Comparison of International Entrepreneurship of Germany and India

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ABSTRACT

In this era of globalisation tremendous opportunities are there for innovative firms to be successful in global business. Entrepreneurship is the process of innovation in economic organisations that either introduce new products or diversify markets. Hence, a country with strong entrepreneurial skills should be more successful in building comparative advantage. Considering this expected casual relationship between entrepreneurship and comparative advantage in international trade, this paper compares international entrepreneurial abilities of Germany and India. The index of revealed comparative advantage (IRCA) is the measure of strength of a country in international trade and also useful evidence of entrepreneurship capability in international trade. This paper uses IRCA to evaluate international entrepreneurship of the Germany and India. Germany is losing comparative advantages in many products but India is gaining. India is more successful than Germany to build up comparative advantages in new products. India has better international entrepreneurship than Germany.

Keywords: entrepreneurship; international trade; comparative advantage; India; Germany.

Introduction

Economic opportunities for countries are increasing fast due to globalisation and free trade initiatives. Nations with comparative advantages in specific products are now better positioned to accelerate their economic growth through export of goods to other countries. Moreover, ability to create comparative advantages in new products may help nations exploiting global economic opportunities further. The ability to create new comparative advantages is certainly a sign of entrepreneurship because entrepreneurship is in fact is the process of innovation.

A country with strong entrepreneurial skills will be more successful in international trade through strengthening comparative advantage in different areas of global market. Thus it may be said that comparative advantage of nation is the measure of its strength in entrepreneurship. The dynamics in the comparative advantage is the result of changes in entrepreneurship. Increasing comparative advantage is a definite sign of stronger entrepreneurship in a country and a nation may be unsuccessful to sustain comparative advantages if its entrepreneurial abilities fall.

Objective

In this paper, comparative advantages of Germany and India are measured and compared to evaluate their entrepreneurship strength in global economy. An

appropriate measure of comparative advantage is the index of revealed comparative advantage (IRCA). The IRCA of Germany and India in merchandise trade have been calculated using secondary data available from website of World Trade Organisation (WTO) for the period of 1991-2003 to evaluate and compare their strength of entrepreneurship in international trade.

Hypothesis

Joseph Schumpeter in his book, the *Theory of Economic Development*, explains entrepreneurship and its role in economic development. He defines entrepreneurship as the creation of "enterprise" that means the making of a new combination of already existing materials and forces with objectives of any one or a combination of activities like the introduction of new goods, introduction of new method of production, opening of new market, conquest of a new sources of supple and carrying out of the new organisation of any industry (Schumpeter, 1934). He tries to separate entrepreneurship from entrepreneur saying that entrepreneurs are those people who performs functions of entrepreneurship. Other researchers expanded the definition of entrepreneurs by including dependent employees of an organisation as well as independent owners of a firm (Carton, Hoffer & Meeks, 1998).

According to Kirzner, entrepreneurs try to discover profit opportunities and restore equilibrium in the market by acting on them (Kirzner, 1973). The entrepreneurial process includes all functions, activities, and actions associated

with the perceiving of opportunities and creation of organisations to pursue them (Bygrave & Hofer, 1991). The constituting themes of entrepreneurship are entrepreneur, innovation, organisation creation, value creation, profit, growth, uniqueness and the owner manager (Gartner, 1990). Knight views entrepreneurship as judgement and suggests close relationship among firm organisation, profit and entrepreneur (Knight, 1921). According to Knight, judgement is the process of forming estimates of future events in situations in which there is no definite idea on probabilities of success of a venture. Entrepreneurship performs judgemental decision-making that is ultimately decision-making about the employment of resources in new ventures (Foss and Klein, 2004). Some researchers argue that new entry in existing market or the act of launching a new venture is also entrepreneurial orientation (Lumpkin & Dess, 1996).

The characteristics of entrepreneurship are positive forces to be successful in international trade. The comparative advantages in international trade depend on international differences in the psychological structure of managers and higher level of entrepreneurship make a nation more active in global trade (Blanchard & Peltrault, 2004). Ability to find new opportunities across national boundary and utilisation of those is often termed as international entrepreneurship. It combines innovative, proactive and risk-seeking behaviour across national boundary and creates value in organisation (McDougall & Oviatt, 2000). International entrepreneurship encourages the

formation of new ventures those from inception seek to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries (Oviatt & McDougall, 1994). In global open trade regime, the comparative advantage is outcome of international entrepreneurial capabilities. Hence, the success in international trade and entrepreneurship has definite linkages.

Methodology

The revealed comparative advantage (RCA) is popular technique for measuring comparative advantages of nations in international trade. The RCA measures a country's relative export performance in a specific product category compared to its overall export performance. Liesner introduced the concept of RCA while comparing British industry with European Common Market (Liesner, 1958). Later Balassa (1965) refined the methodology of RCA and it became a popular technique for analysis of comparative advantages. The index of revealed comparative advantage (IRCA) or Balasa index can be expressed as

$$IRCA_{it}^{j} = \frac{X_{it}^{j} / X_{it}^{w}}{X_{t}^{j} / X_{t}^{w}}$$

where X_{it}^{j} is total export of product i by country j in period t; X_{it}^{w} is total export of product i by world (w) in period t; X_{t}^{j} is total export of country j in period t; X_{t}^{w} is total export of world in period t; and $IRCA_{it}^{j}$ is index or

revealed comparative advantage of country j for product *i* in period *t*. If $IRCA_{it}^{j} > 1$, it is assumed that the country *j* has comparative advantage in product *i* in period t. If $IRCA_{it}^{j} < 1$, the country has comparative disadvantage.

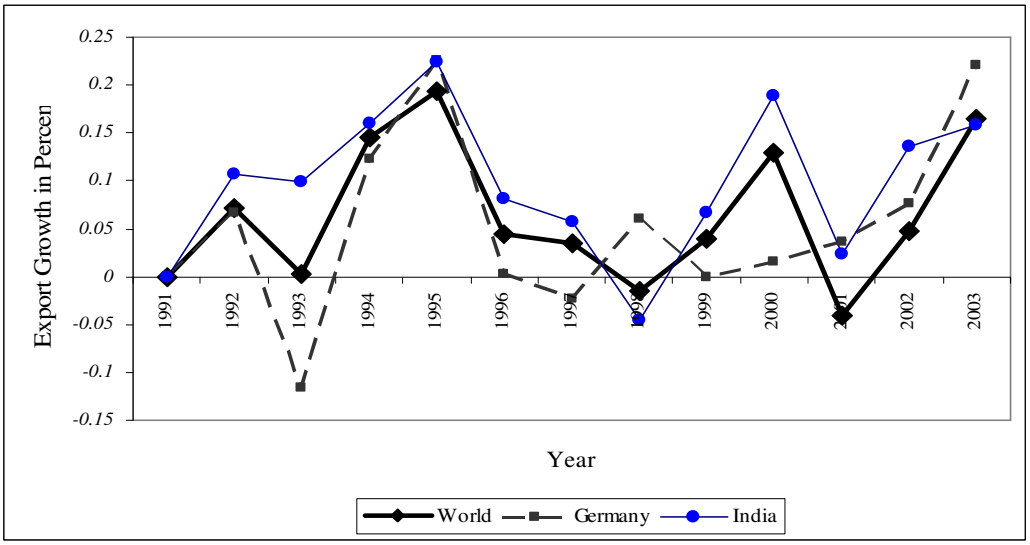
The export time series data available from WTO website has been used in this paper for calculation of IRCA of Germany and India for the time period of 1991-2003. The time period has been decided for two reasons. First, the starting year is 1991 for comparing unified Germany with India. Second, India changed statistical definition of export data in 2004 and for that to avoid complicacy the last year of analysis is 2003. All product groups are defined according to Revision 3 of the Standard Trade Classification (SITC). This paper focuses discussion on major product groups like agricultural products, fuel and mining products, iron and steel, chemicals including pharmaceuticals, machinery and transport equipment, textile and clothing.

Findings

In between 1991 and 2003, the world export of merchandise products increased on average at the rate of 6.8 percent. During that period average growth of exports of the Germany and India were 5.7 percent and 10.5 percent respectively. Indian exports grew faster than the world average while same of the Germany was slower. The correlation coefficient of export growth between Germany and the world is 0.72 and between India and the world is

0.88. It suggests that Indian exports are comparatively more sensitive to world export scenario. The figure 1 presents comparative export growths of Germany and India. Except the year 1998, Indian export always increased or decreased at faster rate than the world. After 2002, Germany has been showing better performance in exports.

Figure 1: Rate of export growth of World, Germany and India for the period of 1991-2003



The table 1 shows export of various products as percentage of total export of Germany, India and the World. Technologically advanced Germany's major export items are manufactured goods. However, compared to 1991, contribution of manufacturing sector in exports slightly fell in 2003. The role of transport and telecom equipment in export sector increases in 2003

compared to 1991. The contribution of automotive products in German export increased about 3.8 percent while world total exports increased only 0.4 percent. It indicates its more dependence on automotive products as export item. Traditionally one of major item of German export is chemicals including pharmaceuticals. When in world export the share of chemicals increased about 2 percent during 1991-2003, the role of this item was static in German export sector.

The role manufacturing products increased significantly between 1991 and 2003 in Indian export portfolio. It grew about 12 percent. Importance of traditional products like textile, clothing and agricultural products decreased during this period. It is sign of diversification of Indian exports. This country is exporting more manufacturing goods compared to primary goods. Still and iron, chemicals, machinery and transport equipment are now contributing more in Indian export sector. The volume of export of this country also increased during this period. The total value of Germany's exports was 22.72 times of Indian exports in 1991. This ratio is 13.17 in 2003. However, the Indian data reported for 2003 may have discrepancies.

Estimated indexes of revealed comparative advantages (IRCA) of Germany and India for each years between 1991 and 2003 and separate tables for each country is given in Appendix – A. In Balasa methodology, IRSA > 1 means comparative advantage in export. Accordingly, in 1991 Germany had

comparative advantages in iron and steel, chemicals, automotive products, other machinery (excluding office and telecom equipment) and some other manufactured goods. Among these items, after 13 years Germany lost its comparative advantage in iron and steel and textile goods in 2003. This country successfully increased comparative advantage in automotive goods during this period and maintained some comparative advantages in other goods. However, Germany could not gain comparative advantage in any new product during the period of 1991-2003.

Table 1: Export structure of World, Germany and India for the years of 1991 and 2003

Export Goods	World (% of total export)		Germany (% of total export)		India (% of total export)	
	1991	2003	1991	2003	1991	2003
Agricultural Products	11.9	9.0	6.4	5.3	19.0	13.9
Fuels and Mining Products	13.0	12.8	3.6	3.4	8.1	11.2
Manufactures	70.3	72.7	88.1	87.3	72.4	84.1
Iron and Steel	2.9	2.4	3.6	2.3	1.8	5.0
Chemicals	8.7	10.6	12.7	12.8	8.5	12.9
Machinery and Transport Equipment	35.9	38.6	48.9	52.7	7.6	10.7
Office and Telecom Equipment	9.1	12.6	5.4	7.7	0.9	1.5
Automotive Products	9.2	9.6	16.0	19.8	1.6	2.3
Other machinery and equipment	17.5	16.4	27.6	25.2	5.1	7.0
Textiles	3.1	2.3	3.3	1.6	14.3	12.0
Clothing	3.3	3.1	1.9	1.3	14.3	11.6
Other manufactures	16.3	15.6	17.7	16.6	25.9	31.9

In 1991, India had comparative advantages in agricultural products, textiles, clothing and miscellaneous other manufactured goods. This country could sustain its comparative advantages of these items until 2003. In addition to them, India achieved comparative advantages in iron and steel and chemical

products in 13 years time. Its comparative advantage increased significantly in textiles and other manufactured goods.

The linear trends[1] of the products in which either Germany or India have or had comparative advantages are presented in table 2. Trend values are showing that Germany is losing its comparative advantages in iron and steel, chemicals and textiles gradually. It is interesting to note that India is gaining comparative advantages in these products. India is losing comparative advantages in agricultural products and clothing where Germany does not have any comparative advantages. Germany is gaining comparative advantages in automotive products and machineries.

Table 2: Index of revealed comparative advantages and liner trends of Germany and India

Products	Germany			India		
	IRCA 1991	IRCA 2003	Linear Trend	IRCA 1991	IRCA 2003	Linear Trend
Agricultural Products	0.40	0.40	+0.006	1.59	1.54	-0.001
Iron and Steel	1.21	0.96	-0.008	0.61	2.08	+0.085
Chemicals	1.47	1.20	-0.018	0.98	1.21	+0.031
Automotive Products	1.73	2.05	+0.035	0.18	0.24	+0.001
Other Machinery and Transport Equipment	1.58	1.53	+0.001	0.29	0.42	+0.010
Textiles	1.06	0.72	-0.025	4.61	5.25	+0.068
Clothing	0.56	0.44	-0.008	4.28	3.77	-0.028
Other Manufactured Products	1.08	1.06	+0.003	1.59	2.04	+0.022

Conclusion

Schumpeter stated that entrepreneurs used to have capabilities of opening new markets, finding new production methods for existing products and to

[1] $\frac{d}{dt}(IRCA)$; when $IRCA = f(t)$ and $t =$ time in year.

introduce other creative methods to make the business successful. These skills certainly help in strengthening advantages in international trade. Low cost and product differentiation are two sources of comparative advantages that are within the scope of entrepreneurship. Hence, increase in comparative advantages is sign of higher entrepreneurial capabilities.

It seems that Germany has shortage of entrepreneurship. Except automotive products, Germany failed to achieve significant comparative advantage any products. Rather it lost advantages in some of its traditional export items like chemicals, textiles etc. It could not build advantage in any new product what is obviously sign of Germany's poor entrepreneurship in international trade.

India, compared to Germany, showed better entrepreneurship capabilities during the period of 1991-2003. It has gained comparative advantages in two new products. In addition, it has either retained or increased comparative advantages in 2003 in those products where it had comparative advantages in 1991. India has been diversifying its export portfolio and strengthening comparative in many products. Without strong international entrepreneurship it might be difficult for India to be successful in highly competitive global market. In conclusion, my opinion is that international entrepreneurship of Germany is not as strong as it is in India.

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Appendix – A

Index of Revealed Comparative Index (Balasa Formula)

Table A1: Germany

Merchandise Group		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1.	**Primary products**	0.40	0.42	0.36	0.37	0.38	0.37	0.40	0.43	0.42	0.41	0.40	0.41	0.40
(a)	Agricultural Products	0.54	0.55	0.53	0.52	0.54	0.55	0.55	0.56	0.57	0.62	0.59	0.59	0.59
(i)	Food	0.57	0.58	0.58	0.57	0.58	0.59	0.58	0.59	0.61	0.67	0.64	0.63	0.63
(ii)	Other agricultural products	0.43	0.44	0.35	0.35	0.41	0.42	0.43	0.44	0.40	0.43	0.41	0.43	0.40
(b)	Fuels and Minning Products	0.28	0.30	0.20	0.20	0.20	0.19	0.25	0.29	0.27	0.28	0.27	0.28	0.26
(i)	Fuels	NA	NA	0.12	0.12	0.13	0.15	0.14	0.15	0.13	0.11	0.10	0.11	0.11
(ii)	Mining products	0.00	0.00	0.41	0.40	0.34	0.32	0.56	0.57	0.66	0.87	0.85	0.85	0.81
2.	**Manufactures**	1.25	1.25	1.11	1.11	1.20	1.20	1.20	1.18	1.17	1.21	1.20	1.20	1.20
(a)	Iron and Steel	1.21	1.17	1.01	1.04	1.13	1.12	1.15	1.11	1.10	1.15	1.12	1.05	0.96
(b)	Chemicals	1.47	1.44	1.38	1.38	1.41	1.43	1.43	1.36	1.33	1.39	1.32	1.18	1.20
(c)	Machinery and Transport Equipment	1.36	1.37	1.22	1.21	1.30	1.30	1.30	1.28	1.26	1.30	1.33	1.36	1.36
(i)	Office and Telecom Equipment	0.59	0.54	0.48	0.49	0.52	0.51	0.52	0.51	0.52	0.58	0.59	0.58	0.61
(ii)	Automotive Products	1.73	1.79	1.59	1.65	1.84	1.88	1.93	1.93	1.93	2.05	2.04	2.04	2.05
(iii)	Other machinery and equipment	1.58	1.58	1.45	1.43	1.56	1.54	1.53	1.47	1.48	1.54	1.54	1.57	1.53
(d)	Textiles	1.06	1.04	0.93	0.90	0.93	0.93	0.87	0.87	0.83	0.82	0.78	0.74	0.72
(e)	Clothing	0.56	0.55	0.43	0.41	0.47	0.47	0.46	0.44	0.44	0.43	0.42	0.43	0.44
(f)	Other manufactures	1.08	1.08	0.93	0.93	1.05	1.05	1.04	1.03	1.04	1.08	1.04	1.06	1.06

Table A2: India

Merchandise Group		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1.	**Primary products**	1.08	1.11	1.12	1.05	1.19	1.16	1.08	1.10	0.97	1.03	1.05	1.15	1.15
(a)	Agricultural Products	1.59	1.57	1.70	1.52	1.81	1.90	1.84	1.80	1.71	1.76	1.62	1.58	1.54
(i)	Food	1.82	1.82	1.93	1.81	2.20	2.11	2.08	2.04	1.94	2.06	1.86	1.80	1.71
(ii)	Other agricultural products	0.77	0.67	0.85	0.49	0.51	1.09	0.90	0.82	0.76	0.70	0.62	0.65	0.82
(b)	Fuels and Mining Products	0.62	0.65	0.56	0.55	0.51	0.45	0.37	0.31	0.28	0.57	0.66	0.83	0.88
(i)	Fuels	0.25	0.33	0.27	0.26	0.24	0.18	0.13	0.07	0.03	0.44	0.51	0.58	0.64
(ii)	Mining products	1.71	1.57	1.36	1.27	1.13	1.22	1.01	0.83	0.93	1.02	1.14	1.70	1.74
2.	**Manufactures**	1.03	1.09	1.07	1.12	1.05	1.02	1.02	1.01	1.09	1.12	1.05	1.09	1.16
(a)	Iron and Steel	0.61	0.92	1.26	0.99	1.02	1.13	1.27	0.92	1.30	1.40	1.26	1.96	2.08
(b)	Chemicals	0.98	0.81	0.83	0.95	0.90	0.99	1.06	0.98	1.10	1.23	1.14	1.16	1.21
(c)	Machinery and Transport Equipment	0.21	0.20	0.19	0.20	0.21	0.22	0.21	0.17	0.17	0.21	0.22	0.23	0.28
(i)	Office and Telecom Equipment	0.10	0.08	0.09	0.09	0.13	0.15	0.10	0.05	0.06	0.08	0.10	0.09	0.12
(ii)	Automotive Products	0.18	0.18	0.17	0.21	0.21	0.22	0.19	0.15	0.13	0.17	0.15	0.16	0.24
(iii)	Other machinery and equipment	0.29	0.28	0.27	0.27	0.26	0.27	0.29	0.27	0.29	0.35	0.35	0.37	0.42
(d)	Textiles	4.61	4.80	4.50	5.03	4.82	5.26	5.37	5.00	5.57	5.91	5.21	5.14	5.25
(e)	Clothing	4.28	4.50	4.04	4.55	4.37	4.14	3.90	4.23	4.47	4.76	4.05	3.91	3.77
(f)	Other manufactures	1.59	1.79	1.88	1.91	1.80	1.56	1.59	1.78	2.02	1.97	1.84	1.89	2.04