CHAPTER IV

DETERMINENTS OF EXPORT PERFORMANCE OF INDUSTRIES DURING REFORMS PERIOD

4.1 Introduction

4.2 Theoretical Framework and Empirical Evidence

4.3 Estimation Methodology

4.4 Empirical Findings and Interpretation of Results

4.5 Conclusion
CHAPTER IV
Determinants of Export Performance of Selected Industries During Reform Period

4.1 Introduction

Increased globalization of trade has led a growing number of firms to search beyond their traditional domestic markets and focus on high-growth export markets not only to expand but also to ensure their survival. Moreover, exporting requires minimal financial, human, and other resource commitments in comparison to other entry modes. It tend be most common form of entering the global arena, as it provides the firm with high levels of flexibility and cost-effective way of penetrating new foreign markets quickly (Leonidou 1995; Leonidou and Adams-Florou 1999).

However, as foreign markets tend to be more diverse than domestic ones and in many instances more hostile, a clear understanding of the export performance construct becomes particularly important. It is of vital interest because, it allows for the accumulation of foreign exchange reserves, increased employment levels, improved productivity, and enhanced prosperity (Czinkota 1994).

The relationship between exports and productivity growth is a much debated topic and, in recent years, there has been a considerable volume of research on this issue. Although it is widely believed that export-oriented firms or industries exhibit higher levels of productivity than non-exporting firms or industries, evidence suggesting the direction of causality between exports and productivity is mixed. Some argue that there is a process of ‘learning-by-exporting’. Exports serve as a conduit for technology transfer from abroad and generate technological spillovers into the rest of the economy. Others, however, argue that the relatively high productivity of exporters...
reflects no more than the fact that it is the relatively efficient producers who enter and survive in highly competitive export industries. In other words, there is a self-selection mechanism at work in the export industries. Nevertheless, recent research suggests that the opening up of export trade leads to a rationalization of plants within an industry, so that exports result in productivity gains at the industry level.

India opened up to international trade and investment in 1991. The Indian government has introduced various policies to promote export growth. The major export promotion policies include depreciation of foreign exchange rates, export tax rebates, export credit and bonus, and preferential policies favouring export-oriented FDI. As a result India’s exports have grown rapidly in the post-reform period, from Rs.32553 crores in 1990-91 to Rs 456418 crores in 2004-05. The share of Indian export in the world increases from 0.5 per cent in 1991 to 0.8 per cent in 2005-06. Exports of manufactured products have experienced an even more impressive growth than exports as a whole.

But the question remains: has this export expansion promoted due to productivity growth in the Indian manufacturing sector? In the context of India, most empirical studies have focused on the relationship between exports and income growth; very few studies have investigated the relationship between exports and productivity growth and none of them compared this relationship between capital and labour intensive groups. This study empirically investigates the impact of total factor productivity with other determinants on export performance in the selected industries of manufacturing sector of India at the industry level. The impact of TFP growth on exports is analysed by using an industry-level panel data set for the selected capital intensive and labour intensive industries separately for the period 1993-94 to 2003-04.
4.2 Theoretical Framework and Empirical Evidence

The theoretical foundation for empirical study of determinants of export performance lie in the conventional trade theories based on the Heckscher–Ohlin (H-O) framework, new trade theories and endogenous growth theories. According to the H-O theory, factor endowments determine comparative advantages in production and exports. A country or an industry should export the product that is relatively intensive in factor with which the country is well endowed. Despite its simplifying assumptions, notably no economies of scale, identical production function and preferences across countries, the theory seems to explain much of the developing countries’ pattern in the manufacturing industry.

Further, international trade generates both static gains and dynamic gains in the domestic economy. Static gains accrue from the reallocation of resources between the traded and non-traded sectors following the opening up of the economy to trade. Reallocation of resources enables the country to specialize in those lines of activity in which it possesses a comparative advantage and also enables it to benefit from exchange gains by trading with her partners. Recent theoretical work also points to the gains from resource reallocation at the industry level. When heterogeneous firms are allowed to flourish within each industry, opening up external trade leads to a rationalization of plants. Resources are reallocated from less efficient to more efficient plants, with the less efficient firms exiting from the market (Melitz, 2002, Feenstra, 2001).

Furthermore, the new trade theories and endogenous growth theories (Grossman and Helpman, 1995) have highlighted the dynamic gains from export which include economies of scale, X-efficiency promotion, knowledge accumulation and innovation. By widening the extent of the market, the process of exports raises the
skill levels and dexterity of the labour force; it generates economies of scale and generally enables exporters to enjoy increasing returns. The pressures of international competition forces exporters to cut costs, improve efficiency by eliminating managerial and organisational inefficiencies. Exports may also serve as a conduit for technology and knowledge transfers. Contacts with trade partners or competitors may generate knowledge spillovers, for instance, ideas for product differentiation or production design improvement. This leads to the accumulation of knowledge capital. Exporting also provides opportunities for the exploitation of research success, enhances the incentives to invest in R&D, and encourages technical innovation because of the expansion of markets that international trade creates (Grossman and Helpman, 1991).

In sum, the argument goes; globalization and openness of trade may contribute to export growth via three channels: viz.,

(1) Economies of scale;

(2) Efficiency improvement of exporters through ‘learning by exporting’, X-efficiency promotion and resource re-allocation from less efficient to more efficient plants at the industry level;

(3) Technical progress because of technology spillovers and investment in research and development (R&D).

However, the reasons for the relationships between exports and productivity may actually be the reverse of those suggested by the foregoing argument. A factor of the self-selection of firms may be important. After all, successful firms are more likely to export, because only the productive firms will find it profitable to enter the

---

export market and only they can survive in the highly competitive export market. In other words, the causality may go from productivity to exports.

Although almost all empirical studies find productivity of exporters to be higher than that of non-exporters, the causal relationship between exports and productivity growth is not clear. Empirical evidence concerning the export and productivity relationship is mixed. Marin (1992) and Yamada (1998) provide evidence from the US, UK, Japan and Germany that supports the proposition that exports enhance productivity. Proudman and Redding (1998), based on evidence from cross-country and cross-industry analyses, conclude that trade facilitates productivity growth.

Recent research, however, finds evidence in support of the existence of a self-selection mechanism at the plant level. Aw et al. (1998) use quinquennial Census data for five export-intensive industries in Taiwan and South Korea. Liu et al. (1999) use an annual panel data set of the Taiwanese electronics industry over the period 1989-1993. These studies have found considerable support for the self-selection hypothesis, but limited evidence for any process of learning by exporting in export-intensive industries in Taiwan and South Korea. Using data for a sample of 50,000-60,000 US manufacturing plants over the period from 1983-1992, Bernard and Jensen (1999) also find that the causation runs from productivity to exporting but not in the reverse direction. However, they also find that within a given industry, exporters do grow faster than non-exporters in terms of both shipments and employment. Exporting is indeed associated with the reallocation of resources from less efficient to more efficient plants. Such reallocation effects are found to make up over 40 percent

---

of TFP growth in the US manufacturing sector. Using a panel data set of 20 Swedish manufacturing industries for the period 1980-1995, Andersson (2001) finds that more entry and exit activity is observed in the more open industries, which in turn raises the average productivity of these industries in Sweden.

Although the existing literature has pointed out the transmission mechanisms through which productivity promote exports, which are based on an assumption of the prior existence of a perfect market. In the presence of market failure, these transmission mechanisms may not work effectively. First assumption is that, when the inefficient firms are owned by the state and have a soft budget constraint, they will be bailed out by the state. Such a soft budget constraint relaxes the competition pressure of exports on these inefficient firms. The resource reallocation effect of exports cannot work effectively as well. Second, when the economy lacks a well-developed market exit mechanism, inefficient firms remain in the economic system and continue to be financed by the state-owned banks, the resource reallocation effect of exports cannot work effectively. Third, innovation involves considerable uncertainty and, in practice, many R&D activities failed to achieve commercial success. When export competitiveness is based on cheap labour cost rather than technological advantage, export expansion will not provide incentive for innovation. Consequently, export growth will not lead to technological progress. In sum:

(1) in the presence of market failure, the competition effect and the resource reallocation effect of productive efficiency on exports may be greatly reduced.

(2) When export competitiveness is based on cheap labour cost rather than productivity gain, export expansion does not provide incentive for innovation and technical progress.
Such market failure can often be observed in the transitional economies. Such cheap labour cost orientation often occurs in labour-abundant developing countries. The Indian economy which is in the process of transition has both of these two characteristics. It provides a typical case to test the above propositions.

There is a considerable literature on exports and income growth (Kwan and Kwok, 1995; Shan and Sun, 1998). There is also substantial literature on the impact of enterprise reforms and ownership on productivity growth. Empirical evidence on SOE productivity growth is mixed. Jefferson et al. (1996) and Groves et al. (1994) find positive total factor productivity growth in the SOE sector, and enterprises reforms exhibit positive effect on TFP growth. In contrast, Woo et al. (1993, 1994), Ren (1997) and Wu (1998) find that GDP growth of China is over-estimated, intermediate inputs are over-deflated and there is little TFP growth. Contrary to the evidence on SOEs, the empirical evidence on TVEs all point to considerable TFP growth in the TVE sector (Zheng, 1998 and Fu and Balasubramanyam, 2003).

However, empirical studies on the impact of productivity on export growth in India, as well as in other transition economies, are rare. Therefore, a systematic empirical study is needed to investigate the impact of productivity growth and other factors on exports and the transmission mechanisms in economies that may suffer from considerable market failure and government intervention. This study has the objective of conducting such an exercise separately for selected capital intensive and labour intensive manufacturing industries in India during reform period.

4.3 Estimation Methodology

The study has examined the impact of Total Factor Productivity Growth (TFPG) and other factors influencing on exports performance during the reform period for the selected capital intensive and labour intensive industries in India.
separately. The impact of productivity growth and other determinants which are influencing on exports is tested with the following panel data model.

\[ \text{LnXS}_{it} = \alpha_i + \beta_{it} \text{LnTFPG} + \beta_{it} \text{LnRD} + \beta_{it} \text{LnFDI} + \beta_{it} \text{LnFS} + \beta_{it} \text{LnLI} + \mu \]  

(1)

where \( \text{Ln} \) is the natural logarithm operator, \( i \) and \( t \) denote industries and time respectively, and \( \mu \) disturbance terms, which possess the usual properties. \( \text{XS} \) is the export intensity or export-to-total sales ratio of each industry over the sample period is used to represent export performance as followed by majority of studies. \( \text{TFPG} \) is productivity growth, in which we enter the estimated Malmquist TFP index. At the industry and firm level, productivity gains relative to its competitors enhances an industry’s or a firm’s competitive position allowing it to increase profit margins or sell products cheaper. Lower products prices relative to its competitors would allow it to expand production and gain market share. For industries producing products in highly competitive market conditions like in international market, productivity gains are often crucial just to survive. Industries are all striving to obtain a competitive edge and those industries do not pursue productivity gains are unlikely to survive in the long run. Thus a firm or an industry with higher productivity growth has a competitive edge in the international market compared to their counterparts; therefore \( \text{TFPG} \) is incorporated as one of the major factor of determinants exports.

The impact of FDI on exports is not clearly established in the existing literature on trade. In conventional two-country trade models based on Hickscher-Ohlin (H-O) framework, factor mobility across countries may substitute for trade if production functions are identical (Mundell, 1957), but may compliment trade if capital flows into foreign industries in which domestic investors have a competitive disadvantage (Kojima, 1975). In theories of FDI, two types of production arguments
are known to exist in MNEs; vertical integration and horizontal integration (Horstmann and Markusen, 1992). The former is likely to facilitate trade by increasing exports of capital good and factor services from the home country, and exporting resource-based products from the host country. The latter is a substitute for trade given that MNEs have shifted their production for exports from their home country to the host country.

The empirical evidence on the effect of FDI on exports is mixed. Some cross-country studies indicate that international trade and FDI are substitute and negatively correlated (Horst, 1972; Jeon, 1997), while other find that they are complementary to each other, and positively correlated (Ajarri and BarNiv, 1984, Grosse and Trevino, 1996). In case of India, as export-oriented FDI is actively encouraged, the level of FDI or existence of MNEs will likely to promote exports in Indian manufacturing industries, and thus a positive association between these two is expected.

According to traditional factor endowment theory, an industry should export goods which are produced using the relatively abounded factors of the country, which import goods which are produced using relatively scarce resources of the home country. India is well endowed with labour, and the wage rates are lower relative to other countries. For example, export intensity (export/sales) is 42 per cent in selected labour-industries where as it is only 14 per cent in case of selected capital intensive industries. It indicates that India has comparative advantage in the export of labour intensive goods by making use of abundant and cheap labour compared to her competitors in the international market. This result supports Heckscher–Ohlin (H-O) theory of factor endowment. Therefore, its manufacturing industries have international competitiveness in terms of labour costs. An inverse relationship may
exit between exports and labour costs; that is, the lower the labour costs, the better the export performance, particularly in labour intensive industries. Including the variable of labour costs in the model allows us to test what extent the traditional trade theory is still valid in explaining India’s manufacturing exports.

Innovation has often been regarded as an engine that drives export growth. Product or process innovations may induce technical change and thus push the production frontier upward; they may also serve to reduce production cost depending on the nature of innovation. Therefore, an innovation variable (R&D) is also included as one of the major determinants of exports. Ideally innovation should be measured by innovation outputs such as the number of patents or the value of new sales. However, due to data restriction, innovation of each industry is proxied by its R&D intensity measured as the ratio of R&D expenditure to net sales turnover for each industry. Nevertheless, we should bear in mind its limitation in that R&D expenditure is only one of the major inputs of innovation.

Compared with domestic sales, exporting incurs extra costs, such as those for transportation and communication. It is also more risky due to uncertainties in international markets and, economic climate in trading partner countries. Collecting information, launching overseas sales-promotion campaign and adapting their products to foreign markets can be costly to exporting firms. This problem can be particularly severe for small firms. In comparison, large firms may be better placed for export as they have more resources with which to the foreign market. Therefore economies of scale are an important factor influencing the export performance of industries. On the other hand, as Glejser et.al (1980) point out, if large firms are in a leading or monopolistic position in the domestic market, they may have less incentive to sell abroad. In contrast small firms may have greater incentive for international
expansion and seek greater market share elsewhere. Given interaction between the factors, the sign of the variable in undetermined a priori. In this study Firm size (FS) is measured by average output per firm in industry i to total output of industry i.

There is evidence that there is a two-way relationship between exports and TFP growth at the industry level. This suggests that the level of exports is an important factor affecting the TFP and in turn, TFP is also expected to boost industry’s exports. This implies that the estimation of single equation for exports using OLS method leads to spurious results. Therefore, the Two-Stage Least-Square (TSLS) method is applied for the panel data of this study. One year lagged TFPG (TFPG\(_{t-1}\)) and XS (XS\(_{t-1}\)) and other exogenous variables (RD, FDI and FS) are used as instrumental variables because of the short time period of the data set (Nair-Reichert and Weinhold, 2001) to estimate coefficients of the model.

4.4 Empirical Findings:

As mentioned in the methodology, the study applied Two-Stage Least Square (TSLS) method to estimate econometric model, because of probable endogeneity problem between export and productivity. Export performance of capital intensive and labour intensive industries is estimated separately and compared with each other. The study has used statistical software Eviews 4.0 to estimate the model. Results of econometric model on the export performance of capital intensive industries are presented in Table-4.1.
Table 4.1: Export Performance of Selected Capital intensive Industries in India during the Reform Period (1993-94 to 2003-04).

**Dependent Variable:** Ratio of Exports to Sales

<table>
<thead>
<tr>
<th>Industry Variables</th>
<th>Drugs &amp; Pharmaceuticals</th>
<th>Chemicals</th>
<th>Dyes &amp; Pigments</th>
<th>Metal &amp; Metal products</th>
<th>Cars &amp; Multi Utility Vehicles</th>
<th>Selected Industries as Whole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.1007 (0.0427)**</td>
<td>1.3061 (0.0357)**</td>
<td>1.0952 (0.1293)</td>
<td>0.9623 (0.0509)**</td>
<td>0.0164 (0.0257)**</td>
<td>20.3564 (0.0462)**</td>
</tr>
<tr>
<td>TFPG</td>
<td>0.0517 (0.0244)**</td>
<td>0.0953 (0.0420)**</td>
<td>0.0563 (0.0372)**</td>
<td>0.0558 (0.1811)</td>
<td>0.1031 (0.0451)**</td>
<td>0.5301 (0.0462)**</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>1.0204 (0.0490)**</td>
<td>0.6531 (0.0501)**</td>
<td>0.9860 (0.1509)</td>
<td>0.9695 (0.2601)</td>
<td>0.2964 (0.0281)**</td>
<td>0.0215 (0.1640)</td>
</tr>
<tr>
<td>FDI</td>
<td>1.0568 (0.0250)**</td>
<td>0.9654 (0.0390)**</td>
<td>0.0.354 (0.2365)</td>
<td>0.2684 (0.2901)</td>
<td>1.3560 (0.0025)*</td>
<td>1.6548 (0.0460)**</td>
</tr>
<tr>
<td>FS</td>
<td>1.0024 (0.0010)*</td>
<td>0.7900 (0.0160)**</td>
<td>0.9494 (0.0370)**</td>
<td>0.9667 (0.0450)**</td>
<td>0.2696 (0.0451)**</td>
<td>0.0029 (0.009)*</td>
</tr>
<tr>
<td>LI</td>
<td>0.0013 (0.2150)</td>
<td>0.0254 (0.1590)</td>
<td>0.6101 (0.8849)</td>
<td>0.0022 (0.3116)</td>
<td>0.0451 (0.1358)</td>
<td>0.0259 (0.1650)</td>
</tr>
<tr>
<td>Adjusted R-Squared</td>
<td>0.99</td>
<td>0.98</td>
<td>0.99</td>
<td>0.99</td>
<td>0.60</td>
<td>0.89</td>
</tr>
<tr>
<td>Total Pannel Obvs.</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * 1 % level of significance, ** 5% level of significance, *** 10 % level of significance

Pro. values are given in parenthesis.

Source: Computed by the researcher

The coefficient of TFPG is positive and statistically significant, indicating that TFPG plays a strategic role in promoting export of drugs and pharmaceuticals, cars and multi utility vehicles at 1 per cent level and also significant for dyes and pigments and chemicals at 5 per cent level. But the impact TFPG is positive not significant in case of metal and metal products. This may be because the rate of
growth TFP is positive for former, but metal and metal products have recorded a productivity regress. But on the average for selected capital intensive industries the estimated coefficient of TFPG is positive and significant. It implies that the growth in productivity has generated positive effect on export performance on this segment of manufacturing industries in India.

The estimated coefficient of R&D intensity variable is positive but statistically insignificant for all the individual industries and selected industries as whole. This indicates that capital intensive industries’ exports contains fewer R&D components, implying that the industries have not established technological competition, and thus R&D intensity appears less important than other factors in explaining capital intensive industries exports in India. Moreover, R&D investment is not innovation outcome. It is only one of the major inputs of innovation in addition to human capital, innovation collaboration, technological opportunity and government support (Porter 1980; Love, Ashcroft and Dunlop, 1996). Innovation is not a simple linear transformation with basic science and other inputs at one end of a chain and commercialisation at the other (Hughes, 2003). There is an efficiency issue in the innovation process. How to manage innovation efficiently is one of the most important challenges faced by organisations. Therefore, the insignificance of the estimated coefficient of the R&D variable is very likely due to the scanty investment and inefficient use of R&D resources in India. This result is consistent with the fact that R&D expenditure in India only accounted for 1.1 per cent of GDP.

The coefficient of FDI is positive and statistically significant for the selected capital intensive segment as aggregate, indicating that FDI plays a strategic role in promoting exports of this sector. This may be because FDI does not merely represent physical capital flow to the host country, but it also constitutes a bundle of managerial
skills, better knowledge of international marketing, and a well established distribution channel in the world market. All these advantages may have generated positive effect on export performance in a sector. The result may also show that India’s policy of encouraging FDI in low is generating positive results. Though, FDI positively influenced on export performance in capital industries as in aggregate, but its impact is differ across selected capital intensive industries. For example, the impact of FDI on export intensity is positive and significant for drugs and pharmaceuticals, chemicals, and car and multi utility vehicles, but positive not significant for other two, namely, dyes and pigments, and metal and metal products. The reason may be flow of FDI towards former group or in other words former group attracted high FDI, as it evident in post reform period.

Firm size (FS) has a positive sign and significant at 1 per cent for drugs and pharmaceuticals, and at 5 per cent significant in other industries. This suggests that economies of scale can help to offset the cost of expanding overseas. The reduction in the production costs resulting from economies of scale enables firms to cover extra costs involved in exporting and making exports profitable. This finding corroborates with that of Chetty and Hamilton (1993), in which firm size is found to have a positive impact on export performance. The finding suggests that the new trade theory, which stresses the role of economies of scale, can also be used to explain industries exports. The size of firm is also significant at 1 per cent level for selected industries as whole.

The result suggest that labour costs, proxied by labour intensity (L) measured as the ratio of wages and salaries to gross value added in the industry, which is used by Milner and Pentecost (1996), is negative but not significant for capital intensive industries’ segment as whole for selected industries and also
insignificant for individual selected capital intensive industries. The result for the labour intensity variable corroborates with the estimation for UK manufacturing in which the variable exhibits the negative sign and is statistically insignificant shows UK manufacturing has no comparative advantage in labour endowment (Milner and Pentecost, 1996). Thus capital intensive industries have no comparative advantage in terms of labour abundant in India compared to labour intensive industries in which LI variable is negative and statistically significant implies Indian labour intensive industries have comparative advantage in international market. Thus, it is appropriate for India’s manufacturing sector to adopt a cost focus strategy to increase their export share in the world market, given that the labour force in India is an abundant factor in production.

In sum, most of the results are consistent with theoretical prediction about the determinants of export performance in capital intensive segment. The coefficients of most explanatory variables are correctly signed and statistically significant. TFPG is significant for all industries except metal and metal products, but the impact of R&D is significant only in three industries, namely, drugs and pharmaceuticals, chemicals and cars and multi utility vehicles. Firm size is also significantly determined export performance in all selected industries except dyes and pigments. However the impact of LI is positive and but insignificant for all the five industries.
Table – 4.2: Export Performance of Selected Labour intensive Industries in India During the Reform Period (1993-94 to 2003-04).

**Dependent Variable:** Ratio of Exports to Sales

<table>
<thead>
<tr>
<th>Industry Variables</th>
<th>Readymade Garments</th>
<th>Gems &amp; Jewellery</th>
<th>Leather Products</th>
<th>Tea &amp; Coffee</th>
<th>Cotton Textiles</th>
<th>Selected Industries as Whole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>15.221 (0.0618)**</td>
<td>3.8340 (0.4838)</td>
<td>1.7135 (0.0168)**</td>
<td>4.6052 (0.0371)**</td>
<td>8.0301 (0.0450)</td>
<td>36.3012 (0.0903)**</td>
</tr>
<tr>
<td>TFPG</td>
<td>0.2826 (0.0827)**</td>
<td>0.1414 (0.1467)</td>
<td>0.1615 (0.1912)</td>
<td>0.0704 (0.3787)</td>
<td>0.1737 (0.1156)</td>
<td>1.0583 (0.3142)</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>3.8144 (0.6018)</td>
<td>1.1179 (0.1962)</td>
<td>0.0372 (0.2345)</td>
<td>1.7031 (0.1145)</td>
<td>1.0931 (0.2497)</td>
<td>0.0443 (0.3748)</td>
</tr>
<tr>
<td>FDI</td>
<td>0.0354 (0.0748)**</td>
<td>0.2587 (0.3510)</td>
<td>0.0254 (0.2369)</td>
<td>0.6841 (0.5612)</td>
<td>0.0583 (0.6120)</td>
<td>0.5147 (0.2367)</td>
</tr>
<tr>
<td>FS</td>
<td>2.8218 (0.0490)**</td>
<td>-0.5906 (0.2603)</td>
<td>0.2933 (0.0884)**</td>
<td>1.5606 (0.1341)</td>
<td>-0.1507 (0.1407)</td>
<td>0.02455 (0.5564)</td>
</tr>
<tr>
<td>LI</td>
<td>0.1004 (0.0102)*</td>
<td>1.2296 (0.0461)**</td>
<td>0.1031 (0.0380)**</td>
<td>1.8666 (0.0410)**</td>
<td>0.2608 (0.0808)**</td>
<td>0.3404 (0.0214)**</td>
</tr>
<tr>
<td>Adjusted R-Squared</td>
<td>83</td>
<td>87</td>
<td>59</td>
<td>73</td>
<td>68</td>
<td>72</td>
</tr>
<tr>
<td>Total Panel Obs.</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * 1 % level of significance, ** 5% level of significance, *** 10 % level of significance

Pro. values are given in parenthesis.

Source: Computed by the researcher

Results of the export performance of labour intensive industries are reported in Table-4.2. The coefficient of TFPG is positive and but statistically insignificant for selected labour intensive industries as whole, indicate that TFPG plays no role in promoting exports of this group. But at individual industry level it is significant only for readymade garments at 10 per cent level and not for other industries. It may be because of, as we are noted in productivity performance these industries experienced
a productivity regress, so TFPG has not promoted exports of labour intensive industries in India.

The estimated coefficient of R&D intensity variable is positive but statistically insignificant for all the selected labour intensive industries and selected industries group as whole. This implies that labour intensive industries’ exports also contains fewer R&D components, implying that the industries have not established technological competition, and thus R&D intensity appears less important than other factors in explaining labour intensive industries exports in India. This result is same as for the capital intensive industries’ group as whole, but R&D coefficient was significant for some of the industries in capital intensive group, namely, pharmaceuticals, chemicals and car and multi utility vehicles, but it is not significant for non of the industries in labour intensive group; it means Indian manufacturing industries give less importance to research and development activities. However, there is a difference in the R&D intensity between these two groups and the quantum of R&D expenditure is negligible in labour intensive industries, whereas some capital intensive industries, such as car and multi utility vehicles and drugs and pharmaceuticals have a higher R&D intensity among others in capital intensive segment. In the era globalization the survival of a firm or an industry either in international market or even in domestic market depends on its levels of innovations. If the Indian industries do not give importance to R&D activities, they fail to get the benefit of openness of trade and moreover it is endanger to the very survival.

The impact of FDI is positive but statistically insignificant for labour intensive segment as group, which indicates that FDI is not an important determinant of promoting exports of this sector. This may be because FDI is not flown towards this segment of manufacturing sector in India during reform period. Hence, the influence
of FDI on exports of labour intensive industries is insignificant. Also this is true for all selected labour intensive industries except readymade garments where it is positive and significant but at a higher level viz, 10 per cent. Therefore, in the era of globalization FDI flew towards capital intensive industries and not to labour intensive segment.

Firm size (FS) has a positive sign and significant at 5 per cent only for readymade garments and it has no influence in promoting the export performance of other labour intensive industries under consideration, that is, FS is positive and insignificant for leather products and tea and coffee, but it is negative and insignificant for the remaining industries. This implies that economies of scale are not an important determinant in helping to offset the cost of expanding overseas. Therefore these industries are not benefited from the reduction in the production costs resulting from economies of scale and unable to make exports profitable. The result for the firm size variable contrast with the estimation of Chetty and Hamilton (1993), in which firm size is found to had a positive impact on export performance. The size of firm variable is also not significant for selected labour intensive industries as aggregate. Thus economies of scale or firm size is not a significant determinant of exports of labour intensive industries in India.

The result advocate that labour intensity (LI) is positive and significant for all labour intensive industries’ segment as whole and also for each selected labour intensive industries. The result for the labour intensity variable confirm the abundant labour force is an important factor determining labour intensive industries’ export in India as predicted by traditional trade theories. This result for LI variable is contrast with the estimation for UK manufacturing (Milner and Pentecost, 1996). Thus labour intensive industries have comparative advantage in terms of labour abundant in India.
compared to capital intensive industries in which LI variable is negative and statistically significant, implies Indian labour intensive industries have comparative advantage in international market. Hence, it is appropriate for India’s manufacturing sector to adopt a cost focus strategy to increase their export share in the world market, given that the labour force in India is an abundant factor in production.

In sum up, most explanatory variables have correct sign and corroborates with theoretical predictions. In labour intensive segment as group, all explanatory variables are not significant in determining export performance except labour intensity, supports traditional trade theory which states that a country as a comparative advantage in exporting abundant factor intensive commodity, namely, labour in case of India, also found true in China (Liu X and Chang Shu, 2001). The same result is also found at industry level estimates except for readymade garments where TFPG and FDI are positively influenced on export along with LI. Whereas, in case of capital intensive industries as group and for majority of individual industries the results are opposite, that means TFPG, FDI and FS have improved exports of this segment. This empirical evidence indicates that the export competitiveness of labour intensive industries rely on comparative advantage of abundant factor.

Conclusion

The study in this section has empirically examined the role of industry-specific characteristics in effecting export performance at the industry level, based on panel data analysis. In particular relationship between TFPG, FDI, industrial competitiveness and export performance has been tested explicitly by classifying Indian manufacturing sector as capital intensive and labour intensive industry groups. The evidence from this study suggests that the determinants of export performance at group’s level (capital and Labour) differently influenced on export performance. FDI
and TFPG are significantly influenced export for capital intensive segment but not for
labour intensive sector, whereas labour intensity variable significantly impact on
labour intensive sector but not influenced on the exports capital intensive segment.
The results indicate that the export performance and trade patterns in Indian industries
are open to a variety of explanations offered by the traditional factor endowments and
new trade theories.

The India’s manufacturing sector have so far realized the comparative
advantages of abundant labour resources since they export mainly labour intensive
products and perform better in the international market next only to China. The
findings indicate that it is appropriate for Indian firms to compete in international
market based on the comparative advantage of low labour costs at their current stage
of development. However, the evidence suggests that the technological
competitiveness proxied by R&D intensity, a less important role in determining
export performance in Indian industry, since an insignificant result for the variable of
R&D intensity has been observed in the export model for both capital and labour
intensive segments, indicating technological elements embodied in exports are
relatively low. The lack of ability to provide varieties of differentiated products and
developing new products is the weakness of Indian export sector.