure. Trade liberalization and market access is a necessary, but not a sufficient condition, to achieve competitive advantage at the enterprise and industry level. Achieving export competitiveness in the rapidly globalise markets would require efforts at micro and macro levels.

Export Competitiveness and Comparative Advantage of Pakistan's Non-Agricultural Production Sectors:Trends and Analysis

1. Introduction

The composition and volume of global trade has witnessed significant changes during the last two decades. Trade liberalization, rising income and technological advancements, have been the main determinants. Against the backdrop of a rapidly changing global export pattern, and the success of Southeast Asian economies, there is strong case for Pakistan to pursue an export-led growth strategy that leads ultimately to improve living standards. However, given Pakistan's past macroeconomic performance and its current export structure, such a turnaround would require a major structural transformation of the economy and changes in its export specialisation patterns.

Openness in trade and patterns of specialization are, however, interconnected variables. In the context of on-going multilateral trade negotiations, this paper analyses export specialization and the comparative advantage/disadvantage of Pakistan's non-agriculture production sectors, by using the revealed comparative advantage (RCA).approach at HS 4-digit levels. This is to provide a unique understanding of challenges and opportunities that Pakistan's non-agricultural sector faces, as it becomes rapidly integrated into global markets.

It is important to note that supply and demand side conditions playa crucial role in changing the comparative advantage profile of a country. The objective of this exercise is to identify those non-agricultural export categories, in which Pakistan is losing, gaining or maintaining ~ts comparative advantage. Following the "stages of comparative advantages" thesis by Balassa, aQ. attempt is made to examine the extent to which Pakistan's leading non-agriculture product lines have witnessed a shift in their comparative advantage away from traditional labour-intensive production to export of teclmology based production activities 1. This insight is important to envision if past specialization patterns have witnessed any change, or if they are being reinforced over time, due to internal and external forces. Specifically, the paper investigates whether Pakistan's has succeeded in moving from low value-added to technology-intensive high-value manufacturing.

Whilst identifying the dominance of certain sectors and a lack of shift in the revealed comparative' advantage pattern of an export structure provides a broad picture of country's export competitive, it falls short of identifying industries that, though exhibit revealed comparative advantage, are under threat. A comprehensive analysis that examines the relative competitive strengths and weaknesses of Pakistan's nonagricultural exports is helpful in identifying product lines that require special attention in trade and industry policy formulation. Such an investigation has the potential to assist policy makers to weigh the benefits or costs of trade liberalization and the implications of

ıBalassa (1965, 1979).

export diversification. The study addresses this question by dividing 978 HS 4-digit product lines into six distinct groups, based on their competitive position in Pakistan's

export structure. For instance, the study aims at addressing the questions such as: which product lines can be characterized as genuine "infant industries" that require further protection or assistance? Which product lines ought to be mad~ contestable through trade liberalization measures? Which product lines are "strategic" in nature and should be protected?

While an activity-based analysis has business and public policy implications, it needs to be complemented with a sectoral analysis. This study gauges the relative position of various non-agricultural production sectors within Pakistan's revealed comparative advantage profile. The sectoral analysis may also provide a context to consider "zero-forzero" bindings, during multilateral trade negotiations The paper is organized into seven sections. Section 2 highlights the top 25 RCA ranking product lines based upon their technological classification. Section 3 examines the extent to which Pakistan's export specialization in the non-agricultural sector has shifted away from labor and natural resource intensive products to high value-added knowledge and technology intensive products during 1990-2000. To assist Pakistan trade and industry policy formulation, Section 4 provides an in-depth investigation of export specialization and the comparative advantage/disadvantage of Pakistan's no.n-agriculture production, sectors. This outcome is achieved, by dividing 978 HS 4-digit product lines into six distinct groups, based upon their competitive position in Pakistan's export structure. Section 5 analyses the relative performance of each non-agricultural production sector to gauge its relative position, within Pakistan's revealed comparative advantage spectrum. Section 6 provides conclusions drawn from the study and discuses implications for Pakistan's export structure in the context of changing world demand patte01s. To provide future directions, this section also emphasizes necessary conditions to achieve international competitiveness both at macro and micro level.

2. Methodology

A country's comparative advantage, at a given point in time, depends on its pre-trade relative prices that rely on relative production costs. Data on these variables, in the presence of factor and product market distortions, are difficult to generate. We, however, can approximate the comparative advantage concept in an indirect way, by using post- trade data that manifests post-trade relative prices and prevailing factors and product market distortions. The revealed comparative advantage approach is one of the few fornlalmethodologies to measure a country’s intensity of comparative advantage and disadvantage in a particular industry.

Revealed comparative advantage is usually used to investigate shifts over time in comparative advantage of industries. This approach, however, is not meant to capture the potential future comparative advantage of a country, as RCA indices are based on actual trade data. However, RCA indices estimated across time can point to the general direction in which the pattern of comparative advantage is moving2.

The RCA index compares a country's world export share of a commodity, with the country's total export share in total world exports. If a country's share of world exports of a particular commodity is greater than its share.of world exports of all commodities, the

RCA will be greater than one. Acountry the.refore has a revealed comparative advant'age only in those product8 for which its market share of world exports is above its average share of world exports. In other words, the country is a relatively heavy exporter of a product under consideration and possesses a revealed comparative advantage in that product line3.

The RCA index categorizes industries, according *to* their ability to compete within a specific market. A high value of RCA index would indicate relative inter-industrial export specialization. The RCAl of country *i* in industry *a,* (RCAIi)a, can be presented as:

$$(RCAIi)a = (Xi_a / XW\ a) / (Xi\ 1 / XW\ I) \quad (1)$$

Where, Xi_a = value of exports of commodity *a* by country *i;*
XiI = value of total exports by country *i;*
XW_a = value of world exports of commodity *a;* and
Xw_T = value of total world exports

Accordingly, country *i* exhibits revealed comparative advantage or has a greater specialization in export of product *a,* than the world as whole, if (RCAna is greater than one. In general, the higher the RCA index of a product, the greater a country's comparative advantage in that product line.

It is important to note that RCA indices are quite robust and insensitive to changes in growth and business cycle differences across trading partners. These changes influence the numerator and denominator in the RCA fornmla. Similarly, the indices are not sensitive to the height of market access barriers, as long as these barriers are across the board, against all exporters of a particul2.r product line. Yet, they are sensitive to discriminatory market access barriers against exports pf a particular country4[1].

The RCA indices can also be used gain further insight to target those industries that currently exhibit revealed comparative disadvantage, but have potential to achieve export competitiveness over time. This, can be achieved by categorizing a country's export structure, based upon HS 4-digit product lines, into six broader product groups based:

upon their relative RCA profile. In the order of their relative comparative advantage position, these groups are5

a) Competitively Positioned Product Lines:
These product lines have RCA's greater than unity and show..consistent improvement over time owing to favorable external and internal conditions. The decision criteria used to select products under this category is:

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[1] Balassa and Noland (1989), Peterson (1988), Craft (1989), Jean-Michel (1998), Hoekman and Djankov (1997), Ray (1999), Richardson and Zhang, 1999, Lee (1995), Maule (1996), Sheehan, et a!. (1994), and Jones, et a!. (1993), Bender and Li (2002).
[4] Richardson and Zhang, 1999

- RCA index of a product line, "i", is > 1 in 2000, i.e., ; (RCAi hooo> 1
- Difference between RCA index of product line "i" in 2000 and its last three years average RCA's is positive, i.e., (RCAi)2000 - (RCAi)Averagc (1997-1999) > 0

b) Threatened Products Lines:
These product lines have RCA's greater than unity, but indices are declining over time, due to an adverse domestic environment and/or global competitive pressures. The decision principle to select products under this group is as follows:

c) Emerging Products: Tier I & Tier II
These product lines exhibit RCA indices that are less than unity, (rcvealed comparative disadvantage) but their relative global position in the exports market is improving. These product lines signal promise for future export potential. To provide a meaningful analysis, the "Emerging Product Group" is sub-divided into two groups in terms of their RCA position within this broader group. The selection criterion used to group these product lines is given as:

Tier I:

- < 1 and equal to or> 0.5 -.
- Difference between RCA of product line "i" in 2000 and its last three years average RCA is positive, i.e., (RCAi)2000 - (RCAi)Average (1997-1999) > 0

Tier II:

- RCA of a product line, "i", is < 0.5 in 2000, i.e., ; (RCAi)2000 < 0.5
- Difference between RCA of product line "i" in 2000 and its last three years average RCA is positive, i.e., (RCAi)2000 - (RCAi)Average (1997-1999) > 0

5 The central idea from this classification comes from Standard and Poor;s (1997

d) Weakly Positioned Prodncts: Tier 1 & Tier II

RCA indices of these product lines are less than unity and declining due to non-conducive global and domestic factors. The "Weakly Positioned Product Group" is sub-divided into two groups based on their relative level of revealed comparative disadvantage. The selection criterion used to group these product is as follows:

Tier I:.

- RCA of a product line, "i", is < l but equal to or> 0.5 in 2000, i.e,;*(RCN*)2000 < 1 and equal to or > 0.5

- Difference between RCA of product line "i" in. 2000 and its last three years average RCA is negative, i.e., (RCAihooo - (RCAi)Average (1997-1999) < 0

Tier II:

- RCA of a product line, "i", is < 0.5 in 2000, i.e., ; (RCAi)2000< 0.5
- Difference between RCA of product line "i" in 2000 and its last three years average RCA is negative,i.e., (RCAi)2000 - (RCAi)Average (1997-1999) < 0

The above framework has two advantages. First, it identifies the strengths and weaknesses of Pakistan's exports' profile as at 2000. Second, it allows an evaluation of the degree of competitiveness of Pakistan's exports in the world markets.

The data set used in this study is exports data (1990-2000) at HS 4-digit drawn from International Trade Statistics compiled by the Australian National University (AND). The data set comprises 16 product categories made up of978 product lines.

3. Shifting Comparative Advantage of Pakistan's Non-Agricultural Products: The Leading Products

The pattern of Pakistan's export specialization in non-agricultural production sectors highlights the failure of Pakistani manufacturing to move into relatively technological, scale-based, and"differentiated areas. These trends are highlighted in Table 1, that lists the top 25 RCA ranking product lines in their technological orientation and relative factor intensities such as: (a) Resource-Intensive; (b) Scale-Intensive/Technological Intensive; (c) Labor-Intensive; and (d) Differentiation-based6.

6 For more on technological and product classification, see Lall, 1998 and Krause, 1984.

mainly by the textiles and clothing sector. Although the textiles and clothing sector has been at the forefront of Pakistan's export drive; it has made the country highly dependent on the buoyancy of this sector. Given that an export structure is a magnification of the underlying technological base and industry policy, any industrial reorientation in the Pakistani context, would require a massive effort to move up the technological ladder.

Analysis *of* the top 25 product categories leads to interesting observations. The list is dominated by labour-intensive production activities, operating at the lower end of the technology spectrum and requiring relatively low technical skills. Table 1 illustrates that 20 out of the top 25 RCA ranking exports in 2000 were labour-.intensive, dominated

Table 1 Technological Classification of Top 25 RCA Ranking Non-Agricultural Products

Rank	HS Code & Product Category	RCA (2000)	Technological Classification
1	5205 Cotton yam	72.32	Labour-Intensive
2	4106 Leather of goat or kidskin	59.47	Resource- Intensive
3	5513 Woven fabric of synthetic staple fibres	57.26	Labour-Intensive
4	5701 Carpets & other textile floor coverings	54.6	Labour-Intensive
5	5202 Cotton waste, including yam & garneted stock	53.16	Labour -Intensive

6	6302 Bed linen, t.able linen, toilet linen & kitchen linen	50.61	Labour-Intensive
7	6303 Curtains & interior blinds; curtain & bed valances drapes	32.44	Labour-Intensive
8	5802 Woven terry fabrics & towelling, tufted textile fabric	29.19	Labour-Intensive
9	4203 Articles of apparel & clothing accessories made of leather or of composition leather gloves, jackets, coats, belts	27.27	Labour-Intensive
10	5210 Woven cotton fabrics, less than 85% cotton, mixed with or solely manmade fibres	26.94	Labour-Intensive
11	5206 Cotton yam (not sewing thread) less than 85%cotton	23.99	Labour-Intensive
12	18445 Machines for preparing textile fibres & yams	22.71	Teclmology- Intensive
13	6105 Men's or boys' shirts, knitted or crocheted	20.82	Labour-Intensive
14	5209 Woven cotton fabrics, 85% or more cotton,	20.35	Labour-Intensive
15	5514 Woven fabric of synthetic staple fibres	19.59	Labour-Intensive
16	5208 Woven coon fabrics, .85% o more cotton	19.51	Labour-Intensive
17	6116 Gloves, nuttens and nutts, knitted or crocheted	16.64	Labour - Interisi ve
18	8213 Scissors, tailors' shears & similar shearslbiades and base metal parts thereof	15.86	Labour-intensive
19	8214 Other articles of cutlery	15.74	Labour-intensive
20	5203 Cotton, carded or combed	15.61	Resource-Intensive
21	6307	15.11	Labour Intensive
22	2610 Chromitim ores and concentrates	13.07	Resource-Intensive
23	6310	12.32	Labour-Intensive
24	6304 Other furnishing articles of textile materials	12.19	Labour-Intensive
25	3202 Synthetic organic or inorganic tanning substances; tanning preparations; enzymatic	12.16	Teclmological-Intensive

Notes: This ranking excludes HS 9307 (Arms & Ammunition) as an outliner.

Source: International Economic Data Bank (IEDB), Australian National University, and calculations by the author

Changes in the revealed comparative advantage pattern can be examined by analyzing the list of the top-25 product lines, ranked by their RCA indices (Table 2). With the exception of 1999-2000,20 out of the top-25 high RCA ranking categories were from the textiles and clothing sector. In 1999, 18 out of the top-25 RCA ranking product groups were from this sector. This number climbed to 19 in 2000. Other categories included in the list of top 25 were:

- Base Metals & Articles: 1990 *(HS7614, 7904);* 1998 *(HS8004),* 1999 *(HS 8002, 8004,8213);* and 2000 (8213,8214). "
- Hides & Skin; 1990 *(HS 4106);* and 2000 *(HS 4106,4203).* .
- Machinery & Mechani"cal Appliances: 1990 *(HS* 8445); 1997 *(HS 8410);* and 2000 *(HS* 8445)
- Miscellaneous Product: 1990 *(HS 9602).*
- Chemical Products: 1997,1999 *(HS* 2917)
- Arms & Ammunition: 1998,1999, and 2000 *(HS 9307)*
- Plastics & Rubber: 1997 *(HS 4014)*
- Mineral Products: 1998and *2000(HS* 26](~.

Evidence provided by the RCA ranking of the top 25 product lines indicate that there has been little shift in the comparative advantage pattern of Pakistan's non-agricultural

exports. During the entire period studied, the pattern of revealed comparative advantage has been relatively stable. in its industry orientation. Dominance of the textiles and clothing sector is quite consistent with Pakistan's existing natural and human factor endowments. This analysis reveals Pakistan's failure to catch up with the Southeast Asian economies, by moving from low value-added to technology-intensive high-value manufacturing.

Table 2 Comparative Advantage of Pakistan's Non-Agricultural Products

	HS Code	RCA-1990	HS Code	RCA-1997	HS Code	RCA-1998	HS Code	RCA-1999	IHs Code	RCA-2000
1	*5205*	100.35	*5303*	87.26	*5205*	54.14	*4106*	54.12	*9307*	105.82
2	*5802*	88.27	*5205*	58.68	*4106*	51.02	*5205*	53.77	*5205*	72.32
3	*5202*	59.15	*4106*	49.3	5513	40.42	*8002*	50.23	*4106*	59.47
4	*5303*	54.68	*5202*	36.72	*6302*	38.24	*6302*	43.39	5513	57.26
5	7614	51.71	5513	31.67	*5202*	35.63	*5701*	41.87	*5701*	54.6
6	*4106*	46.88	*6302*	31.6	*5701*	35.05	5513	41.28	*5202*	53.16
7	*5204*	39.17	*8410*	31.33	*5210*	27.79	*5202*	31.77	*6302*	50.61
8	*5207*	32.72	*5701*	28.84	*5803*	25.84	*5203*	25.62	*6303*	32.44
9	*5701*	30.2	*4203*	22.93	*4203*	25.75	*4203*	25.11	*5802*	29.19
10	*5506*	25.9	5514	20.91	*5504*	23.98	*5210*	25.09	*4203*	27.27
11	*5406*	24.44	*5206*	20.55	5514	19.74	*9307*	25.06	*5210*	26.94
12	*6309*	16	*5210*	20.29	*5209*	19.23	*6303*	24.72	*5206*	23.99
13	*5201*	15.89	*5504*	18.27	*6105*	17.85	*5803*	23.96	8445	22.71
14	*5504*	14.92	*5209*	17.38	*5208*	16.36	*8004*	23.88	*6105*	20.82
15	5;;12	12.64	*5208*	17.14	*6303*	16.36	*5504*	22.44	*5209*	20.35
16	*5403*	12.4	*6105*	15.44	*5802*	16.27	*5209*	20.62	5514	19.59
17	*5208*	12.05	*6303*	15.23	*6116*	14.44	*5802*	18.5	*5208*	19.51
18	*6302*	11.79	2917	14.76	*9307*	12.84	*6105*	17.69	*6116*	16.64
19	*5203*	11. 73	*5802*	14.2	*5509*	12.59	*5208*	17.16	8213	15.86
20	8445	11.08	*5803*	13.46	*2610*	12.44	5514	16.1	8214	15.74
21	*9602*	10.87	*6116*	12.08	*5206*	11.96	*6116*	14.15	*5203*	15.61
22	*5503*	9.46	*5509*	11.09	*8004*	11.33	8213	12.76	*6307*	15.11
23	*7904*	9.21	*6309*	10.46	*6307*	11.27	2917	12.33	*5504*	14.82
24	5513	8.4	*6307*	9.72	*5211*	10.89	*6307*	12.23	*2610*	13.07
25	*5206*	7.93	*4014*	8.92	*6309*	10.84	*5206*	11.46	*6310.*	12.32

Source: International Economic Data Bank (IEDB), Australian National University, and calculations by the author

With few exceptions, Pakistan's top-ranking exports belong to the textiles and clothing sector. This pattern of export specialization points to a failure to diversify export structure, by moving into high value-added, relatively technological and high-skilled labour-intensive product lines. These findings highlight the vulnerability of Pakistan's textile-dependent external sector. In the present climate of trade liberalization, Pakistan's textiles and clothing sector will come under increasing competitive presslire from lower cost producers. Besides, the Uruguay Round Agreement on Textiles and Clothing will put further competitive pressure on Pakistani textile and clothing firms.

3. Competitive Positioning of Pakistan's Non-Agricultural Production Sectors: An Aggregated Analysis

Competitively Positioned Products

Out of the 978 HS 4-digit level product lines, 222 of them (23%) have RCA's greater than unity and increasing. This places them in the category of "Competitively Positioned Product Group". As Table 3 illustrates, 34.7 % of Pakistan's non-agricultural Competitively Positioned Products are from the textiles and clothing sector, followed by the chemical sector (23.9 %).

Given Pakistan's factor endowments, performance of the textiles and clothing sector is hardly surprising. Pakistan's gradual export specialization in chemical products reflects the structural change experienced by the manufacturing .sector as it shifts towards relatively high value-added sectors. Similar trends are also emerging in other relatively skilled-labour and tec1molcgy industries such as base metals and articles; machi~1ery and mechanical appliances; and measuring and musical instruments.

Table 3 RCA Profile and Product Grouping: 2000

Industry ategory/Sector and HS Code	CP	TP	EP (TI)	EP(I)	*WP* (Ii	(WPli)
Textile & Textile Articles: HS 50-63	77 34.7	18 32	11 9.2	9 5.9	8 14.3	19 6.5
Chemical. Products: HS 28:38	53 23.9	8 14	36 30.3	32 13.9	10 17.9	34 11.6
Base Metals & Articles: HS 72-83	18 8.1	7 13	11 9.2	43 18.7	10 17.9	60 20.4
Machinery &Mechanical Appliances:HS 84-85	17 7.7	4 7	17 14.3.	41 17.8	9 16.1	44 15.0
Measuring and Musical Instruments: HS 9092	10 4.5	-	5 4.2	17 7.4	2 3.6	21 7.l
Hides and Skins: HS 41-43	8 3.6	1 2	2 1.7	3 1.3	3 5.4	3 1.0
Articles of Stone, Plaster Cement, Asbestus: HS 68-70	7 3.2	3 5	8 6.7	12 5.2	2 3.6	13 4.4
Mineral Products: HS. 25:27	7 3.2	-	3 2.5	16 7.0	1 1.8	19 6.5
Plastic & Rubber: HS 39:40	6 2.7	8 14	9 7.6	8 3.5	4 7.1	7 2.4
Transportation Equipment: HS 86-89	6 2.7	-	2 1.7	8 3.5	5 8.9	11 3.7
Miscellaneous Product Category: HS 94-96	5 2.3	3 5	3 2.5	8 3.5	. -	13 4.4
Wood Pulp Products: HS 47-49	4 1.8	1 2	7 5.9	11 4.8	2 3.6	15 5.1
Pearls, precious or Semi-Precious Stones, Metals: HS 71	2 0.9	-	2 1.7	4 1.7	-	8 2.7
Footwear and Headgear: HS 64-67	1 0.5	-	2 1.7	7 3.0	-	8 2.7
Wood andW ood Products: HS 44-46	1 0.5	2 4	-	11 4.8	-	10 3.4
Arms and Ammunition: HS 93	1 0.5	1 2	1 0.8	-	-	4 1.4

Source: International Economic Data Bank (IEDB), Australian National University, and calculations by the author

Notes: CP=Competitive Positioned Product; TP= Threatened Product; EM (TI) = Emerging Product Tier I; EM (TII) = Emerging Product Tier II; WP(TI)= Weakly Positioned Product (TI); WP(TII)= Weakly Positioned Product (TII)

The profile of "Competitively Positioned Products" highlights the lack of inroads made by some unskilled and skilled labor-intensive and rEsource-base industries, which draw their competitive strength from low wages and the availability of raw material. This includes industries such as hides and skins, footwear and headgear, wood and wood products, pearls and precious stones. Lack of headway made by the transportation equipment industry is a reflection of its narrow production base and cost disadvantage, due to a higher share of imported inputs, absence of forward and backward linkages and lack of economies of scale and scope.

Threatened Non-Agricultural Products

In the case of the "Threatened Product" group, there are 56 product lin~s (6% of the total). These products exhibit revealed comparative advantage, but have experienced a declining share in world markets during 1997-2000 (Table 3). It is important to note, that 32% of the "Threatened Products" are from the textiles and clothinb sector, which has been the driving force of Pakistan's export structure; The most significant decline in the revealed comparative advantage occurred in jute products. This outcome can be attributed to the industry assistance measures undertaken by the Bangladeshi and the Indian governrnents in support of their jute industry. Other notable declining sectors include chemical products (14%); plastic and rubber (14%) and base metal products (14%).

In view of their significance to Pakistan's revealed comparative acivantag~ profile, there is a need for determined efforts to ensure that Pakistan sustains and enhances its export competitiveness by reversing the above trends. Although it is difficult to formulate product-specific policy responses, there is a strong economic rationale for targeting those "Threatener. Products" that have significant comparative advantage, but ar~ losing their competitiveness. For instance, one of the "Threatened Product Group" is sports goods, major export eamr.rG for Pakistan. This product line has witnessed a modest decline in its export compt:titiveness in recent times. This analysis is by no means designed to draw industry-specific m~asures *for* every product line in this group. However, it highlights specific industries that require specific attention. during trade negotiations and industry policy formulation.

Emerging Products: **Tier I**

The "Emerging Product Group" is sub-divided into two groups to draw a distinction between two types of product lines: (a) the product lines that are showing underlying trends to join the "Competitive Group", but exhibit a comparative disadvantage at present; and (b) Tier II products

There are- 119 product lines (12% of the total) in Tier 1. Three relatively technology intensive manufacturing sectors, e.g., chemical, machinery and mechanical appliances, and base metals and articles, constitute 54 % of the total "Emerging Product Lines-Tier I" (Table 3). This resuit highlights the comparative advantage dynamics of Pakistan's manufacturing sector, where momentum is developing to move towards relatively high value-added technology intensive production activities.

Emerging Productsf **Tier II**

There are 230 product lines (24% of the total) that show continuous improvement, but their RCAs are less than 0.5. Table.3 reconfirms the observation that Pakistani manufacturing is making slow progress towards the export of high-valla; added' non-agricultural products. The three top product categories in this group belong to relatively technological intensive production activities. This includes base metals & articles (18.7%), machinery and mechanical appliances (17.8), and chemical products (13.9%).

In the context of this study, the findings are significant. Industries such as, metals and metal products, machinery and mechanical appliances exhibit backward linkages. Competitiveness in these sectors has positive spillover effects on ot1lcr segments of the manufacturing industry. Given the competitive potential of the "Emerging Product Group", furth,:;r investigation is required to target the products with the highest potential,

to achif'v:s international competitiveness. Caution will be required to ensure that these product lines Jo not encounter unfair competition from overseas suppliers in the local markd

Weakly Positioned Products: Tier 1

"Weakly Positioned" products are categorized i~to Tier I and Tier II sub-groupings. The RCA's of Ti~r I product lines are less than unity but greater than 0.5 and thus have experienced negative growtl~.. With 57 product lines, no single industry dominates this prodL' .~t grouping. However, over 50% of the products belong to three sectors: base metals & articles (17.9%); chemical sector (17.9%); and machinery and mechanical appliances sector (16.1). Analysis points to inter-industry and intra-industry variations in the degree of revealed comparative disCl.dvantage in this product grouping.

Weakly Positioned Products: Tier 11

This group represents 30% of Pakistan's total non-agricultural product lines. With their level of revealed rJp.lparative disadvantage worsening, there is a need for a careful examination of this "sun-set" class of product lines, which includes base metals & articles (20.4%), chemical sector (11.6%), and machinery and mechanical appliances sector (15%) (Table 3). This analysis points to inter-industry and intra-industry variation in the degree of revealed c0mparative disadvantage in this product grouping. While the manufacturing sector is making slow progress to contest the technology-intensive export markets, there are still a significant number of product lines, which are "Weakly Positioned" at the lower end of the comp~titive spectrum.

4. Competitive Pos)~ioliing of Pakistan's Non-Agricultural Production Sectors: A Sectoral Analysis

To fonnulate a set of trade and policy recommendations at the sectoral level, it is imperative to undertake a sectoral analysis of P~kistan's non-agricultural production sectors. Building upon the ~arlier analysis, this section analyzes the export perfoinuince Qf each sector gallge its relative positioning ,within Pakistan's revealed comparative advantage profile'.

Chemical Products

The number of chemical product lines (BS 28-38) participating in world trade has risen from 147 to 173 during 1990- 2000. There was also a jump in the number of products with a comparative advantage from 35 in 1990 to 61 in 2000, an overall increase of74% (Table 4)

Table 4. Chemical products (HS 28-38)

Descri tion	1990	2000	Change(1990-2000)
Total No. OfRe orted Product Lines	147	173	17%a
Products Lines With Revealed Com arative Advanta e RCA >l)d	35 24% b	61 (36%)b	74%a
Products Lines With Revealed Com arative	112	112	0%a

Disadvanta e (RCA<l)	(76%) c.	(64)c	

Notes: a % change from 1990 to 2000; PlOduct lines'with RCA> I as a proportion0f total product lines; c Product lines with RCA<l as a proportion of total product lines; d International Econonic Data Bank (IEDB), Australian National University; and calculations by the author

Revealed comparative advantage dynamics of the chemical sector shows its transfonnatiori from an import-competing ser,tor to one that/has successfully positioned itself in the export markets. In the presence of existing infrastructure bottlenecks, this is an impressive perfonnance. The sector has only *36~/"* of its product lines "Weakly Positioned" in the export markets. This result indicates Its improving competitiveness during the period studied (Table 5). With the continuous improv~I~1entof 39% of its product lines (Emerging Products), any trade policy shift should look at the role of foreign direct investment, industry-specific stimulanis, protec6on afforded, external competitive environment, and growth trends in the world chemical markets.

Table 5. Renaled Cowllarative Advantage Profile of Chemical Products

Prodact Categories	Competitive Products Group	Threatened Products Group	Emerging-Products Group		Weakly Positioned Products Group	
			Tier I	Tier II	Tier I	Tier II
Chmical Products H, 28-38	53 (31)	8 (5)	36 (21)	32 (18)	10 (6)	34 (20)

Source: International EW.l0;:nlc Data Bank (IEDB), Australian National University, and calculations by the author.
Notes: The figures in the parenthesis are percentage share in that product category.

7 These non-agricultural sectors are selected due to their relative significance in Pakistan's export structure.

This sector (petrochemical and pharmaceutical) is relatively technological and capital. intensive, and relies largely on global production networks. With petrochemicals, there are strong linkages between this sub-sector and other key industries such as plastics, textiles, and rubber-based products. These synergies with other export-oriented industries ensure petrochemicals a key industry in Pakistan's manufacturing.

The revealed compara6ve advantage profile of Pakistan's chemical sector needs to be assessed in the context of global trends in this sector. With total trade of US $595 billion in 2001, the chemical sector is one of the fastest growing sectors globally. Share of the chemical sector in world trade has risen from 8.7% in 1990 to 9.9% in 2001. During

1990-2001, this sector kept an annual average growth rate of 7%, making it the second highest rapidly growing sector after office and telecom equipment8. Pakistan's increasing export specialization in the chemical sector, in the context of the above trends, shows its relative success in contesting the high b growth sector of global trade.

With direct and indirect linkages to the export sector, industries in this sector have the ability to achieve economies of s'::ale and enh"llce their competitiveness. With continued present trends, this sector has the potential to emerge as (I major contributor to Pakistan's manufacturing exports. This outcome depends on tpe level Jf investment in this relatively capital-intensive sector.

Hides & Skins

The number of Bides and Skins product lines (BS 41-43) ill the exports markets has risen during the 1990' s from 18 to 20. In 1990 44% ,)f the product lines exhibited a comparative advantage. Although there had been a small increase in the number of product lines contesting the world markets, only 43% o~ ~hem exhibited a comparative advantage in 2000. As Table 6 reveals, the sub-sector has exp~rierlced modest export diversification, but the ratio of products with revealed comparative advantage has remained almost the same.

Table 6. Hides & Skins (HS 41-43)

Description	1990	2000	Change (1990-2000) 11%'
Total No. OfRe orted Product Lines	18	20	11%a
Product Lines With Revealed	8	9	13%a
Com arativeAdvanta e(RCA>I)d	44% b	(43%)b	
Product Lines With Revealed	10	11	11%a
Com arative Disadvanta e (RCA<I)	(56%) c	(55%) c.	

Notes:' % change from 1990 to 2000; Product lines with RCA> I as a proportion of total product lines; C Product lines with RCA<I as a proportion of total product lines; d International Economic Data Bank (IEDB), Australian National University, and calculations by the author

8WTO,2002

In this inherently low-value added sector, Pakistan enjoys a strong comparative advantage in some of the product lines. Two of the top 25 RCA ranking products are from this sector. 40% of the product lines are competitively positioned and 25% are emerging as competitive products.

Table 7. Revealed Comparative Advantage Profile of Hides & Skins

Product Categories	Competitive Products Group	Threatened Products Group	Emerging Products Group		Weakly Positioned Products Group	
			Tier I	Tier II	Tier I	Tier II

Hides & Skins HS 41743	8 (40)	1 (5)	2 (10)	3 (15)	3 (15)	3 (15)

Source: International Economic Data Bank (IEDB), Australian National University, and calculations by the author

Notes: The figures in the parenthesis are percentage share in that product category.

The export growth of this sector is limited due to supply-side constraints and competition from substitutes. Necessary steps at the industry and at the enterprise level should be taken to improve the overall comparative advantage profile of this. sector. Efforts are required to move upwards on the value chain.

Textiles & Textile Articles

The textiles and clothing sub-sector (HS 50-63) is the largest contributor to Pakistan's total exports. This sector has displayed increased export coverage, with the number of product lines increasing from 127 b. 1990 to 142 in 2000, an increase of12%. During this period there has been a dramatic rise in the number of products displaying comparative advantage. In 2000, 67~"o of the total product lines exhibited comparative advantage. These trends confirm the dominant position of textiles and clothing products in Pakistan's non-agricultural exports (Table. 8).

Table 8. Textiles, & Textile Articles (HS 50-63)

Description	1990	2000	Change (1990-2000)
Total No. Of Reported Product Lines	127	142	12%a
Product Lines With Revealed	63	95	51%a
Com arative Advanta e (RCA > 1) d	50%) b	(67% b	
Product Lines With Revealed	64	47	-27a
Com arative Disadvanta e (RCA<1	50% c	33%) c	

Notes: " % change from] 990 to 2000; Product lines with RCA> I as a proportion of total product lines; C Product lines with RCA<] as a proportion of total product lines; d International Economic Data Bank (IEDB), Australian. National University, and calculations by the author

The textiles and clothing sector is the most competitively positioned segment. Of Pakistan's manufacturing. lS'ofthe top 25 top RCA ranking products in 2000 were from this sector During the period studied, only 19% of its products were "Weakly Positioned". This is the lowest percentage of "Weakly Positioned" products, observed by any sector of Pakistan's marmfacturing (Table 9). An important feature of Pakistan's textiles and clothing sector is that export specialization is not merely in the textiles sub-sector.

Table 9. Revealed Comparative Advantage Profile of Textiles and Clothing Products

Product Categories	Competitive Products Group	Threatened Products Group	Emerging Products Group		Weakly Positioned Products Group	
			Tier I	Tier II	Tier I	Tier II
Textiles &Textile Articles HS Code 50-63	77 (54)	18 (13)	11 (8)	9 (6)	8 (6)	19 (13)

Source: International Economic DataBank (IEDB), Australian National University, and calculations by the author

Notes: The figures in the parenthesis are percentage share in that product category.

Pakistan's textiles and clothing sector remains at the lower end of the value chain. To move up the value chain and export high-value added apparels, requires developing capabilities in design, product planning, distribution channels, and international marketing. Sustainable export competitiveness of the textiles and clothing industry depends on its global orientation and building of capacity ahead of demand in key areas. With the global demand patterns shifting from natural fibre to man-made fibre, a reorientation of the apparel industry is needed to contest the most dynamic segment of the export markets.

Base Metals & Articles

Performance of this sector can be characterized as a mixed success. Number of product lines contesting the global markets increased from 122 in 1990 to 149 in 2000. Two of the top 25 RCA ranking product lines (cutlery items and surgical instruments) in 2000 were from this broader sector. This period witnessed an increase in the number of product lines with comparative advantages from 18 to 25, an increase of 39%. Only 11% of product lines exhibited comparative advantages in 2000, showing that export success is confined to a narrow array of product lines (Table 10).

Table 10. Base Metals & Articles (HS 72-83)

Descri !ion	1990	2000	Change(1990-2000)
Total No. Of Re orted Product Line$	122	149	22a
Product Lines With Revealed Comparative Advanta e (RCA >1)d	18 (15% b	25 39a (17% b	
Product Lines With Revealed Comparative Disadvanta e (RCA<I)	104 85% c	124 (83% c	19a

Notes:a % change from 1990 to 2000; Product lines with RCA> 1 as a proportion of total product lines; C Product lines with RCA<1 as a proportion of total product lines; d International Economic Data Bank (IEDB), Australian National University, and calculations by the author

While 47% of its product lines are characterized as "Weakly Positioned", this sector has made noticeable progress in product diversification. This strategy seems to be viable, as 36% of the product lines form the "Emerging Products Group" in 2000.

Table 11. Revealed Comparative Advantage Profile of Base Metals & Articles

Product Categories	Competitive ProducJs Group	Threatened Products Group	Emerging Products Group		Weakly Positioned Products Group	
			Tier I	Tier II	Tier I	Tier II
Base Metals & Articles HS 72-83	18 (12)	7 (5)	11 (7)	43 (29)	10 (7)	60 (40)

Source: U International Economic Data Bank (IEDB), Australian National University, and calculations by the author
Notes: The figures in the parenthesis are percentage share in that product category

"Competitive Products" from this sector cover a broad spectrum of production activities. This involves a range of product lines with varying degrees of manufacturing

sophistication, indicating the presence of backward and forward linkages within this industrial cluster.

In the case of "Threatened Products Group", the product lines that are losing their competitive position at an increasing rate are Tin-related items. There is a need to undertake industry-specific studies to highlight the issues concerning these product lines. The presence of steel products in the "Emerging Product Group" points to a need to look at the impact of the current tariff regime on the cost competitiveness of steel-based exports.

Machinery & Mechanical Appliances

The overall position of the Machinery and Mechanical Appliances sector (HS 84-85) showed no improvement during 1990-2000. While the total number of product lines has risen from 128 to 132, 84% of these products exhibited a comparative disadvantage in 2000 (Table 12).

Table 12 Machinery & Mechanical Appliances (HS 84-85)

Description	1990	2000	Change(1990-2000)
Total *No.* of Re octed Product Lines	128	132	3%"
Product Lines With Revealed Comparative Advanta e (RCA >1 d	22 17% b	21	-5%" 16%)b
Products Lines With Revealed Comparative Disadvanta e (RCA<1	106 (83% c	111 (84%) c	5%"

Notes: a % change from 1990 to 2000; Product lines with RCA> 1 as a proportion of total product lines; c Product lines with RCA<I as a proportion of total product lines; d International Economic Data Bank (IEDB), Australian National University, and calculations by the author

Table 13 Revealed Comparative Advantage Profile of Machinery & Mechanical Appliances

Product Categories	Competitive Products Group	Threatened Products Group	Emerging Products Group		Weakly Positioned Products Group	
			Tier I	Tier II	Tier I	Tier II
Machinery and Mechanical Appliances HS 84-85	17 (13)	4 (3)	17 (13)	41 (31)	9 (7)	44 (33)

Source: International Economics Data Bank (IEDB), Australian National University, and calculations by the author
Notes: The figures in the parenthesis are percentage share in that product category.

Pakistan has performed admirably in some of the niche markets within this highly fragmented industrial sector. The competitive positioning of the textile machinery industry is a defined example. Other high value-added segments, in which Pakistan is making'steady progress, are household appliances such as refrigerators and freezers. There are a number of other electrical and electronics components, which now form the "Emerging Product Group" in this sector. There are 40% of the product lines that are "Weakly Positioned". In some cases, their international competitiveness has been in steep decline.

Irrespective of its current level of revealed comparative advantage, development of the machinery and mechanical appliance sector is vital to the industrial development of the country due to its backward and forward linkages with all other manufacturing sectors. It is in this context that this study calls for treating this sector as a "Policy-Driven Sector" with efforts to provide an investment-friendly environment for its diversification and technological upgrading. This would require time-bound assistance or protection to those segments that are scale-based and have positioning to achieve export competitiveness or industries, which are "Weakly Positioned". Their survival is vital for strategic reasons

Transportation Equipment

There has been a visible improvement in the number of product lines, involved in international trade during the 1990's (from 19 in 1990 to 30 in 2000, an increase of 58%). There were though only six product lines that exhibited revealed comparative advantages in 2000. This period was marred by a worsening competitive position of this sector, with the proportion of product lines with comparative disadvantages increasing to 81 % in 2000 (Table 14).

Table 14 Transportation Equipment (HS 86-89)

Description	1990	2000	Change(1990-2000)
Total *No.* of Reported Product Lines	19	32	68%[a]
Product Lines With Revealed Comparative Advanta e (RCA >1 d	5 (26%[b])	6 (19%)[b]	20%[a]
Products Lines With Revealed Comparative Disadvanta e (RCA<1	14 (74%)[c]	26 (81%)[c]	85%[a]

Notes:[a] % change from 1990 to 2000: [b] Product lines with RCA>1 as a proportion of total product lines; [c] Product lines with RCA<1 as a proportion of total product lines; [d] International Economic Data (IEDB), Australian National University, and calculations by the author

Product lines that constitute the "Competitive Product Group" include low and relatively high value-added products. In some instances, exports are the output of assembly operations. This is valid for product lines in the "Emerging Product Group". A detailed study of the "Weakly Positioned Group" indicates that Pakistan's position is deteriorating in railway transport equipments.

Table 15. Revealed Comparative Advantage Profile of Transportation Equipment

Product Categories	Competitive' Products Group	Threatened Products Group	Emerging Products Group		Weakly Positioned Products Group	
			Tier I	Tier II	Tier I	Tier II
Transportation Equipment HS 86-89"	6 (19)	-	2 (6)	8 (25)	5 (16)	11 (34)

Source: International Economic Data Bank (IEDB), Australian National University, and calculations by the author
Notes: The figures in the parenthesis are percentage share in that product category.

The transportation sector, in general, and the automobile sector, in particular, is the most protected sectors in Pakistan. Within in the automobile industry, the effective rate of protection ranges between 701% to over 5000%[9]. In the context of the new round of trade negotiations, it is difficult to envisage the sustainability of this sector, without protection

9 Ministry of Finance, 2002.

for an extended period. Yet, it is important to address major development issues, which impact upon competitiveness of this sector, such as: an expansion of the scale of production to achieve cost advantages, improvement in technological capabilities, component parts development, and

product and process improvement.

Measuring and Musical Instruments

Table 15 shows the resilience of instruments, musical, measuring sector (HS 90-92), during the 1990s. This sector registered a 12% growth in the number of product lines and a 25% growth in the proportion of the product lines with comparative advantage. While there has been an increase in the number of product lines contesting in intemation~l markets, this development has been accompanied by a 12% rise in the number of product lines with a comparative disadvantage (Table 16).

Table 16 Measuring, Musical Instruments (HS 90-92)

Description	1990	2000	Change (1990-2000)
Total No. of Reported Product Lines	49	55	12%[a]
Product Lines With Revealed Comparative Advantage (RCA<1)[d]	8 (16%)[b]	10 (18%)b	(25%)[a]
Product Lines With Revealed Comparative Disadvantage (RCA<1)	41 (84%)[c]	45 (84%)[c]	12%[a]

Source: International Economic Data Bank (IEDB), Australian National University, and calculations by the author

Notes: The figures in the parenthesis are percentage share in that product category.

This is a relatively high-value added sector, with 18% "Competitively Positioned" product lines, including medical, surgical, dental and veterinary instruments. The balance of the exports are divided into "Emerging Products Group-Tier I and Tier II" (9% and 31 %, respectively) and "Weakly Positioned Products-Tier I and Tier II". While the sector has diversified the export base, majority of its product lines are clustered around the lower end of the comparative advantage index

Table 17. Revealed Comparative Advantage Profile of Measuring. Musical Instrument

Product Categories	Competitive Products Group	Threatened Products Group	Emerging Products . Group		Weakly Positioned Products Group	
			Tier I	Tier II	Tier I	Tier II
Instruments-Measuring, Musical HS 90-92	10 (18)	-	5 (9)	17 (31)	2 (4)	21 (38)

Source: International Economic Data Bank (IEDB), Australian National University, and calculations by the author

Notes: The figures in the parenthesis are percentage share in that product category

There is dichotomy within this sector, with Pakistan being more competitive in relatively less technological and capital-intensive product lines, e.g. surgical instruments, than

those, which require more sophisticated and elaborate manufacturing, such as optical fibres. While Pakistan has the human capital to move into more advanced manufacturing activities, it lacks the necessary physical capital to exploit this potential. Inflows or foreign direct investment in this sector can provide a catalyst for a move towards the higher end of the value chain.

6: Conclusions and Policy Implications

The composition and volume of world trade has witnessed significant changes during the past two decades. However, Pakistan's narrow low value-added export base has failed to create a solid foundation for an export-led growth. The dominance of the textiles and clothing sector is consistent with Pakistan's existing natural and human factor endowments. However, Pakistan has failed to move from low value-added to technology-intensive high-value added manufacturing. **In** the present climate of trade liberalization, Pakistan's textiles and clothing sector will come under increasing competitive pressure from lower cost producers.

Pakistan's economic well being depends on the extent to which the non-agricultural sector remains competitive and contributes to economic growth, exports, investment and employment. Given the present profile of Pakistan's revealed comparative advantage in non-agricultural exports, these outc.omes in turn depend on (a) an industrial restructuring of Pakistan's manufacturing, enabling it to contest high growth sectors of world trade; and (b) the ability of the manufacturing sector to create, sustain and enhance its export competitiveness.

While Pakistan's non-agricultural sector witnessed competitive positioning of some of its sectors, these trends have not been uniform across all sectors. Further, a higher revealed comparative advantage or rapid export growth of a sector does not imply that the sector is displaying high demand growth in world markets. In an ideal situation, there would be the emergence of an export structure that has a heavy concentration in those industries that exhibit high growth in world markets. Such an industrial restructuring would indicate a country's success in contesting the dynamic segments of world trade. While the chemicai sector comes closer to meet the above criterion, the same is not true for Pakistan's leading sector of textiles and clothing.

Within PakistaIl's overall export profile, trade liberalization will exert further competitive pressure. The competitive threat from other low wage economies, such as China, poses new challenges for Pakistan's labour-intensive manufacturing sector. Trade liberalization and market access is a necessary, but not a sufficient condition, to achieve competitive advantage at the enterprise and industry level. Achieving export competitiveness in the rapidly globalized markets would require efforts at micro and macro levels.

To sustain its cost advantage, non-agricultural sector will need to increase total factor productivity. This would require improving capital to labor ratio, by encouraging domestic and foreign direct investment. The importance of changes in trade policy to generate this outcome cannot be underestimated. At the present level of its development,

changes in Pakistan's import structure are crucial to contest high growth markets of the world and remain competitive in traditional export markets by moving up the value chain. A firm's 2.lJiJity to import technology and. key intermediate inputs is critical to contest dynamic export markets. Trade liberalization is a necessary condition to achieve this resolation.

In some instaDr,~s, industrial restructuring will require moving away from qreas of decreasing revealed comparative advantage and the allocation of these resources to the segments of manufacture ::1g with greater export potential. As the analysis indicates, an industrial reorientation Implies a shift towards high-value added technology intensive activities. This would require vigorous efforts to develop and upgrade workforce capabilities throug1:! education, retraining, and skill acquisition programs. In other areas of manufacturing, as in clothing and textiles, creating or maintaining export. con:~)etitiveness would necessitate adding more value than the competitors. This would be achieved through non-price measures to offset high-cost disadvantages that may arise from the Chinese competitive threat. Importantly, pressure for industrial restructuring would become increasingly important with the full implementation of Agreement on Textiles and Clothin~ and growing globalization of production.

The extent to. which Pakistan can succeed in its drive to move into high-value added export industries, in which knowledge and technology intensive industries playa central role, depends Ut:'0TI an emphasis on research and development, technology capabilities, and pace of technology transfer. Similarly, the ability of Pakistan's i1!stitutional and socio-ecotiomic infrastructure to provide helpful conditions for industrial restructuring ought not to be underestimated. Quality and the type of human capital needed for an industrial transformation would become an important issue to overcome.

In the case of Pakistan, inter-industrial forward and backward linkages, between small and medium industries and overseas-hased multinationals, are weak and may not exist. With rapid globalization of production and markets, there is an urgeilt need to foster these linkages to integrate Pakistani SMEs into global production networks. It is important that Pakistan takes a pro-active appro ad: , to encourage the establishment of upstream and downstream production networks with overseas-basf;d firms.

The slow pace of Pakistan's export growth is a manjf~station of supply and demand side constraints. While good macroeconomic management is essential, a more important issue is to build investor confidence, by creating a credible im-estment friendly environment. The "drag factors" that severely inhibit further deepening and broadening of the manufacturing sector should be tackled in conjuncticTI Wi1:h further trade liberalization measures. These inhibiting factors obstruct new start-ups and export ready firms, which are willing to venture into overseas markets. The 'export promotion" policies are important to help ~build new markets for traditional and nori-traditional exports. There is a need to confront issues that constrain "export .:re:.ltion" at the c'Jterprise level.

At the firm level, factors such as worker motivation and skill level, the nature of the product and technology in use, the scale of production, the internal organization of the firm, strategic alliances between local and foreign firms, and ownership of other unique

assets of quality, reliability, and service, are instrumental in the value adding process. These factors, whilst interacting with a given macro environment, play an important role in raising value-added productivity, by influencing labour productivity and price-cost margins at the enterprise level, irrespective oftheir industrial orientation.

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