Foreign Multinationals and Export Competitiveness: The Case of Indian Manufacturing

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Abstract

Most of the exporting countries in the world have witnessed an export boom accompanied by substantial inflows of foreign direct investment (FDI) in the same period. While there are many emerging economies which claimed to have increased the export oriented FDI successfully in the recent decades, the present study try to find out the factors that determines the export intensity of the foreign affiliates by using the panel data during the period 1999-00 to 2008-09. The use of econometric model and a rich set of plant variable in estimating the determinants of export performance of the foreign affiliates of Indian manufacturing does not show straight forward as expected. It reveals that the foreign firms export intensity in the entire manufacturing sector has a direct association with domestic competition, domestic firms export intensity and R&D activities of the foreign firms whereas it has inverse association with the domestic market size. However, the findings at the industry level shows different results compared to the entire manufacturing.

Key Words: Foreign Direct Investment (FDI), Export Competitiveness, foreign affiliates, Panel Data, domestic competition, domestic market and R&D etc.

Introduction

A first step in the international growth strategy of a firm is participation in the competitive export market. This is well supported by the existing research that exporting firms have bigger survival rate and achieves higher employment growth compared to non-exporting firms (Bernard and Jensen, 1999; Muuls and Pisu, 2007). This export orientation of firms may arise through a combination of factors, both internal and external. The external factors such as international investment and the presence of multinational enterprises that brings a bundle of intangible assets like technology, skill, management know-how, brand names, and information on global market is turning to be a key force in the modern times. Similarly, the role of internal factors such as opening of political boundary, change in the existing policy, domestic development, change in composition of inputs etc. cannot be ignored in this regard.

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While there exists some consensus on the impact of FDI on domestic firms, Kessing (1983), Rasiah (1994), views that the participation of local firms in export markets too often arises from spillover initiated by foreign firms. Similarly, Liu and Shu (2003) and Pradhan (2005-06) on China, Lutz and Talavera (2004) on Ukraine have given ample evidence of strong role of FDI in the export performance with the host countries. In Indian context, studies by Siddharthan and Nollen (2004) on Indian information technology sector have supported the role of foreign affiliates in export activities. However, in contrary to these strong evidences, the studies by Kumar and Siddharthan (1994), Pant (1993) on Indian manufacturing, Chudnovsky and López (2004) on MERCOSUR countries suggested a relatively minor role of FDI in export promotion.

A couple of questions may arise from the findings of above studies. First, is the role that the host country plays, important in determining the export of the firms? Or is the export of the firms determined by the types of FDI inflow to the host country? Many studies in this regard increasingly emphasize the ability of the firms in the export market increases when there is an increase in the export oriented FDI to the host country. Some Asian countries, viz. China, Malaysia and Indonesia etc. have claimed to have increased the export oriented FDI successfully in the recent decades. However, the experience of these countries cannot be generalized to India, given the lower level of infrastructure and rigidity in both the factor as well as commodity markets (Srinivasan, 1998). Similarly, it is implicit that, if the motive behind FDI is to capture domestic market by marginalising the export markets on taking advantage of the country's comparative cost, then FDI may not contribute significantly to export growth.

Second, what influences a firm to export in the international market? Be it domestic or foreign firms, a simple answer that can be extended in this ground is that the most competent and successful firms of a country tend to export. Another idea that has been illustrated in several episodes supports this by saying that each firm has their own firm specific comparative advantage over their counterparts, leading to the exploration of the international market. Findings in context of US economy reveals that during the period of 1966 to 1987, the US share of world

exports of manufactured goods fell from 17 percent to about 11 percent, a decline of a third. Over that same period, US- based multinational firms' share of exports, from the parent companies and their overseas affiliates, was quite stable. Other than US, the example from Sweden finds that, the export shares of Swedish manufacturing in world manufactured exports fell by almost a third between 1965 and 1990, but the share of Swedish multinationals' remained stable or even increased a little during the same period (Lipsey, 2002). In this context of existing findings, it is evident that the comparative advantage of foreign firms over the domestic firms leads to capturing of export market. In other words, the export of a firm depends on the types of competition and the number of competitors faced in the domestic market. Azam et al (2000) on using the survey data of the Ivoirian firms showed that the probability of a firm exporting is negatively related to the number of competitors in the domestic market when the latter is small. In other words, with the increased competition the probability of a firm exporting decreases. While some other studies by Agarwal (2002) and Kumar and Pradhan (2003) say that the export performing role of FDI varies as per the shifts in the policy regime of the host country. They also indicate that during the reform period, the foreign firms have higher export orientation than the domestic firms in the Indian manufacturing. Findings by Robert and Tybout for Colombia (1997) proves that the plant characteristics such as plant size, plant age and the structure of ownership have positive relation with the propensity to export. Similarly, Aitken et al (1997) study provide ample evidence that plant size, wages and especially foreign ownership are positively related to the decision of export. In the line of these studies we use a rich set of plant variables and plant characteristics to find the determining factors of export of the domestic and the foreign affiliates. The paper aims to find econometrically the determinants of export performance of the foreign affiliated firms in the Indian manufacturing during the period 1999-00 to 2008-09.

1. **Hypothetical Issues and the Model**

Looking at the above studies in the Indian and the global context, the prime hypotheses tested in this study includes-

i. The foreign firms are more export oriented than the domestic firms.

ii. The export intensity of foreign firms is affected by the heterogeneity of firm characteristics and the performance of the domestic firms.

To test the first hypothesis, the study attempts to sketch a broad outline on deriving the following-

- Percentage of exporting firms per sector. (domestic and foreign)
- Distribution of exported share among exporting firms.
- Share of each market in the total exported value.

The second hypothesis is studied by fitting a regression of the following form. This tests the factors that determine the export intensity of the foreign firms on taking the export intensity as the dependent variable and several other factors as the explanatory variables. The regression is of following form.

$$\mathbf{FEXINT_{it} = \beta_1 DMKT_{it} + \beta_2\ DCOM_{it} + \beta_3\ DEXINT_{it} + \beta_4\ RDINT_{it}\ +}$$
$$\mathbf{+\ \beta_5\ Size_{it} + \beta_6\ AGE_{it} + \beta_7\ REER + e_{it.}} \quad ………….. (1)$$

Where;

$\mathbf{FEXINT_{it}}$ = Export intensity of foreign firms

$\mathbf{DMKT_{it}}$ = Size of domestic market for i^{th} industry's product and for t^{th} year. It will be derived as a sum of domestic sales of the ith industry (total sales minus exports) and imports of ith product.

$\mathbf{DCOM_{it}}$ = Domestic competition proxied by the percentage share of domestic firms sale in domestic sales (total sales minus exports) of ith industry in t^{th} year.

$\mathbf{DEXINT_{it}}$ = Export-intensity of domestic firms in i^{th} industry and in t^{th} year. It is equal to the percentage share of exports in total sales of domestic firms in i^{th} industry and t^{th} time period.

$\mathbf{RDINT_{it}}$ = R&D intensity, will be calculated as the percentage of total R&D expenditures in total sales of ith industry in t^{th} year.

$\mathbf{ADVINT_{it}}$ = Advertising intensity will be proxied by the total advertising expenses as a percentage of total sales of ith industry in t^{th} year.

$\mathbf{SIZE_{it}}$ = Average firm size in i^{th} industry in t^{th} year. This will be derived by the ratio of net sale of the ith firm to the net sale of the largest firm of the same industry group

$\mathbf{AA_{it}}$ = Average firm age in i^{th} industry in t^{th} year.

$\mathbf{REER}$ = Real Effective Exchange Rate

$\mathbf{\varepsilon_{it.}}$ = time invariant unobserved permanent industry specific effect.

This model will be estimated for a panel dataset of Indian manufacturing industries for the period 1998–2008.

The variables used in the estimation process have its significance in determining the export intensity of the foreign firms. These variables are also widely recognized in the existing studies in various contexts of foreign direct investment abroad and firm performances.

3. Variables and its Significance

The variables used in the estimation process have its significance in determining the export intensity of the foreign firms. These variables are also widely recognized in the existing literature in several contexts of foreign direct investment abroad and firm performances. These are explained as under.

3.1. Domestic Market

At times export is subject to the size of the domestic market. This is nothing but the sum of domestic sales (total sales minus export) plus domestic imports of the same product. If the domestic market is quite large and the return from the selling is reasonable good then it might crowed-out the export of some firms. At the same time many foreign multinationals overseas investment aims at capturing the domestic market which depends upon size, income level, urbanization, stability and growth process, access to regional markets, distribution and demand patterns (Sanjay Lall, 1997) whereas some firms' investment is to utilize the resource and cheap inputs (labour and raw materials) to export in the world market. Hence, the impact of domestic market on the export of the foreign firms is ambiguous. However the study by Economic Commission for Latin America and the Caribbean (2004) on Brazil found that increased competitive pressure from imports and the contraction of the domestic market in the late 1990s have forced foreign firms in Brazil to export a larger proportion of their output.

3.2. Domestic Competition

The demonstration and the competition effect of the local firms some time play a decisive role in determining the export of the foreign firms. In other words if the domestic firms are strongly competent enough in the domestic market then the foreign firms might look for the external market. Blomstrom *et al.* (1994), for Mexico manufacturing found that local competition had forced multinational firms to increase the technology transfers to their Mexican affiliates. On the other hand if the domestic demand is high and the motive behind the foreign firm is to capture domestic market (tariff jumping type investment) then it may not contribute to export growth

(Sharma, 2000). However it is well known that an outward oriented regime encourages export-oriented FDI while an inward-oriented policy regime attracts FDI mainly to capture domestic rather than export markets (World Bank, 1993).

3.3. Domestic Export Intensity

The domestic firms export intensity is likely to have an inverse relationship with the export of the foreign firms. It is expected that if the foreign firm shows a positive spillover on the domestic firm then in due course of time the domestic firm may give a strong competition to the foreign firms in the export market. Higher the export of the domestic firms higher will be the competition faced by the foreign firms in the international market. Hence, the foreign firms may intend to capture the domestic market more over the foreign market.

3.4. R&D Expenditure

The learning process leads firm to eventually participate in new product development and increase their base in international market. While beginners only learn and absorb, firm typically hire research personnel to learn and develop new products as they get closer to technology frontier (Pavitt, 1984). The indigenous technological efforts of the firm measured as the R&D expenses incurred as percentage of sales. Holding other factors constant, firms with higher R&D is expected to have higher propensity to export. This may be that higher R&D would explore new destinations and makes the product more competitive by reducing the cost of production. At the same time it depends on the kinds of R&D activities undertaken by the firm i.e. if the R&D is for the export orientation then it is expected to show positive sign.

3.5. Firm Size

The issue of relative size of a firm in oversees acquisition activities has an extensive body of literature. Overseas investment and the export activities are very often undertaken by the firms with large size. This is because the large sized firm has the advantage of large resource base, easy access to the market information, knowledge of procurement sources, division of labour and economies of scale may reduces the per unit cost involved in the production process. This makes the firm competitive in the export market. Hence it is expected to influence positive to the export behaviour of the firm. However in practice it is seen that many small manufacturing unit of China has increased their export share in the international market.

3.6. Average Age

The average age of a firm/industry is likely to influence positively the export performance in the international market. This is because the older established firm may have the experience to come across the favorable and adverse economic conditions to sustain their business. This can be a source of monopolistic advantage for their oversees export. On the other hand mostly the experienced and established multinationals[1] invests abroad and it is expected that their knowledge and skill would play an edge over the domestic firms in the international market. Hence it is expected to play a positive role in determining the export of firms.

3.7. Real Effective Exchange Rate

The devaluation of the currency is a major reason for investment by foreign affiliates. This devaluation of currency has been accompanied by dominance of foreign multinationals in trade say for instance countries like Indonesia, Thailand, India, Malaysia, Mexico, Argentina and so on (UNCTAD, 1998). Similarly in context to Indian export the existing findings suggest that demand for Indian exports increases when its export prices fall in relation to world prices. Furthermore, the real appreciation of the rupee adversely affects India's exports (Sharma, 2000). Export supply is positively related to the domestic relative price of exports and higher domestic demand reduces export supply. World income appears to have a positive impact on export demand and the appreciation of the real effective exchange rate (REER) reduces export demand (Joshi and Little, 1994 and Srinivasan, 1998). Hence the devaluation of currency is expected to influence positively on the export of the foreign firms, as the prime aim of the firm is to make profit be it in the domestic or in the foreign market.

However, the impact of these variables as a source of monopolistic advantage for export is ambiguous. This is because besides these there are several other factors which influence the export decision of a firm. As documented in several literature, other than the financial cost and competition from the domestic market, there comes the cost in the form of various restrictive clauses such as the quantitative restrictions, high tariff, import duties, host countries policy targets etc. which might affect against the export performance of firms. Similarly if the host

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[1] Lall (1983), Chen (1983) in their study cited that the age factor plays an important role and encourages the investors to invest abroad.

country policy is targeted to operate so as to induce a competitive domestic environment, it is likely that the export behaviour of the foreign firms may get affected adversely.

4. Database and Firm Selection

The classification is based on the IMF[2] guideline of 10% promoter holdings for identifying FDI enterprise. Data for the manufacturing firms at the two digit and three digit, covering the major industry group is taken as per the NIC 2004 classification from the PROWESS database which contains the information of more than 15,000 firms registered with the Bombay Stock Exchange (BSE). Initially a total of 3055 firms are selected from the database during the said period. These observations are cross-checked with the available information of stock exchange official directory provided by BSE to check the exact pattern of equity holdings so as to include the firms in their right subgroups. . In this process, we lost about 14.5 percent of the initial observations, reducing the total number of samples to 2616. Those firms which have not reported data for a particular period and re-entered the database after a gap are excluded from our analysis. However, the new firms entered to the database after 1999-00 and reported the data for all years (from the year of entry) are included in the study. In this process the final number of sample firms left for the analysis is 2013. The Classification is as under-

Table-1: Classification of Firms on the basis of Foreign and Domestic

Firms	Domestic Firms	Foreign Firms	Total
Food and Beverages	179	16	195
Chemical Industries	404	67	471
Machinary and Equipments Products	113	37	150
Metal and Metal Products	181	27	208
Electronics Industries	115	38	153
Transport Products	87	31	118
Textile and wearing appearial	210	15	225
Others[3]	432	61	493
All Manufacturing	**1721**	**292**	**2013**

Source: Authors Estimation from the Prowess Database, CMIE.

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[2] IMF, Balance of Payments Manual (1993).
[3] Leather and leather products, Wood and Wood products, Paper and paper products, Publishing and printing media, Rubber and plastic products, Other non metallic products, Office accounting and computing machinery, Medical Precision, optical instruments watches and Clocks and Furniture and Manufacturing N.E.C.

Since other industry group includes many diversified industry groups which produces heterogeneous products, hence our objective is tested for the entire manufacturing and the major industry groups except the other[4] industry group.

5. Trends and Patterns of Export Orientation: Entire Manufacturing

A widespread argument in the 'export-led-growth' literature is that export-orientation, is the key to fast growth and industrialisation for developing countries. In many popular expositions of this doctrine, exporting firms are regarded as necessarily competitive and progressive. The choice of dealing between export and the domestic market somehow depends upon the kind of competition a firm is facing. It is quite possible that an exporting industry will stop exporting at some point when the number of competitors increases, and then will become exporter again at a higher level of competition (Azam et al, 2000). Table-2 shows the percentage of competitors in the domestic as well as in the foreign firms in the export market. Given the available database, a total of 2013 firms are analysed to observe the exporting firms in both the domestic and foreign sectors. Findings for the entire manufacturing (292 foreign and 1721 domestic firms) shows that, the share of exporting firms' in the foreign manufacturing is significantly higher than the share of exporting firms in domestic manufacturing. The same is observed at the sector level where the exporting firms in the foreign firms is higher than the exporting firms in the domestic firms for all the industry groups except the exception of textile industry.

Table-2. Percentage of Exporting Firms in Each Industry Group

	All Firms		Food and Beverages		Textile		Chemical Products	
Year	**Foreign**	**Domestic**	**Foreign**	**Domestic**	**Foreign**	**Domestic**	**Foreign**	**Domestic**
1998-99	79.5	60.4	75.0	33.5	41.7	72.4	83.6	64.9
1999-00	79.1	59.0	81.3	36.3	41.7	70.5	82.1	61.6
2000-01	79.5	61.0	75.0	34.1	41.7	73.8	83.6	64.1
2001-02	79.1	61.2	81.3	38.5	33.3	69.5	83.6	64.6
2002-03	81.2	61.4	81.3	38.0	33.3	70.5	82.1	64.1

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[4] This is because the findings of one particular coefficient cannot be generalised for all industries in the other industry group.

2003-04	81.2	62.0	75.0	37.4	33.3	71.4	83.6	62.4
2004-05	81.5	62.1	68.8	35.8	41.7	71.4	85.1	64.1
2005-06	82.9	62.2	81.3	39.1	41.7	69.0	86.6	62.9
2006-07	84.6	62.5	81.3	38.5	25.0	65.7	86.6	64.9
2007-08	83.9	62.6	81.3	39.7	33.3	65.7	86.6	64.4

Continued…………..

Basic Metal		Electronics		Machinery		Transport	
Foreign	**Domestic**	**Foreign**	**Domestic**	**Foreign**	**Domestic**	**Foreign**	**Domestic**
71.4	53.1	84.2	69.6	89.2	71.3	83.9	65.5
71.4	53.1	78.9	69.6	86.5	64.4	83.9	67.8
71.4	55.0	81.6	64.3	83.8	70.3	80.6	72.4
76.2	54.4	78.9	66.1	91.9	78.2	77.4	70.1
76.2	56.9	81.6	67.8	91.9	76.2	77.4	73.6
76.2	61.3	84.2	69.6	94.6	78.2	90.3	75.9
76.2	60.0	84.2	67.0	94.6	77.2	90.3	78.2
85.7	63.1	78.9	67.0	94.6	78.2	90.3	78.2
85.7	64.4	81.6	65.2	94.6	79.2	90.3	81.6
81.0	65.0	78.9	67.0	94.6	79.2	90.3	81.6

Source: Computed from PROWESS Database

This is quite understandable that the foreign firms have more export orientation than the domestic firms. From this, it cannot be generalised that the inflow of FDI to Indian economy is strictly export oriented in nature. This is because it does not provide a clear picture of distribution of total sales of the foreign firm in the domestic and foreign markets. Similarly, we also look at the share of foreign firms export in the total export to give an overall idea on the nature of FDI inflow. In this regard the following diagrams represents two aspects of the entire manufacturing , first, the export share of foreign and the domestic firms in the total export, second, the share of export as percentage of the sales of the respective groups of firms.

Fig-1: Export Share and Export as Percentage of Respective Sales (Entire Manufacturing)
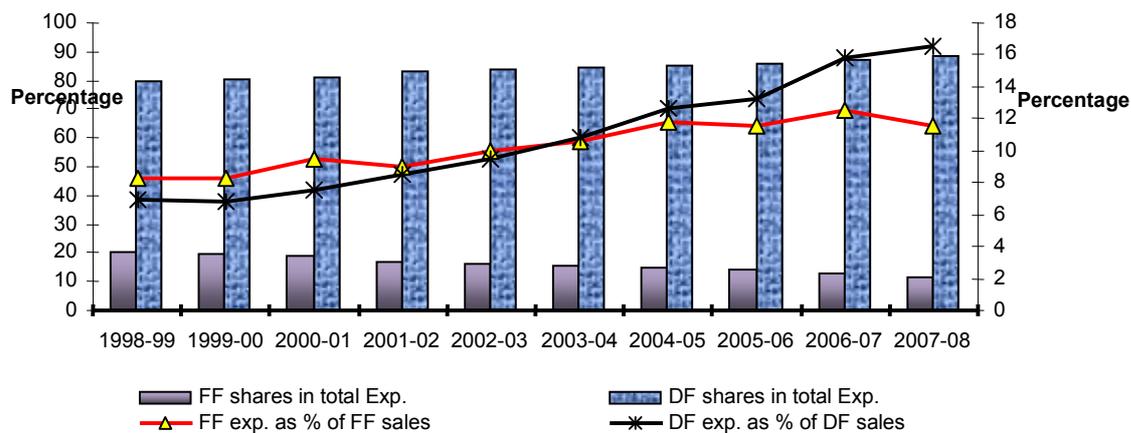
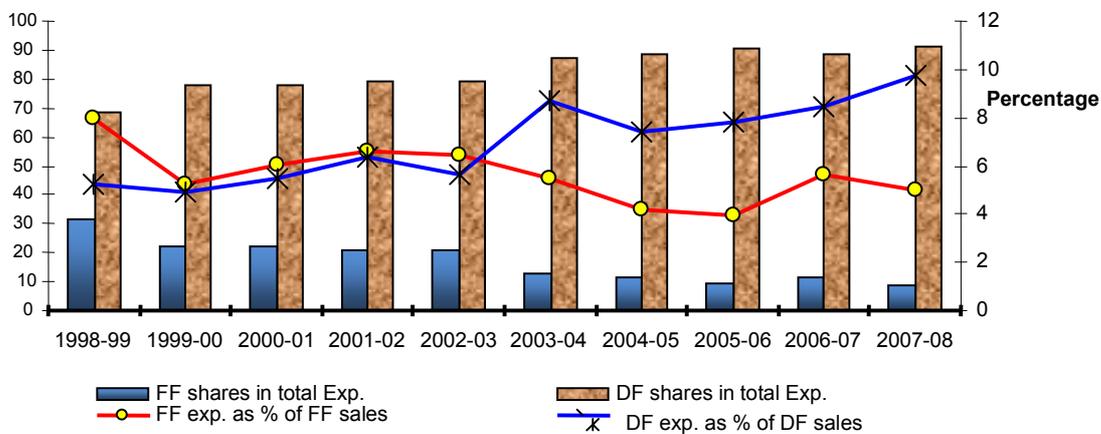*Source: Based on Appendix Table-A.1 and.A.2*

It is observed from above figure that the tendency of the foreign holding firms is mostly domestic market oriented. The share of the foreign firms in total export is seen a decline over the years whereas the domestic firms share is noticed increasing trend during the same period. Even though the foreign firms export as percentage of sale has increased compared to the base year 1998-99 but the same for the domestic firms has increased much faster over the years. This indicates that the foreign firms in India are mostly local market oriented and have least biased towards export activities. This finding is in line with Kumar and Siddharthan (1994), Pant (1993) on Indian manufacturing, which suggested that there is relative minor role of foreign affiliates in export promotion.

6. Sectoral Differences of Foreign and Domestic Firms Export

The trends in export performance of the foreign and domestic affiliates across sectors show the result in line with the entire manufacturing. Even though the export share as percentage of sales for the foreign affiliates manufacturing has increased in majority of the sectors but its share in

the total export has declined. In other words the domestic firms share in the total export has substantially increased in majority of sectors over the years. The share of the foreign and domestic firm in total export and the export as percentage of their respective sales for both groups of firms for the major industry groups is given in Fig-2 to 7.

Fig-2. Export Share and Export as Percentage of Respective Sales (Food & Beverages)

Source: Based on Appendix Table-A.1 and A.2

Fig-3. Export Share and Export as Percentage of Respective Sales (Textile)
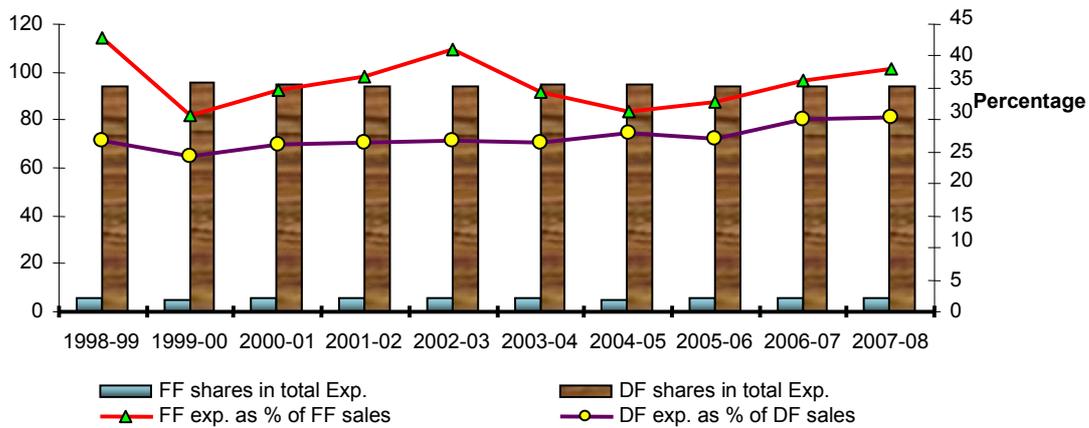
Source: Based on Appendix Table-A.1 and A.2

Fig-4. Export Share and Export as Percentage of Respective Sales (Chemical Products)

Source: *Based on Appendix Table-A.1 and A.2*

Fig-5. Export Share and Export as Percentage of Respective Sales (Basic Metal)

Source: *Based on Appendix Table-A.1 and.A.2*

Fig-6. Export Share and Export as Percentage of Respective Sales (Electronics)
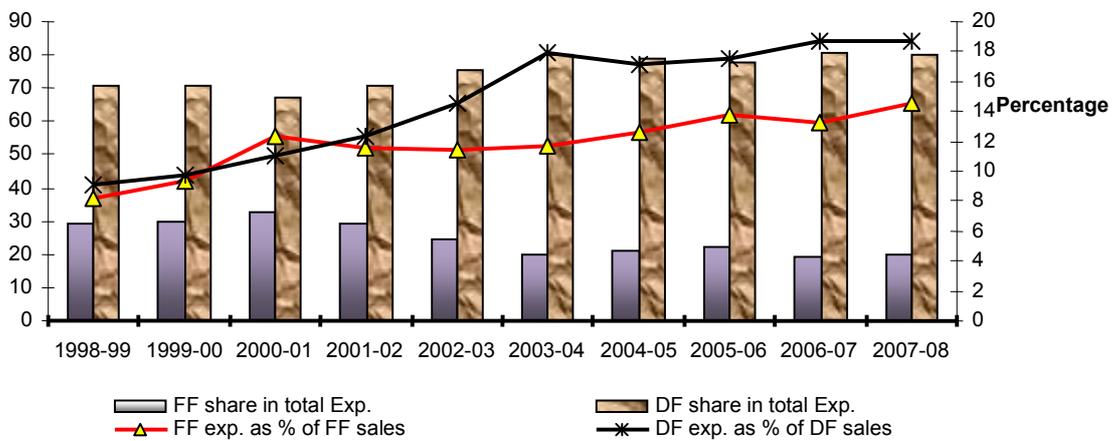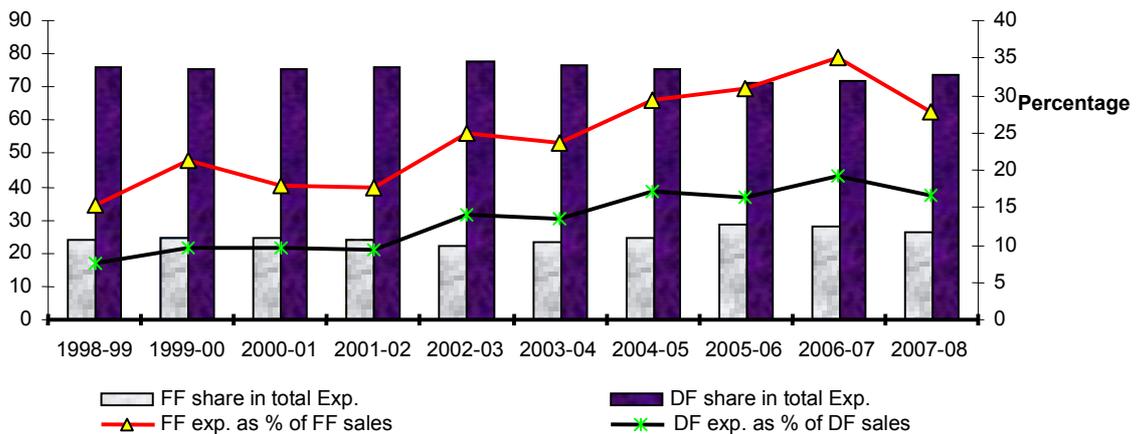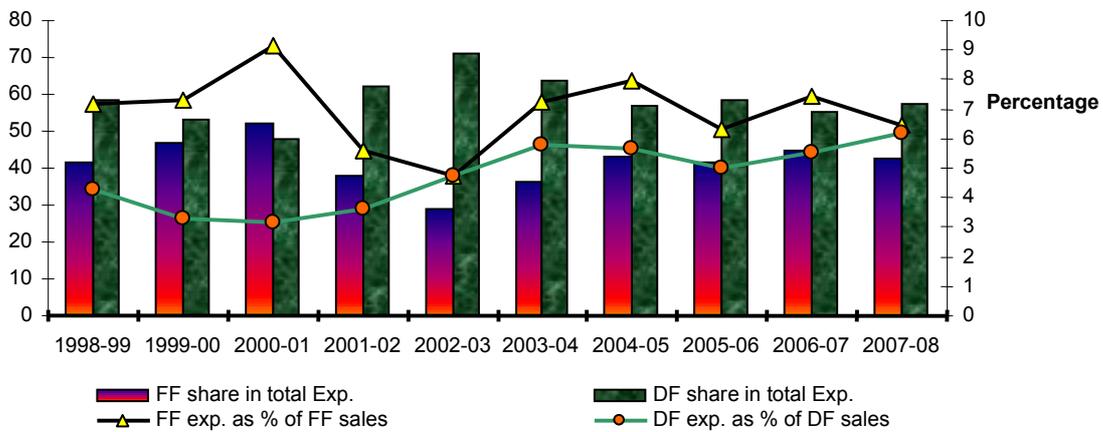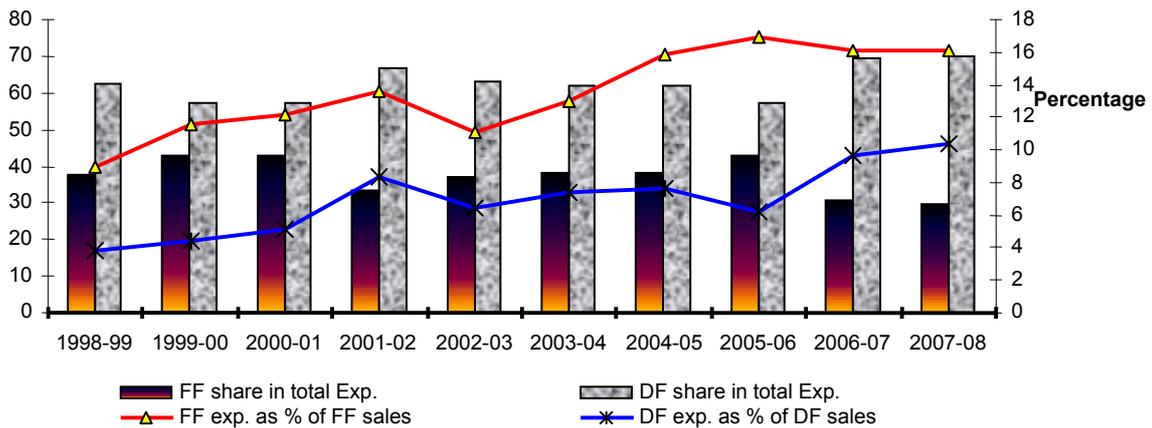

Source: Based on Appendix Table-.A.1 and.A.2

Fig-7. Export Share and Export as Percentage of Respective Sales (Machinery)

Source: Based on Appendix Table-A.1 and A. 2

It is seen from the above sets of figure that the foreign firms export as percentage of their total sales in food and beverages industry and textile industry has declined over the years. This decline in export and increase in sale in the domestic market might be due to the immense scope of the foreign firms to explore the domestic market which has huge demand for diversified food and clothing. On the other hand the same for the electronics and the transport industry group remained more or less stable over the years. For these sets of industries (electronics and transport), export as percentage of sales of the foreign firms during the period 2001-02 and 2004-05 has witnessed an increasing trend compared to other years. However, in the remaining major industry groups the foreign firms export as percentage of sales has shown an increasing trend during the study period. This industry group includes chemical and chemical products industry, basic metal industry and machinery industry.

Similarly, the share of exports by the foreign firms in total export has seen a consistent decline for the food and beverages industry and chemical industry. However, the same for the machinery industry closely fluctuated till the year 2005-06 and it experienced a steep decline after that. Similarly, the share of foreign firms in total export for the textile industry remained more or less stable over the years whereas the basic metals share increased marginally during the same period. Other industry group such as electronics industry and the transport industry's foreign share in total export has shown a high fluctuation over the years.

Looking at the performance of the Indian firms at the domestic and foreign market it can be said that the entry of foreign capital to the Indian market was primarily focused to capture the domestic market rather than to make use of the cheap input and export in the international market. Similarly, even though a higher percentage of firms in foreign affiliates are export oriented but the share and rate of growth of export of the domestic manufacturing is estimated higher over the foreign firms.

7. Firm's Relative Export Orientation

The relative export orientation of the domestic firm is calculated as the ratio of the export intensity of the domestic firms (%) to the export intensity of the foreign firms[5] (%). This is shown in table-3 where the average export intensity of the domestic firms in the entire manufacturing sector is marginally higher than the foreign firms. In the manufacturing as a whole the initial five years has shown higher relative export intensity for the foreign firms, however the period after 2002-03 has shown higher relative export intensity for the domestic firms.

Table-3. Relative Export Orientation of Domestic Firms

Year	All Manufact uring	Food and Beverag es	Textile Indust ry	Chemic al Industr y	Basi c Met al	Electroni cs Industry	Machine ry Industry	Transpo rt Industr y
1998-99	0.85	0.65	0.62	1.10	0.50	0.59	0.42	1.07
1999-00	0.83	0.93	0.79	1.05	0.46	0.45	0.38	1.30
2000-01	0.80	0.90	0.76	0.90	0.54	0.34	0.42	1.53
2001-02	0.95	0.97	0.71	1.06	0.53	0.65	0.62	1.45
2002-03	0.94	0.88	0.65	1.27	0.57	0.99	0.58	0.90
2003-04	1.02	1.59	0.77	1.53	0.57	0.80	0.56	0.88
2004-05	1.07	1.78	0.89	1.37	0.59	0.70	0.48	1.03
2005-06	1.15	1.96	0.82	1.27	0.52	0.79	0.37	1.62
2006-07	1.26	1.51	0.83	1.41	0.55	0.74	0.60	1.69
2007-08	1.43	1.94	0.80	1.28	0.60	0.96	0.64	1.68
Average	**1.03**	**1.31**	**0.76**	**1.22**	**0.54**	**0.70**	**0.51**	**1.31**

Source: Estimation is based on table-A.2.

At the sector level it is noticed that in three out of seven industry group namely food and beverages, chemical products and transport industry group has shown a higher relative export intensity of the domestic firms over the foreign firms. The rest four industry groups namely textile industry, basic metal, electronics and in machinery industry the relative export orientation is estimated higher for the foreign firms over the domestic firms.

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[5] The export orientation of the foreign firms can be calculated as the ratio of the export intensity of the foreign firms (%) to the export intensity of the domestic firms (%). We present the result of the domestic export intensity which itself explains the export intensity of the foreign firms as well.

8. Empirical Estimation of Export Intensity of Foreign Firms

Table-4 and 5 summarizes the result of the regression model for the entire manufacturing as well as for the major industry groups. The estimated coefficients of the explanatory variables for the entire manufacturing sector is explained as under –

The estimated DMKT which represents the size of the domestic market for the entire manufacturing is estimated negative showing that bigger the size of the domestic market less the orientation of the foreign firms to export abroad. This is because the foreign firms will primarily focus on the domestic market over the foreign market. Variable DCOM which came positive and significant indicating that, the foreign firms intend to focus more on the foreign markets when they face a steep competition from the domestic firms in the domestic market. In other words, if the share of the domestic firms in the domestic sales increases, the foreign firms look for the external market rather than focusing on the domestic market.

Table-4: Determinants of Foreign Firms Export Orientation

Dependent Variable = $FEXINT_{it}$ (Foreign Firms Export Intensity).				
Independent Variables/Industry	All Manufacturing	Food and Beverages	Textile Products Industry	Chemical Industry
$DMKT_{it}$	-0.0419851*** (0.0108247)	-0.0502446 (0.2945398)	0.1103877* (0.0622489)	-0.1766876*** (0.0621077)
$DCOM_{it}$	5.24308*** (0.0896668)	0.1390866*** (0.0392191)	23.59332*** (1.085288)	-1.129581*** (0.2226067)
$DEXINT_{it}$	0.4297774*** (0.016685)	0.9683206*** (0.0268463)	1.430666*** (0.0604491)	0.3453332*** (0.0250746)
$RDINT_{it}$	0.2177037*** (0.0228463)	0.1503523*** (0.050087)	-1.726937*** (0.2511627)	-0.0365689** (0.0144234)

SIZE_it	-0.0000007 (0.0000042)	-0.0360932 (0.1085977)	0.0072808 (0.0219852)	0.0001542 (0.0146758)
AGE_it	-0.000008 (0.0000256)	0.0002814 (0.0008161)	0.0000485 (0.0002043)	-0.00000768 (0.0000764)
REER	0.8940631*** (0.0335278)	4.60905*** (0.7942149)	0.0097712 (0.1596466)	2.486303*** (0.0959109)
Const	-21.70716*** (0.4303873)	-16.61772*** (1.017057)	-109.8086*** (5.33408)	4.766533*** (1.484551)
R-Square	0.8623	0.8807	0.8350	0.8324

Source: Estimated on using equation-1

Note: ***, ** and * denotes the significance at 1%, 5% and 10% level respectable. and value in parentheses shows the Standard Error.

The domestic export intensity (DEXINT) shows a strong positive relation with the export performance of the foreign firms. It shows that the domestic export performance strongly influence the foreign firms to take up the export activities in the international market. Similarly, the positive and significant sign of the RDINT indicates that the firm which takes up the research and development activities is more successful in the export market. However, the negative sign of the relative firm size and the age of the firm in determining the export of the foreign firms cannot be explained strongly due the insignificant sign. At the same time the positive and significant association of real effective exchange rate of Indian currency supports our prediction that the depreciation of Indian currency has increased the export of the foreign firms. This is because at higher exchange rate the foreign buyers are able to buy the similar basket of the commodity with less money. Hence, we cannot reject our hypothesis which says that the foreign firms export orientation is affected by the host country's policies, domestic market and the performance of the domestic firms. The analysis at the sectoral level does not provide the same result as in case of the entire manufacturing. In case of the food and beverages industry the result is almost at par with the entire manufacturing, bigger the domestic market (DMKT_it) more will

be the concentration of foreign firms in the domestic market could not be supported with the insignificant sign. Even though the average age of the firm shows positive sign however, the insignificant result cannot support it strongly.

In case of textile industry, higher the size of the domestic market higher will be the export orientation of the foreign firms. This may be because the textile industry in India is mostly characterised with labour intensive technique and it's profitable for the foreign firms to make use of the cheap labour and export in the international market. Hence even with a bigger domestic market the foreign firms try to export in the international market. Similarly, firms' research and development activities do not have any positive impact on the export orientation of the foreign firms.

In chemical industry the variable $DCOM_{it}$ is observed negative and significant indicating that the foreign firms intend to capture the domestic markets when they face a steep competition from the domestic firms in the domestic market. Similarly, the research and development activities of the foreign firms come with a negative sign indicating that the propensity to export is estimated low for those firms which takes up more R&D activities.

Table-5: Determinants of Foreign Firms Export Orientation

Dependent Variable = $FEXINT_{it}$ (Foreign Firms Export Intensity)				
Variables/Industry	**Basic Metal Industry**	**Machinery Industry**	**Electronics Industry**	**Transport Industry**
$DMKT_{it}$	0.03468* (0.02015)	0.10676*** (0.00942)	-0.11919* (0.06845)	-0.31650*** (0.03919)
$DCOM_{it}$	5.47829*** (0.44095)	2.71866*** (0.10316)	7.05622*** (0.36555)	9.92866*** (0.53816)
$DEXINT_{it}$	0.90652*** (0.02045)	0.42361*** (0.01279)	2.04132*** (0.07909)	-0.07432 (0.11810)
$RDINT_{it}$	-0.310923***	-0.65508*** (0.01586)	-1.41761*** (0.08526)	0.67282*** (0.06518)

	(0.03033)			
SIZE$_{it}$	0.00922 (0.03335)	34.57295*** (1.47487)	0.00047 (0.00310)	0.00882 (0.01721)
AGE$_{it}$	-0.000025 (0.000162)	-0.0000098 (0.000077)	-0.00016 (0.00038)	0.000062 (0.000214)
REER	-0.082598 (0.09219)	2.09033*** (0.07716)	2.30281*** (0.29696)	4.25345*** (0.39315)
Const	-24.08939*** (2.15501)	-13.9703*** (0.41734)	-32.15133*** (2.11887)	-39.58991*** (2.27853)
R-Square	0.6728	0.7058	0.7196	0.8307

Source: Estimated on using equation-1

Note: ***, ** and * denotes the significance at 1%, 5% and 10% level respectable. and value in parentheses shows the Standard Error.

The positive sign of the DMKT$_{it}$ is observed in both the basic metal industry and in machinery industry. This may be that even though with the bigger domestic market, the increase in demand at the international market has increased the export of the foreign firms over the years. Or in other words the inverse relationship could be that the foreign market offering better margin than the domestic market. This probably could be the reason for increase in the prices of iron and steel in last few years. RDINT has significant negative coefficients, suggesting that foreign affiliates in higher R&D have lower propensities to exports. The insignificance of variable 'age' does not prove statistically any negative association with export.

Looking at the sign and the strong significant association of DMKT and the DCOM in electronics and transport industry, the explanation is similar as with entire manufacturing. Similarly, the positive and significant sign of DEXINT of the electronics industry shows that the domestic firms export performance in the international market strongly influence the foreign firms to take up export activities. The export of the transport industry is strongly influenced by the R&D activities whereas the export intensity is estimated low for electronics industry with

higher R&D activities. For both the industry groups the REER is observed positive because the foreign firms offer better margin with the depreciation of Indian currency.

9. Conclusion

The present attempt was to find the export contribution of the foreign and the domestic firms along with the factors that determines the export intensity of the foreign firms. It is noticed that the composition of exports, by the foreign and domestic firms has undergone a significant change over the years. We observed that the percentage of exporting firms in the foreign affiliates is estimated higher than the percentage of exporting firms in the domestic manufacturing firms. Similar result is observed at the sector level for all major industry groups except the exception of textile industry. Contrary to this the share of the foreign firms export in total export has seen a decline over the years whereas the domestic firms share has visibly increased during the same period. Even though the foreign firms export as percentage of sale has increased compared to the base year 1998-99 but the same for the domestic firms has increased much faster over the years. Similarly, at the sector level it is seen that the foreign firms export as percentage of their total sales in food and beverages industry and textile industry has declined over the years. The huge domestic market for food-beverages and textile products could be the reason for such decline in export of the foreign firms. On the other hand the chemical and chemical products industry, basic metal industry and machinery industry's export has seen an increasing trend during the study period.

The relationships between export performance and the explanatory variables are not as straightforward as generally predicted. The empirical estimation of the model shows that the foreign firms export intensity in the entire manufacturing sector has a direct association with domestic competition, domestic firms export intensity and R&D activities of the foreign firms whereas it has inverse association with the domestic market size. The disaggregated analyses of the major industry groups elucidates slightly different results compared to the entire manufacturing. The export intensity of these industries was probable influenced more by other factors such as the internal and external demand pattern, the return from domestic and foreign markets and other policy issues which are not explained by our model.

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Appendix

Table-A.1: Annual Distribution of Export Share amongst Exporting Firms (In percentage)

Year	All Manufacturing		Food and Beverages]		Textile Industry		Chemical Industry	
	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic
1998-99	20.35	79.65	31.48	68.52	5.78	94.22	29.37	70.63
1999-00	19.70	80.30	22.40	77.60	4.72	95.28	29.52	70.48
2000-01	19.14	80.86	22.34	77.66	5.41	94.59	32.66	67.34
2001-02	16.56	83.44	20.62	79.38	5.80	94.20	29.29	70.71
2002-03	16.21	83.79	20.70	79.30	6.03	93.97	24.46	75.54
2003-04	15.29	84.71	12.98	87.02	5.50	94.50	19.76	80.24
2004-05	14.91	85.09	11.49	88.51	5.17	94.83	20.96	79.04
2005-06	14.13	85.87	9.22	90.78	6.00	94.00	22.18	77.82
2006-07	12.81	87.19	11.11	88.89	5.56	94.44	19.31	80.69
2007-08	11.43	88.57	8.63	91.37	5.68	94.32	20.12	79.88

Continued …………..

Basic Metal		Electronics Industry		Machinery Industry		Transport Industry	
Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic
23.81	76.19	41.68	58.32	37.69	62.31	40.35	59.65
24.42	75.58	46.90	53.10	42.92	57.08	36.77	63.23
24.64	75.36	52.29	47.71	43.04	56.96	34.75	65.25
23.87	76.13	37.69	62.31	33.21	66.79	37.80	62.20
22.27	77.73	29.02	70.98	36.98	63.02	47.16	52.84
23.66	76.34	36.13	63.87	38.19	61.81	46.89	53.11
24.58	75.42	43.08	56.92	38.15	61.85	42.85	57.15
28.57	71.43	41.42	58.58	43.03	56.97	32.76	67.24
28.24	71.76	44.63	55.37	30.57	69.43	30.93	69.07
26.46	73.54	42.73	57.27	29.84	70.16	32.30	67.70

Source: *Computation is based on PROWESS dataset.*

Table-A.2. Export Intensity of the firms (Export as Percentage of Total Sales of the Affiliates)

Year	All Manufacturing		Food and Beverages		Textile Industry		Chemical Industry	
	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic
1998-99	8.21	6.98	8.01	5.20	42.82	26.70	8.24	9.06
1999-00	8.22	6.82	5.25	4.89	30.75	24.37	9.30	9.76
2000-01	9.44	7.55	6.07	5.46	34.66	26.22	12.34	11.10
2001-02	8.97	8.54	6.58	6.39	36.94	26.35	11.62	12.29
2002-03	10.03	9.44	6.41	5.62	41.13	26.72	11.48	14.54
2003-04	10.57	10.77	5.47	8.68	34.49	26.59	11.69	17.94
2004-05	11.76	12.59	4.17	7.44	31.34	27.96	12.53	17.14
2005-06	11.60	13.29	3.98	7.82	32.94	26.94	13.82	17.49
2006-07	12.57	15.86	5.62	8.48	36.12	29.97	13.27	18.75
2007-08	11.57	16.50	5.03	9.75	37.94	30.40	14.56	18.66

Continued…………

Basic Metal		Electronics Industry		Machinery Industry		Transport Industry	
Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic
15.21	7.58	7.19	4.26	8.93	3.79	6.07	6.50
21.29	9.70	7.29	3.29	11.55	4.44	4.28	5.58
17.97	9.65	9.14	3.15	12.14	5.09	4.06	6.21
17.62	9.35	5.56	3.63	13.53	8.37	3.74	5.44
24.93	14.12	4.75	4.72	11.13	6.47	6.05	5.47
23.52	13.49	7.24	5.80	13.00	7.34	6.95	6.09
29.35	17.23	7.99	5.63	15.80	7.62	7.08	7.27
30.95	16.23	6.31	4.99	16.93	6.25	5.58	9.04
35.07	19.26	7.46	5.50	16.12	9.68	5.66	9.54
27.72	16.69	6.44	6.18	16.15	10.32	5.86	9.82

Source: *Computation is based on PROWESS dataset.*