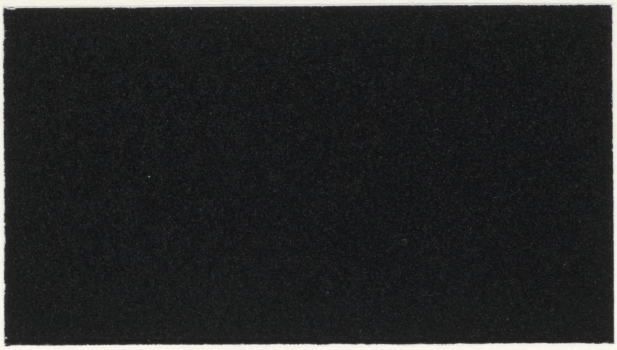
TPRC

COMPARATIVE ADVANTAGE AND THE LOCATION OF INWARD FOREIGN DIRECT INVESTMENT : EVIDENCE FROM THE UK AND SOUTH KOREA

NUMBER 4

Trade Policy Research Centre

Discussion Paper



COMPARATIVE ADVANTAGE AND THE LOCATION OF INWARD FOREIGN DIRECT INVESTMENT : EVIDENCE FROM THE UK AND SOUTH KOREA

NUMBER 4

Keith E Maskus
Department of Economics
Campus Box 256
University of Colorado
Boulder CO 80309-0256
USA

Allan Webster
Trade Policy Research Centre
Department of Economics
University of Reading
Whiteknights
Reading RG6 2AA
UK

February 1994

Abstract

Theories of foreign direct investment (FDI) suggest that the location of inward FDI will be determined by, at least, common elements with the Heckscher-Ohlin-Vanek (HOV) model of comparative advantage. Since the locational decision may also be affected by the existence of trade impediments and, in any case, some goods will be non-tradeable, the extent to which inward FDI and the factor proportions version of comparative advantage are related is an empirical question. This paper provides such an empirical assessment for the relationship between FDI and comparative advantage for two countries - the UK and South Korea, using factor content techniques. In general, the results suggest that the pattern of inward FDI in both countries is consistent with appropriate measures of revealed factor endowments.

COMPARATIVE ADVANTAGE AND THE LOCATION OF INWARD FOREIGN DIRECT INVESTMENT : EVIDENCE FROM THE UK AND SOUTH KOREA

1. Introduction

This paper seeks to provide empirical evidence on the extent to which the location of foreign direct investment is determined by the underlying comparative advantage of the particular location. Specifically, it examines the relationship between measured comparative advantage according to the factor proportions (Heckscher-Ohlin-Vanek or HOV) hypothesis and inward direct investment for two countries - the UK and South Korea. Since the locational decision also depends on other conditions (trade impediments, for example) it is not intended as a full study of all the determinants of inward direct investment.

There are two principal versions of comparative advantage which will be well known to readers - the Ricardian model and the HOV hypothesis. In the Ricardian model comparative advantage and specialisation in international trade is determined by differences in labour productivities across different goods between countries. These differences in labour productivities are commonly argued to, in turn, be determined by technological differences between countries. In the factor proportions or HOV version it is differences in relative factor endowments between countries which generates comparative advantage and, ultimately, specialisation in international trade.

The distinction between these two different versions of comparative advantage is important in linking them to the theory of foreign direct investment (FDI). Following Buckley and Casson (1976) and Caves (1982), the existence of a firm specific advantage can be argued to be a necessary condition for the existence of multinationals, with FDI arising when this firm specific advantage is best exploited when profit maximising firms internalise markets for the relevant intermediates. Firm specific advantage in this view is associated with what may be described

as "know-how" - technology, brand names, managerial technique etc..

Since differences in technology and managerial efficiency are exactly the same elements which are likely to give rise to differences in labour productivities when they vary across countries, we should expect Ricardian comparative advantage to be related to outward foreign direct investment. Indeed, Caves (1982) argues that countries which have a greater propensity to generate know-how are the ones that will prove to be the most significant sources of outward FDI. There is also considerable empirical evidence to support the link between technology and outward investment - see, for example, Cantwell (1989) and Pearce (1990). This should not, however, result in an observable relationship between trade and FDI. Investment arises precisely because profit maximising firms are better able to exploit this type of advantage through investment rather than exporting.

Ricardian comparative advantage is linked to the source country for outward investment but comparative advantage of the HOV type is much more closely associated with the choice of the optimal location of the investment. Caves (1982) suggests a tendency to locate according to absolute advantage. Buckley and Casson (1976) argue that location will be according to comparative advantage. In our view, as long as goods are freely exchanged the profit maximising firm has an incentive to locate where opportunity costs are lowest - that is, according to comparative advantage.

This view, therefore, sees FDI as the international transfer of certain specific and mobile factors of production (know-how and finance) to locations where the local costs of immobile factors of production (natural resources, labour, human capital, machinery and plant) are most advantageous. If international trade is wholly without impediments we might then expect FDI to be determined by comparative factor costs and factor intensities; essentially in a manner predicted by the HOV version of comparative advantage.

For all goods, then, we would expect Ricardian comparative advantage to be related to the sources of FDI. Where the final good is perfectly traded we would expect the location of this investment to be related to factor endowments and the HOV hypothesis. However, the existence of non-tradeable goods and of impediments to trade introduces other elements into the locational decision. Put simply, non-tradeables can not, by definition, be exported to other markets and there can be no concentration of production in the most advantageous location.

The existence of barriers to trade (tariffs, voluntary export restraints), as Caves (1982) notes, provides an incentive for firms to locate production in local markets. Evidence for the existence of this "tariff jumping" type of investment has been found in a number of recent studies - see, for example, Balasubramanyam and Greenaway (1992), Heitger and Stehn (1990) and Milner and Pentecost (1994). This means that, even for tradeable goods, the existence of impediments to trade (including transport costs) will cause the actual location of FDI to diverge from that which factor costs alone would suggest. This is not, however, a focus of this particular study.

To summarise the literature, there are grounds to suppose that the location of inward FDI in the production of tradeable goods will be determined by conditions consistent with the HOV theorem. The existence of transport costs and policy impediments to trade means that this relationship may not be applicable in some or many cases. This means that the extent to which the HOV model is relevant in explaining the location of FDI is an empirical question. It is precisely this question that we have sought to address in this paper, using evidence from the UK in 1989 and South Korea in 1984.

2. Methodology

The approach of this paper is, firstly, to provide a measure of which factors of production were sources of comparative advantage

and disadvantage for the both UK and South Korea. This, then, establishes a benchmark measure of revealed factor abundance against which the pattern of inward investment in each country can be compared. Providing comparative evidence for two different countries is clearly not sufficient to draw firm conclusions about the world as a whole. Nonetheless, the contrast between a developed member of a regional trading bloc (the UK) and a newly industrialised country (NIC) not belonging to a regional bloc provides a basis for raising questions for future research.

The measurement of revealed factor abundance was accomplished by the well established technique of factor content analysis, deriving from the seminal work of Leontief (1953). Deardorff (1984) and Leamer and Bowen (1981) provide expositions of the technique. The basis of the technique is that it can be shown that, given a number of strong assumptions :

$$AT_i = E_i - Ew_i \qquad (2.1)$$

where A is a matrix (mxn) of coefficients giving the requirements of each of m factors per unit of output for each of n industries, T_i the (nx1) vector of net exports by industry for country i, E_i the (mx1) vector of country i's factor endowments, E the comparable (mx1) vector of world factor endowments and w_i the share of country i's expenditure under balance trade in total world expenditure.

Thus, the right hand side of equation 2.1 determines whether country i is abundant or scarce in each factor compared to the world. However, this is almost impossible to measure with any degree of accuracy so the left hand side which requires only information on net exports and the technical requirements of production can be used as a measure of "revealed" factor abundance, given the underlying assumptions. These are (i) balanced trade, (ii) factor price equalisation, (iii) identical homothetic preferences, (iv) no impediments to trade and (v) internationally invariant linearly homogeneous technology.

Most of these assumptions can be relaxed. Leamer and Bowen (1981) have shown that the ranking of factors according the content of net exports relative to consumption provides a valid measure of factor abundance in the presence of unbalanced trade. Thus, factor 1 (F^1) is revealed to be abundant in relation to factor 2 (F^2) if :

$$(F_x^1 - F_m^1)/F_c^1 > (F_x^2 - F_m^2)/F_c^2 \qquad (2.2)$$

where subscripts x,m and c denote the contents of exports, imports and consumption.

Brecher and Choudhri (1982) have shown that the factor content model is valid if factor prices are not equalised. Helpman (1984) demonstrated that the assumption of identical homothetic preferences is not required if factor prices are not internationally equalised. Finally, Clifton and Marxsen (1984) show that the model holds in the presence of tariff protection when factor prices are not equalised.

Factor content analysis, then, provides a measure of relative factor abundance under fairly general conditions. This means that evidence on trade and production in the UK and South Korea can be used to infer the pattern of comparative advantage attributable to factor proportions in each country. These measures, in turn, were used to provide a basis for comparison with the pattern of foreign direct investment in each country.

The factor content of UK FDI has previously been estimated by Katrak (1982), although this study departs from his approach by concentrating on inward rather than outward investment. Unlike the factor content of net exports, such estimates are not measures of factor abundance. They are, instead, a means of assessing whether FDI is focused on industries intensive in each factor of production. Thus, the factor content of net exports (relative to consumption) "reveals", subject to the assumptions described above, which factors are relatively abundant and the

factor content of inward FDI shows whether such investment is focused upon industries intensive in the use of these abundant factors. In this way it is possible to provide evidence on the extent to which the pattern of inward FDI corresponds to the underlying pattern of advantage according to factor proportions.

Care is also needed in the specification of the measures of the factor content of inward investment. Following Dunning (1981), ownership specific variables determine which countries are sources of investment whilst locational specific variables determine where the investment is located. Thus, if comparative advantage was (hypothetically) the sole determinant of the locational decision we should expect the source of investment to be independently determined from its location - firms with ownership advantages would provide the investment, countries with a comparative advantage in the appropriate activity the location.

However, the true situation is likely to be more complex. Firstly, comparative advantage is not the only variable likely to affect gross inward investment. Evidence on the existence of intra-industry FDI provided, for example, by Clegg (1987) suggests that the locational decision will not be solely determined by comparative advantage but also by factors such as oligopolistic interdependence. Secondly, at the level of aggregation for which data are available, it is possible that any one country may have one sub-sector in which it is an investment "exporter" and another in which it is an investment "importer". This would also produce an observation of two-way investment.

For these reasons, it is preferable to use net inward investment (ie inward investment less outward investment) for the purposes of this study. This is the negative of the net outward investment measure proposed by Dunning (1986) in the related context of FDI and economic development. Thus, the key issue is not the volume of inward investment by each industry in a particular location but whether the location, on balance, attracts more inward investment than it genenerates outward FDI.

For reasons similar to those which require the factor content of net exports to be scaled in relation to consumption, net inward investment also requires a scaling procedure. At any particular time countries are equally likely to have a deficit or surplus on the capital account as on the current account. This would pose problems of interpretation for unscaled estimates. For example, a substantial capital account surplus would imply a tendency for net inward investment to be negative across all industries and factors. Moreover, suppose total investment volumes (domestic plus net inward investment) are much larger in general for capital intensive activities than for labour intensive ones. The results of the factor content of net inward investment could lead to a potentially misleading conclusion that inward FDI in the particular country is focused on capital rather than labour intensive activities. To overcome these potential difficulties the factor contents of net inward investment were calculated relative to that of total investment, with total investment defined as domestic plus inward FDI.

Finally, factor content estimates can be calculated either on a "direct" (including only those factor services used to produce final goods) or a "total" basis (also including factor services embodied in intermediate inputs). Since the existence of multinational enterprises allows the possibility of intra-firm imports of intermediates estimation on a total basis is not appropriate for calculating the factor content of net inward investment. For this reason results are reported on a direct basis only.

3. UK Results

Table 3.1 reports estimates of the factor content of UK net exports in 1989 (relative to consumption) and of the factor content of net inward investment (relative to total investment) in 1989. Results are presented separately for all economic activities, non-services and for services.

Across all economic activities the pattern of UK net inward FDI by factor intensity reveals a fairly close match to the pattern of revealed factor abundance given by the content of net exports. In particular, net inward FDI is focused upon energy intensive activity (revealed to be relatively abundant) but tends not to be concentrated in activities intensive in other natural resources (forestry, fishing, minerals) which are revealed to be relatively scarce. Similarly, net inward FDI tends to be concentrated in those categories of labour (non-manual, principally) in which the UK is revealed, by the pattern of net exports, to be relatively abundant. The pattern of net inward FDI in the UK, then, provides a fairly close match to that which would be suggested by the factor proportions version of comparative advantage in so far as the different types of natural resource and labour are concerned.

This relationship is not so apparent when physical capital is considered. In general, the analysis of net exports suggests capital not to be a strong source of advantage yet net inward FDI is relatively heavily focused upon capital intensive activities.

Omitting service industries produces a somewhat closer match between net inward FDI and the pattern of revealed factor abundance. Again, net inward FDI is fairly heavily focused upon areas of revealed factor abundance in natural resources and labour such as energy and non-manual labour (other than managerial). Net inward FDI is concentrated on non-service production intensive in all types of physical capital. For industrial plant and machinery this matches the pattern revealed by net exports but office machinery and electrical/electronic equipment are not sources of exports.

Since FDI in non-services provides a closer match than all economic activity to the pattern of net exports by factor, it follows that services must be less well matched. The results confirm this. In particular, net inward FDI in services is more focused on unskilled and part skilled labour and industrial plant

than for net exports. It is less concentrated upon professional labour and electrical/electronic equipment.

The overall picture, then, is that the pattern of net inward FDI broadly fits the UK's pattern of revealed factor abundance. This relationship is weaker for services, which include almost all the non-tradeable industries. To provide a basic testing of these conclusions rank correlations between the factor content of net exports and that of net inward FDI are presented in Table 3.2. Rank correlations are also reported between services and non-services.

At 95% confidence levels a statistically significant positive correlation exists between revealed factor abundance and the factor intensity on net inward investment. This suggest that net inward FDI does indeed broadly correspond to the pattern that one would expect if location followed comparative advantage according to factor proportions. However, the correlation is clearly nor perfect, suggesting that factor proportions are not the whole story.

That the rank correlation is of borderline significance (significant at 95% confidence for the one tailed test but siginificant only at 90% for a two tailed test) for services suggests that comparative advantage is a less appropriate explanation where a significant proportion of activity is non or very imperfectly tradeable. Moreover, rank correlations between the factor contents of services and non-services are statistically insignificant for both net exports and net inward FDI. This confirms that services and non-services are behaviourally distinct with respect to their pattern of specialisation by factor.

4. South Korean Results

Results of the factor content analysis of South Korean net exports (relative to consumption) and net inward investment

(relative to total domestic investment) are reported in Table 4.1. It should be noted that the definitions of factors are broadly similar but not identical to those for the UK because of the different classifications used in the national input-output tables. In particular, no disaggregation of labour requirements was possible with the South Korean data.

Across all economic activities the factor content of net inward FDI into Korea shows a poorer match with the pattern of factor abundance "revealed" by net export requirements than does UK data. Some factors, notably labour and other minerals, are very similar in their rankings by both variables. Others, principally electrical equipment and fishing, produce significantly different rankings for each variable.

For non-services, the relationship between the contents of net exports and of net inward FDI is, in general, weaker than for all economic activity. However, the consistent pattern between net exports and net inward FDI is retained for labour (source of advantage) and for other minerals (source of disadvantage). For the service sector, there is a much closer match between the two sets of rankings than for either non-services or for all economic activity. Curiously, both labour and other minerals tend to produce inconsistent rankings between net exports and net inward FDI for services.

Rank correlations are reported in Table 4.2 to allow for some formal tests of consistency between the different rankings. Across all activities there is a statistically significant (at 95% for a one-tailed test, 90% for a two-tailed test) positive correlation between revealed factor abundance and net inward FDI. For non-services this correlation is statistically insignificant but for services highly significant.

The absence of a significant correlation between the service and non-service factor contents of net exports suggest that there is little relationship between the two. In contrast, there is a

positive and statistically significant correlation between the factor content of net inward FDI in services and the content of non-service inward FDI. It would seem, therefore, that inward FDI is focused on broadly the same factors of production across both services and non-services. However, the factor composition of net exports varies between services and non-services.

The results for South Korea do support the general hypothesis that comparative advantage has a bearing on net inward FDI in that a positive and significant correlation can be demonstrated across all activities. However, this support is more ambiguous than in the case of the UK since the relationship is stronger for services, which include a strong non-tradeable element, than for non-services, which are predominantly tradeable.

There are a number of possible explanations for the greater ambiguity of the Korean results. Firstly, it is possible that a greater volume of Korean trade in 1984 was subject to more significant impediments than for UK trade in 1989. This would simply mean that import substituting investment is more important in the Korean case. However, an examination of the pattern of Korea's revealed factor abundance offers a second explanation.

The relative factor abundance "revealed" by Korea's net exports in 1984 suggests the main sources of comparative advantage to be fish, labour and minerals. This pattern of specialisation in labour and natural resource intensive activities is not one that would seem likely to be repeated with later Korean data - in short, the data most probably reflects traditional sources of advantage which were then being displaced by the rapid growth and diversification of the Korean economy. Investment is, by definition, forward looking and it is noticeable that inward investment was heavily focused on capital intensive industries. It is, therefore, likely that the results for inward FDI more closely reflect the changing pattern of comparative advantage since investment is likely to be focused on future rather than present sources of advantage. This would also contrast with the

UK which, quite clearly, had long since completed the process of industrialisation.

5. Conclusions

The results presented in this paper suggest that comparative advantage of the factor proportions type is an important but not the sole determinant of the location of inward FDI. For the UK, a statistically significant positive correlation between revealed factor abundance rankings and those for the factor intensity of inward FDI can be demonstrated. This relationship is, if anything, stronger for non-services but is of more marginal significance for the service sector. Given that "services" encompass a number of non-tradeable activities, for which comparative advantage is not relevant, these results accord with what one might expect.

The evidence for South Korea also produces a statistically significant positive rank correlation between factor abundance and the factor intensity of net inward FDI across all activities. In this sense, then, it also supports the hypothesis that comparative advantage by factor proportions is an important determinant of the location of inward investment. However, the de-composition into services and non-services produces perverse results with a strong positive rank correlation between the contents of net exports and net inward FDI for services but no statistically significant relationship for non-services. This may be attributable to the role of trade impediments but is more likely to reflect the fact that Korea was a rapidly developing and diversifying economy in 1984.

DATA APPENDIX

UK requirements of factor inputs were calculated from : *Input-Output Balance for the United Kingdom 1989, Economic Trends, Central Statistical Office, 1992, London : HMSO.* This identifies 101 different classifications of goods and services. Data on exports, imports, domestic investment and apparent consumption (ie production less net exports) were derived from the same source. Additional information on the total labour requirements of each activity was taken from the *Census of Production (1989), Central Statistical Office, 1990, London : HMSO.* Total requirements of labour were then disaggregated into 8 skill categories using data from : *Census 1981 : Qualified Manpower, Office of Population Censuses and Surveys, 1984, London : HMSO.*

For South Korea exports, imports, domestic investment, apparent consumption and requirements of factor inputs were derived from the South Korean input-output table for 1984. This identifies 159 different categories of goods and services. As no data on the skill composition of the Korean labour force by industry were available, labour requirements were not disaggregated for South Korea.

Data on inward and outward FDI for both countries were taken from : *World Investment Directory 1992, Volumes I and III, 1993, United Nations : New York. As these data are provided on a more aggregate industrial* classification (20 sectors for South Korea and 15 sectors for the UK) than the input-output tables, both the UK and Korean tables were aggregated for the purposes of estimating the factor content on net inward investment.
Since data on domestic investment are only available on a "flow" basis, FDI data on flows rather than stocks were used for consistency.

BIBLIOGRAPHY

Balasubramanyam, V N and Greenaway, D, 1992, Economic Integration and Foreign Direct Investment : Japanese Investment in the EC, *Journal of Common Market Studies*, Vol. 61, pp 175-93.

Brecher, R A and Choudhri, E U, 1982, The Factor Content of International Trade Without Factor Price Equalization, *Journal of International Economics*, Vol. 12, pp 277-83.

Buckley, P J and Casson, M C, 1976, *The Future of the Multinational Enterprise*, London : MacMillan.

Cantwell, J A, 1989, *Technological Innovation and the Multinational Corporation*, Oxford : Basil Blackwell.

Caves, R E, 1982, *Multinational Enterprise and Economic Analysis*, Cambridge : Cambridge University Press.

Clegg, L J, 1987, *Multinational Enterprise and World Competition*, London : MacMillan.

Clifton, D S and Marxsen, W B, 1984, An Empirical Investigation of the Heckscher-Ohlin Theorem, *Canadian Journal of Economics*, Vol. 17, pp 32-8.

Deardorff, A V, 1984, Testing Trade Theories and Predicting Trade Flows, in R W Jones and P B Kenen (eds.), *Handbook of International Economics*, North-Holland, Amsterdam.

Dunning, J H, 1981, *International Production and the Multinational Enterprise*, London : Allen & Unwin.

----------, 1986, The Investment Development Cycle and Third World Multinationals, in K M Khan (ed.), *Multinationals of the South : New Actors in the International Economy*, London : Frances Pinter.

Heitger, B and Stehn, J, 1990, Japanese Direct Investments in the EC : Response to the Internal Market 1993 ?, *Journal of Common Market Studies*, Vol. 28, pp 1-15.

Helpman, E, 1984, The Factor Content of Foreign Trade, *Economic Journal*, Vol. 94, pp 84-94.

Katrak, H, 1982, Labour Skills, R & D and Capital Requirements in the International Trade and Investment of the United Kingdom, *National Institute Economic Review*, No.101, pp 38-47.

Leamer, E E and Bowen, H P, 1981, Cross-Section Tests of the Heckscher-Ohlin Theorem : Comment, *American Economic Review*, Vol. 71, pp 1040-43.

Milner, C and Pentecost, E, 1994, the Determinants of the Composition of US Foreign Direct Investment in UK Manufacturing, in D Sapsford and V N Balasubramanyam, *The Economics of International Investment*, London : Edward Elgar.

Pearce, R D, 1990, Restructuring Among the Large Firms : Changing Geographical and Industrial Diversification 1977-82, in A Webster and J H Dunning, *Structural Change in the World Economy*, London : Routledge.

TABLE 3.1 : FACTOR REQUIREMENTS OF UK NET EXPORTS AND NET INWARD INVESTMENT

	Factor Requirements of : NET EXPORTS/ CONSUMPTION		NET INWARD FDI/ GROSS INVESTMENT	
	Value	Rank	Value	Rank
A. ALL ECONOMIC ACTIVITY				
Forestry & fishing	-0.183	17	-1.596	17
Coal	-0.015	7	0.195	2
Oil & natural gas	0.013	1	0.246	1
Metal ores	-0.015	6	-0.243	14
Other minerals	-0.041	15	-1.142	16
Industrial plant and steelwork	-0.003	3	-0.076	5
Machinery	-0.026	10	-0.007	4
Office machinery	-0.046	16	-0.108	6
Electrical & Telecoms equipment	-0.030	11	0.036	3
Professional Labour	-0.005	4	-0.189	10
Managerial Labour	-0.023	9	-0.163	9
Clerical Labour	0.004	2	-0.130	7
Skilled Non-Manual Labour	-0.013	5	-0.193	11
Part Skilled Non-Manual Labour	-0.018	8	-0.141	8
Skilled Manual Labour	-0.037	14	-0.279	15
Part Skilled Manual Labour	-0.034	12	-0.221	13
Unskilled Labour	-0.035	13	-0.197	12
B. EXCLUDING SERVICES :				
Forestry & fishing	-0.186	17.0	-1.7	17.0
Coal	-0.015	5.0	0.2	2.0
Oil & natural gas	0.013	1.0	0.2	1.0
Metal ores	-0.015	4.0	-0.2	11.0
Other minerals	-0.042	12.0	-1.1	16.0
Industrial plant and steelwork	-0.004	2.0	-0.1	5.0
Machinery	-0.028	7.0	0.0	4.0
Office machinery	-0.050	16.0	-0.1	6.0
Electrical & Telecoms equipment	-0.038	11.0	0.1	3.0
Professional Labour	-0.024	6.0	-0.1	8.0
Managerial Labour	-0.042	13.0	-0.4	13.0
Clerical Labour	-0.034	8.0	-0.2	9.0
Skilled Non-Manual Labour	-0.015	3.0	-0.1	7.0
Part Skilled Non-Manual Labour	-0.037	10.0	-0.5	15.0
Skilled Manual Labour	-0.049	14.0	-0.4	14.0
Part Skilled Manual Labour	-0.036	9.0	-0.3	12.0
Unskilled Labour	-0.050	15.0	-0.2	10.0
C. SERVICES				
Forestry & fishing	-0.036	17.0	-0.227	15.0
Coal	-0.023	15.0	-0.275	17.0
Oil & natural gas	0.000	9.0	0.000	2.0
Metal ores	0.001	7.0	0.000	3.0
Other minerals	0.001	8.0	-0.249	16.0
Industrial plant and steelwork	0.001	6.0	0.000	1.0
Machinery	0.003	5.0	-0.111	5.0
Office machinery	0.029	2.0	-0.100	4.0
Electrical & Telecoms equipment	0.034	1.0	-0.213	13.0
Professional Labour	0.004	4.0	-0.200	11.0
Managerial Labour	-0.012	11.0	-0.132	8.0
Clerical Labour	0.017	3.0	-0.123	7.0
Skilled Non-Manual Labour	-0.012	12.0	-0.227	14.0
Part Skilled Non-Manual Labour	-0.011	10.0	-0.119	6.0
Skilled Manual Labour	-0.015	14.0	-0.201	12.0
Part Skilled Manual Labour	-0.032	16.0	-0.189	10.0
Unskilled Labour	-0.013	13.0	-0.173	9.0

TABLE 4.1 : FACTOR REQUIREMENTS OF SOUTH KOREAN NET EXPORTS AND NET INWARD INVESTMENT

Factor	Factor Requirements of : Net Exports/ Consumption Value	Rank	Net Inward FDI/ Gross Investment Value	Rank
A. ALL ECONOMIC ACTIVITY				
Forestry	0.009	5	0.005	8
Fishing	0.237	1	0.013	6
Coal	0.014	4	0.004	9
Oil & natural gas	-0.050	7	0.000	11
Metallic ores	-0.317	11	0.004	10
Other minerals	0.022	3	0.014	4
Industrial plant & steelwork	-0.019	6	0.028	2
Machinery	-0.200	10	0.010	7
Office machinery	-0.054	8	0.014	5
Electrical & telecoms equipment	-0.093	9	0.037	1
Labour	0.034	2	0.022	3
B. EXCLUDING SERVICES				
Forestry	0.009	5	0.005	8
Fishing	0.237	1	0.013	5
Coal	0.015	4	0.002	10
Oil & natural gas	-0.050	6	0.000	11
Metallic ores	-0.317	11	0.004	9
Other minerals	0.025	3	0.011	6
Industrial plant & steelwork	-0.054	7	0.027	2
Machinery	-0.209	10	0.010	7
Office machinery	-0.192	9	0.018	4
Electrical & telecoms equipment	-0.168	8	0.040	1
Labour	0.033	2	0.025	3
C. SERVICES				
Forestry	-0.003	9	0.017	7
Fishing	-0.000	8	0.047	1
Coal	-0.005	10	0.010	9
Oil & natural gas	0.000	7	0.000	11
Metallic ores	-0.027	11	0.010	10
Other minerals	0.008	6	0.042	2
Industrial plant & steelwork	0.031	2	0.036	3
Machinery	0.018	4	0.018	6
Office machinery	0.016	5	0.012	8
Electrical & telecoms equipment	0.028	3	0.025	4
Labour	0.034	1	0.019	5

TABLE 3.2 : RANK CORRELATIONS - UNITED KINGDOM

	Rank Corr. Coefficient	t
A. BETWEEN NET EXPORTS AND NET INWARD INVESTMENT		
All Activity	0.517	2.3
Excluding Services	0.588	2.8
Services	0.436	1.9
B. BETWEEN NON-SERVICES AND SERVICES		
Net Exports/Consumption	0.176	0.7
Net Inward FDI/Gross Investment	0.275	1.1

TABLE 4.2 : RANK CORRELATIONS - SOUTH KOREA

	Rank Corr. Coefficient	t
A. BETWEEN NET EXPORTS AND NET INWARD FDI		
All Activity	0.200	1.875
Excluding Services	0.055	0.492
Services	0.464	5.315
B. BETWEEN NON-SERVICES AND SERVICES		
Net Exports/Consumption	0.027	0.246
Net Inward FDI/Gross Investment	0.700	12.353