

Appendix 1 South African export promotion schemes

From the 1970s South Africa embarked on an outward-oriented trade and industrial policy and to counteract the anti-export bias caused by import substitution policies, export incentives certain measures were introduced. These included income tax allowances for export market development, transport concessions, financing incentives and iron and steel export concessions. Exporters were also allowed to apply for rebate on the duty under Section 470.03 or a drawback of the duty under Section 521 of the Customs and Excise Act. This was however only available where actual imported products were used and ignored import price parity policies.

In September 1980 government introduced four categories of incentives:

- Category A (input compensation) provided for exporters to claim 50% of the value of the import duty applicable to inputs used in the production of export goods.
- Category B (value-added compensation) provided a subsidy of 10% of the value-added component of tariff-protected manufactured goods.
- Category C discretionary incentives were provided to exporters mainly to assist with marketing costs.
- Category D or Section 11bis of the income tax allowed exporters an additional deduction from taxable income of specified export marketing costs of either 75% or 100%.

Categories A and B were introduced to counter the cost-increasing effect of import substitution policies, while categories C and D assisted exporters to find new markets.

Table A.1 Total Category A export assistance (R millions)

Sector	1982	1983	1984	1985
Food	15.08	12.92	12.72	9.25
Beverages	0.06	0.10	0.03	0.01
Textiles	0.44	0.61	0.70	0.80
Clothing and footwear	1.31	1.32	2.90	3.02
Wood products	0.17	0.17	0.17	0.31
Furniture	0.19	0.19	0.21	0.17
Paper and paper products	1.74	2.11	2.30	2.00
Printing	0	0	0	0
Leather products	-	-	-	-
Rubber products	0.19	0.23	0.25	.012
Chemicals	3.44	3.33	0.96	1.97
Other chemicals	0.05	0.06	0.07	0.59
Non-metal mineral products	1.32	1.58	1.21	1.11
Basic metals	10.15	1078	11.32	18.60
Metal products	0.86	0.96	1.03	1.23
Machinery (excl. electrical)	0.70	0.42	0.49	0.34
Electrical machinery	0.54	0.54	0.37	0.47
Transport equipment	6.47	7.65	6.75	4.90
Other	0.46	0.44	0.53	0.92
Agriculture	9.79	7.17	8.09	15.06
Total (excl agriculture)	43.17	43.41	42.01	45.81
Total (incl. agriculture)	52.96	50.58	50.09	61.41

Source: BTI: Committee of Enquiry into Export Incentives, 1987.

Table A.2 Total Category B export assistance (R millions)

Sector	1982	1983	1984	1985
Food	14.21	11.45	16.11	21.67
Beverages	1.24	1.82	1.55	1.42
Textiles	1.27	1.77	2.31	2.87
Clothing and footwear	1.63	1.62	4.17	5.22
Wood products	0.58	0.79	0.74	0.73
Furniture	0.57	0.50	0.40	0.44
Paper and paper products	1.32	0.96	2.44	7.08
Printing	-	0	0	0
Leather products	-	-	-	-
Rubber products	0.48	0.49	0.47	0.16
Chemicals	15.23	10.74	9.72	15.22
Other chemicals	6.96	5.77	9.46	14.29
Non-metal mineral products	1.63	2.06	1.33	2.37
Basic metals	14.12	19.87	35.02	64.50
Metal products	3.13	2.7	2.85	3.57
Machinery (excl. electrical)	1.91	1.66	2.24	2.12
Electrical machinery	1.03	0.97	0.72	0.76
Transport equipment	1.54	1.09	1.03	1.40
Other	2.89	3.17	4.54	6.52
Agriculture	0.40	1.21	0.26	0.15
Total (excl agriculture)	69.74	67.43	95.09	150.34
Total (incl. agriculture)	70.12	68.64	95.35	150.49

Source: BTI: Committee of Enquiry into Export Incentives, 1987.

Table A.3 Total Category D export assistance (categories indicated by the claimants) R000

Sector	1982	1983	1984	1985
Food	24.4	26.6	16.0	23.7
Beverages	1.3	4.0	4.2	5.6
Textiles	3.2	4.3	6.7	8.6
Clothing and footwear	8.8	8.8	11.4	13.3
Wood products	1.3	2.2	1.9	2.3
Furniture	1.0	0.4	0.6	0.9
Paper and paper products	8.4	8.7	13.9	11.2
Printing	0.0	0.0	0.1	0.0
Leather products				
Rubber products	0.7	0.5	0.6	0.2
Chemicals	21.6	19.9	18.4	18.6
Other chemicals	2.1	4.9	22.8	42.3
Non-metal mineral products	6.7	8.0	8.0	10.5
Basic metals	34.1	30.3	47.0	65.9
Metal products	11.6	15.2	8.9	7.2
Machinery (excl. electrical)	4.1	5.7	7.1	8.8
Electrical machinery	2.6	1.8	5.2	4.7
Transport equipment	1.0	1.8	2.8	1.3
Other	3.1	4.7	6.5	6.3
Agriculture	59.3	49.8	72.1	97.6
Total (excl agriculture)	136.0	147.8	182.1	231.4
Total (incl. agriculture)	195.3	197.6	254.2	329.0

Source: BTI: Committee of Enquiry into Export Incentives, 1987.

Both Categories A and B were complicated and difficult to administer. Exporters had to complete numerous forms to prove their claims, adding to the cost of exporting.

Industries were not targeted and no prior analysis was done to determine which industries had either comparative or competitive advantages. The various categories were determined simply on the degree of raw materials beneficiation. Further, no analysis was done to determine price elasticity of supply in South Africa or the price elasticity of demand in foreign markets in order to give a subsidy to those industries which would have contributed the most to the growth of the South African economy. The subsidy was too general, no potential winners were identified. It was expected that equal results would be achieved by all sectors.

In the mid-1980s, there was a re-evaluation of the incentives and policies. They were found ineffective and new incentives had to be provided. (Jones, 1994). The Categories A and B schemes of the 1980s were not achieving the results necessary. Government consequently developed an incentive scheme that rewarded export performance while encouraging the beneficiation of local raw materials. The new General Export Incentive Scheme (GEIS) replaced the Categories A and B incentive schemes with effect from 1 April 1990. During the sanctions period, it was deemed necessary to promote exports more aggressively. To boost exports in general and manufactured goods in particular, it became essential for financial export incentives to be cost-effective.

(i) GEIS

In formulating the GEIS, the Government decided that certain basic requirements should be met. The most important of which were selectivity, simplicity, flexibility, and easy administration. The degree of assistance granted is determined according to a formula, which is based on the value of exports (U), the extent of processing of the export product (M), inflation and exchange rate fluctuations (E), as well as the local content of the export product (P).

The formula for the calculation of the GEIS benefit is:

$$Z = U \times (M \pm E) \times P$$

where:

- Z-value represented the tax-free incentive paid to exporters;
- U-value represented the free on board (f.o.b.) value;
- M-value represented the degree of value added; and
- P-value represented local content.

Since the GEIS was an open-ended scheme and the claims on the exchequer theoretically had no limit. The U-value included all transport and insurance costs incurred within South Africa getting the product to the harbour or border post. Commissions and other overheads cost which were

incurred outside South Africa were not included in the f.o.b. value. Using an f.o.b.-value as opposed to an ex-works value meant that transport was also being subsidised. This subsidy would therefore tend to assist inland exporters (mainly in the PWV/Gauteng region) who have spare capacity. This was not conducive to new investments. If an export promotion strategy is to be followed, a firm would more likely set-up near a port as it would be closer to sources of imported raw material and export markets. GEIS therefore hindered the development of industry in that potential investments would not be optimally located.

The M-value was designed to promote the export of products with a high degree of value added.

- Category 1: Primary Products that are products have not been beneficiated significantly and include basic raw materials and resources;
- Category 2: Beneficiated Primary Products that are products that have undergone at least the first stage of beneficiation but the added value relative to raw material input is still low;
- Category 3: Material Intensive Products are products have been beneficiated to such an extent that further addition of value can occur only if they are either incorporated in or transformed into category 4 products; and
- Category 4: Manufactured Products are products are considered those which have been fully manufactured and to which adding any further value is uneconomic or physically impossible to add before their use.

GEIS also made it more profitable to export products that were manufactured with South African content. The P-value is calculated using the following formula:

$$P = \frac{U - I}{U}$$

where:

- U is the value of exports based on the f.o.b. price; and
- I is the invoice value of inputs known to be imported.

Products containing more than 75% local content received 100% of the GEIS, while if the local content was less than 35% the export received no assistance. Within these parameters, the exporter would receive GEIS pro-rata to the actual percentage local content. GEIS therefore inherently maintained the anti-export bias and did not attempt to remove or reduce it. Only the symptoms and not the cause of South Africa's low export propensity was addressed. As in the case of the U-value including transport costs, the P-value did not encourage the development of export industries at coastal areas where manufacturers would have been able to import at world prices and then again export without incurring the additional transport costs between the port and Gauteng.

E-value was designed to compensate for the exchange-rate fluctuations and inflation. A greater subsidy was given if the South African Rand strengthened against a basket of currencies of South Africa's major trading partners. Since the inception of GEIS however this factor has been negative, which indicates that the authorities felt that the Rand was undervalued.

There were many problems with GEIS. It failed to neutralise the anti-export bias. Holden (1992) determined that there was an implicit tax of 71% (including gold - this figure is only 34% if gold is excluded) which was shifted to exportables. Government's de facto policy could therefore be considered import substitution; a view was confirmed by Belli et al (1993). GEIS was structured to maintain the anti-export bias. The U-value subsidised transport costs and therefore encouraged exporters to remain inland and away from the ports. The P-value discouraged exporters buying foreign inputs. It therefore provided no incentive to reduce the anti-export bias. It failed to recognise competitive or comparative advantages of various industries. No prior analysis was done to determine which industries had either comparative or competitive advantages. The various categories were determined simply on the degree of raw materials beneficiation. Further, no analysis was done to determine price elasticity of supply in South Africa or the price elasticity of demand in foreign markets to give a subsidy to those industries that would have contributed the most to the growth of the South African economy. The subsidy was too general, no potential winners were identified. It was expected that equal results would be achieved by all sectors.

(ii) Supply-side measures

In the mid-1990s government shifted its policies from "demand-side incentives" through which firms were encouraged to produce for a highly protected domestic market, to "supply-side measures" through which firms are encouraged to invest in products and processes that are internationally competitive. There are over 90 incentives, loans and rebates, that the Department of Trade and Industry has designed, including:

- Investment Support
- Small Business Development
- Empowerment Finance
- Increasing Competitiveness
- Innovation and Technology
- Export Assistance
- Industrial Development Zones

The South African Government introduced supply-sided measures which help to promote the diffusion of world class manufacturing including:

- Sector Partnership Fund;
- The Competitiveness Fund; and
- The Workplace Challenge.

Although each of these policies is designed based on world best practice, their take-up was slow. There were also limited consulting capabilities in South Africa to assist the restructuring processes.

Other incentives include:

Scheme	Sector Guide	Objective & Description
Accelerated Depreciation	Manufacturing	To encourage investment in manufacturing and expansion of existing plants. Provides for the deprecation of plant and machinery over three years and land building over ten years.
Critical Infrastructure Programme (CIP)	General	It supplements the infrastructure provided by existing public sector or private sector providers by funding a top-up grant between 10% and 30% of actual costs.
Competitiveness Fund	General	It provides financial support for improving the competitiveness of private sector South African firms. The Scheme will insist on a 50% contribution by the firm itself and grants will be paid on a reimbursement basis.
Bumble Bee Programme	Manufacturing - SMMEs	This is a sub-component of the Competitiveness Fund which provides free consulting services to micro-manufacturers
Duty Credit Certificate Scheme for exporters of textiles and clothing (DCCS)	Exporters - textile and clothing products	To improve export awareness, productivity and training to achieve international competitiveness
Export Marketing and Investment Assistance Scheme (EMIA)	Exporters – market research, trade missions & exhibitions	To assist exporters with primary export market research, with trade missions and with exhibitions. (Soon to be extended to inward and outward investment missions)
Foreign Investment Grant	General – Foreign Investors	To promote foreign investment A foreign investment grant to overseas companies investing in new machinery and equipment to establish projects in South Africa.
Motor Industry Development Programme (MIDP)	Manufacturing – Motor Industry	MIDP enables local vehicle and component manufacturers to increase production runs and encourages rationalization of the number of models manufactured by way of exports and complementing imports of vehicles and components.
Rebate Provisions	Manufacturing	Promotion of manufacturing and exportation of goods. Provisions exist for rebate or drawback of certain duties applicable to imported goods, raw material and components used in manufacturing, processing or for export.
Sector Partnership Fund	Manufacturing & Agro Processing	To promote collaborative projects that will enhance the productivity and competitiveness of the manufacturing and agro-processing firms / industries.
Skills Support Programme (SSP)	General	To encourage greater investment in training, improve industrial training systems, create opportunities for introduction of new advanced skills. RSA and facilitates employment promotion.
Small, Medium Enterprise Development Programme (SMEDP)	Manufacturing & Tourism	To create wealth, generate employment, develop entrepreneurship, promote empowerment, utilise local raw material, ensure sustainability of projects receiving incentives in the long run.
Technology and Human Resources for Industry Programme (THRIP)	Manufacturing	THRIP is aimed at enhancing the competitiveness of South African industry through the development of appropriate skilled people and of technology and encourages long-term strategic partnerships between industry, research and educational institutions and government.
Work Place Challenge	General	To enhance co-operation between workers and management to boost the country's competitiveness and employment creation by improving industrial performance and productivity.

Scheme	Sector Guide	Objective & Description
Agro Industries Development Finance	Manufacturing – agri, food, beverages & marine	Development and expansion of the agricultural, food, beverage and marine sectors.
Bridging Finance	General	Addressing the short term financing needs of entrepreneurs who have secured firm contracts (except construction contracts) with Government and/or the private sector.
Entrepreneurial Mining and Beneficiation Finance	Manufacturing – Mining & Jewellery	Development of small, and medium-sized mining and beneficiation activities and Jewellery manufacturing.
Empowerment Finance	Manufacturing	Assistance to emerging Industrialists / entrepreneurs to acquire a stake in formal businesses.
Finance for the Expansion of the Manufacturing Sector	Manufacturing	Development and the expansion of the manufacturing sector by providing finance for the creation of new or additional capacity.
Finance for the textiles, clothing, leather and footwear industries	Textiles, clothing, leather & footwear	Development and expansion of the sectors by providing finance for: The creation of new or additional production capacity; setting up distribution channels; working capital, pre-and post shipment trade finance for exports (see Export Finance).
Export Finance	Exporters	To assist the promotion of exports of capital goods and services by providing competitive US Dollar and Rand financing to prospective foreign buyers of equipment.
Import Finance	Manufacturing - Importers	Provision of medium to long dated import credit facilities to local importers of capital goods.
Support Programme for Industrial Innovation	Manufacturing	Support for SA based products or process development that represents a significant technological advance and has a commercial advantage over existing products, and thus have a potential to be successfully marketed.
Technology Industry Development Finance	IT, telecom, electronic	Development and expansion of technology intensive business in the IT, telecommunication, electronic and electrical industries.
Tourism Development Finance	Tourism	Development and expansion of the tourism industry by providing finance for commercial projects in the medium to large sectors of the tourism industry.
Wholesale Finance	Wholesale	Wholesale funding to Intermediaries for on lending to individual entrepreneurs.
Capacity Building Support for Retail Finance Intermediaries	Retail Finance Intermediaries	To provide capacity building support to new RFI's to initiate a loan portfolio and to assist existing RFI's to expand their loan portfolios To develop and strengthen business opportunities and create jobs for eligible entrepreneurs from previously disadvantaged communities. The support will cover expenses connected with the transfer of management, business skills and technology from Danish to South African companies and provide access to financing for the SA company.
DANIDA Business-to-Business Programme	General - SMMEs	A 100% Khula Guarantee to a financial will be considered for loans aimed exclusively at procurement of shares, purchasing of machinery and capital equipment essential for the business to succeed.
Emerging Entrepreneurial Scheme	General – SMMEs	To enable an entrepreneur to access funding from his/her bankers for the establishment, expansion or acquisition of a new or existing business. The maximum indemnity is 60-70% and tire maximum facility is R75 000.
Equity Fund	General – SMMEs	Provides for SMMEs that need to expand their activities, enter into joint ventures, re-capitalise the company, and those who want to buy out the existing shareholders.
Khula Start	General – SMMEs in rural areas	To promote greater access to micro-credit in rural areas.
Seed Loans for Retail Finance Intermediaries	Retail Finance Intermediaries	To provide initial capital to new organisations to initiate their portfolio, and to fund operational expenses over a predetermined period.
Standard Credit Guarantee Scheme	General – SMMEs	To enable an entrepreneur to access funding from his/her bankers for the establishment, expansion or acquisition of a new or existing business. The maximum indemnity is 60-70%. The maximum facility is R600 000.
Technology Transfer Guarantee Fund	Manufacturing - SMMEs	To provide loan guarantees for SMMEs for the sole purpose of acquiring manufacturing technology, which could be from South Africa or international / foreign country.

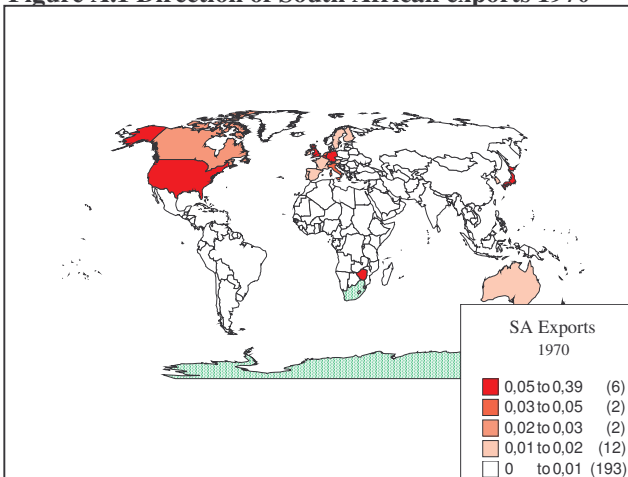
Source: **Wesgrow (2001)**

The complexity and number of schemes confuses manufacturers and exporters. This situation also benefits larger firms that have the resources to ascertain and comply with the requirements of each scheme.

Appendix 2 A graphical representation of South Africa's exports – destinations

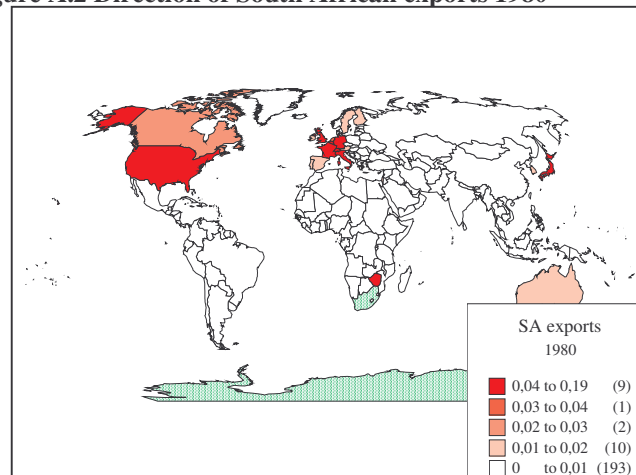
The maps below show the changing pattern of South African trade. In 1970 almost 40 per cent of South African exports were destined for the UK. Trade with other European countries strengthened during the 1980. In 1990 China became an important destination for South African products.

Figure A.1 Direction of South African exports 1970



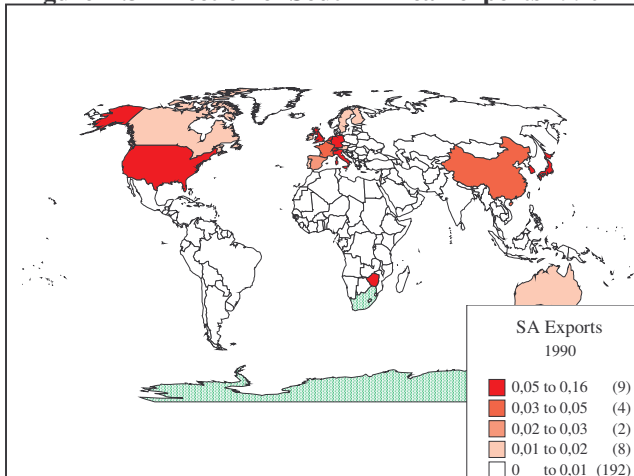
Source: Own calculation using IMF(2004).

Figure A.2 Direction of South African exports 1980



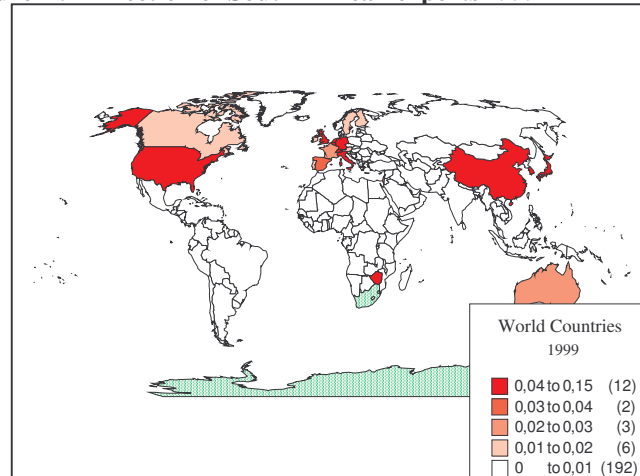
Source: Own calculation using IMF(2004).

Figure A.3 Direction of South African exports 1990



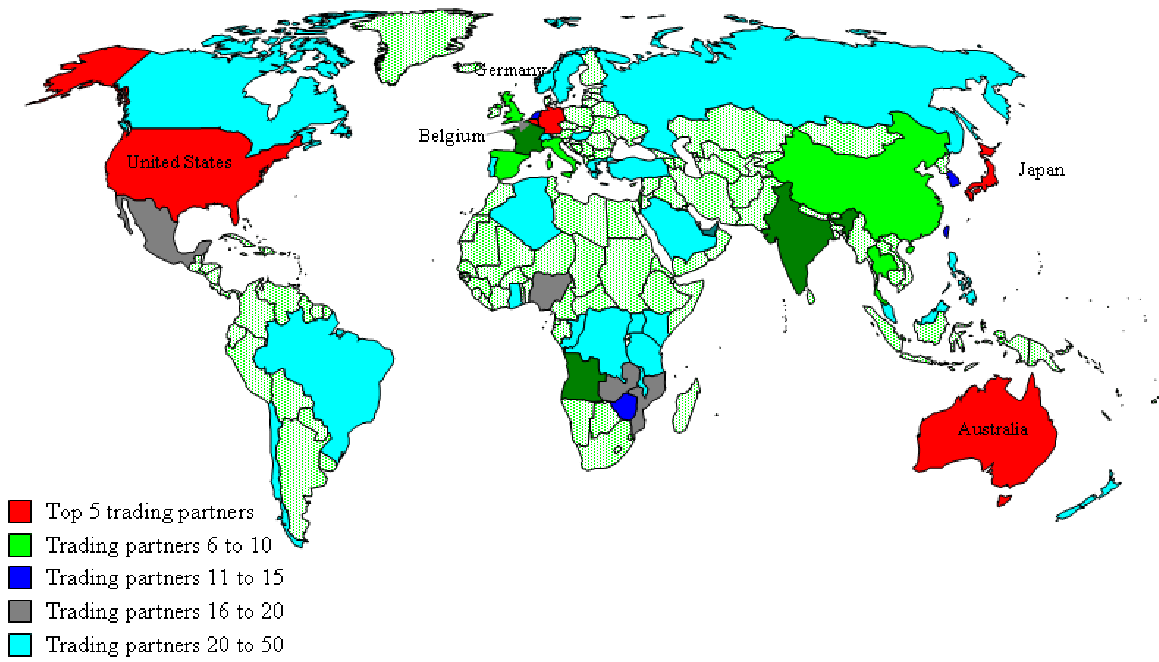
Source: Own calculation using IMF(2004).

Figure A.4 Direction of South African exports 1999



Source: Own calculation using IMF(2004).

Figure A.5 South Africa's top trading partners in 2002



Source: Own compilation using Quantec (2004) data.

Appendix 3 South Africa's nominal and effective protection

Table A.4 South Africa's import duties per sector

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
311	13043	2547345	1277681	1531035	2542014	1591431	1561591	1453936	153175	1346281	2176368	1193441
313	1642857	1630321	1642857	1642857	155178	15	1625	14125	175	12	1278291	1614286
314	52.5	379039	52.5	52.5	3552992	68.75	5204167	436875	3533333	3533333	3006454	3533333
321	1914316	1617784	1699252	1639501	1460704	3432145	3595027	2563633	3757908	1532239	1356582	149961
322	3038591	2330781	2382737	2344185	1855984	7694371	7717022	5170876	7739672	2624731	2479575	2110526
323	1493969	1321253	1493969	1451036	1281907	1723047	1617558	1581231	1512069	1544904	1180925	1440669
324	1692857	162297	1692857	1214286	1367783	3447906	3146175	318031	2844444	3214444	2334419	27.5
331	1344883	1148536	1344883	1297862	1112777	1391637	1290384	1138011	118913	9856383	8169462	8606383
332	2298913	1553084	2298913	2291667	152128	2190217	2168323	2147826	2146428	2127329	1454395	1940994
341	9714634	9521898	9608682	956641	9276924	9266535	8318536	8037964	7370536	7757392	6482541	7498925
342	4962963	8072542	4962963	462037	7508933	1035494	1002747	9107871	9.7	8188272	7814605	754321
351	8050515	9329162	7774159	7432361	8987437	8063732	5510596	3980861	295746	2451125	520769	2401251
352	1048229	1118212	1034936	1007977	103975	1118812	8298846	7098925	5409571	5899004	7440937	5300272
353	6497685	1060781	6945176	7208333	1054251	5962879	298144	3824053	0	4666667	7964255	4293561
354	59375	1188195	59375	625	1071522	625	6125	53125	6	4.5	8982871	4
355	1742654	1471793	1660917	1591984	1387669	1818198	1591573	1467587	1364948	13436	1126184	12625
356	2463268	1782641	2452312	202473	1518044	2731356	2163728	2044494	1596099	1925261	1346574	1504991
361	1605952	1200933	1605952	1605952	1183355	1585714	1492857	1432143	14	1371429	9087684	1214286
362	1215088	1102013	1210259	1059326	1011359	1055311	8928669	8819526	7304228	8710382	7678873	7494535
369	8613334	7959136	8596666	7774445	7607576	8725108	6249574	5381643	3774039	4513713	4461078	3990506
371	9524193	9889388	9488307	9152496	9633913	7676022	5683923	616987	3691823	6655818	6647364	4239738
372	4957905	7304939	4957905	4628385	7440707	5372128	3697094	3080729	2022059	2464364	4408444	2189693
381	1181418	1025458	1174072	1156812	1011533	1201729	9444756	8988216	6872222	8531675	6638911	7380694
382	4200964	9651972	4226398	3987346	1025303	4769154	3355091	3625999	1941028	3896907	6352523	1833115
383	1228982	8694986	1258708	1224775	8662541	123808	9491284	9190343	6601768	8889401	4746146	5616416
384	1419145	1510298	1440958	1730481	1651871	156898	1257621	1077445	9462615	8972689	880814	7714173
385	5100152	5100152	5100152	5077332	5077332	5363927	3149225	1876058	0934524	0602891	0602891	0484694
390	1601451	1601451	1598364	1573261	1573261	1618445	1089827	9770931	5612094	864359	864359	6548718

Source: UNCTAD: Trains

Tariff data are available through the TRAINS database maintained by UNCTAD. It is a comprehensive computerized information system at the HS-based tariff line level that covers tariff, para-tariff and non-tariff measures as well as import flows by origin for more than 100 countries.

Table A.5 Effective Rate of Protection

Sector	ERP88	ERP89	ERP90	ERP91	ERP92	ERP93	ERP94	ERP95	ERP96	ERP97	ERP98	average ERP88-93	average ERP94-98
Agr, Forestry and Fishing	0.04	0.04	0.05	0.06	0.06	0.06	0.06	0.05	0.07	0.06	0.08	0.05	0.06
Coal Mining	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Gold and Uranium Mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.01
Other Mining	-0.08	-0.04	-0.04	-0.07	-0.07	-0.07	-0.08	-0.05	-0.06	-0.04	-0.04	-0.06	-0.05
Food	-0.01	-0.01	0.02	0.04	0.07	0.05	0.08	0.07	0.05	0.06	0.06	0.03	0.06
Beverages	0.03	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01

Sector	ERP88	ERP89	ERP90	ERP91	ERP92	ERP93	ERP94	ERP95	ERP96	ERP97	ERP98	average ERP88-93	average EPR94-98
Tobacco	0.02	0.02	0.06	0.02	0.03	0.06	0.07	0.22	0.07	0.22	0.04	0.04	0.12
Textiles	0.15	0.14	0.11	0.10	0.07	-0.01	0.03	0.08	0.17	0.17	0.23	0.09	0.14
Wearing apparel	0.15	0.19	0.15	0.09	0.08	0.03	0.06	0.07	0.07	0.11	0.11	0.12	0.08
Leather	0.22	0.20	0.20	0.21	0.20	0.21	0.20	0.17	0.22	0.24	0.26	0.21	0.22
Footwear	0.33	0.26	0.24	0.31	0.33	0.33	0.34	0.21	0.23	0.23	0.21	0.30	0.24
Wood and wood prod	0.03	0.02	0.03	0.02	-0.01	0.02	0.02	0.00	0.01	0.02	0.02	0.02	0.01
Paper and Paper Prod	1.24	1.14	1.00	1.15	1.14	1.20	0.87	0.49	0.62	0.54	0.56	1.15	0.62
Print, pub and recording	0.14	0.10	0.11	0.15	0.14	0.14	0.14	0.10	0.14	0.14	0.15	0.13	0.13
Coke and ref petrol	-0.01	-0.02	-0.01	-0.02	-0.01	-0.01	0.00	-0.01	-0.03	-0.01	-0.01	-0.01	-0.01
Basic Chemicals	0.10	0.06	0.06	0.04	0.04	0.05	0.03	0.03	0.03	0.02	0.03	0.06	0.03
Other chem & Man fibres	0.05	0.04	0.04	0.05	0.03	0.03	0.03	0.02	0.08	0.03	0.01	0.04	0.03
Rubber	0.17	0.18	0.18	0.17	0.16	0.16	0.16	0.13	0.16	0.19	0.18	0.17	0.16
Plastic prod	0.17	0.15	0.15	0.34	0.15	0.16	0.16	0.10	0.12	0.10	0.11	0.19	0.12
Glass and glass product	1.25	1.14	0.88	0.86	0.86	0.93	0.78	0.54	0.46	0.47	0.57	0.99	0.56
Non metallic minerals	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01
Basic Iron and Steel	0.21	0.20	0.23	0.22	0.19	0.21	0.21	0.13	0.15	0.17	0.16	0.21	0.16
Basic non ferrous met	0.06	0.07	0.08	0.07	0.05	0.05	0.07	0.05	0.06	0.02	0.02	0.06	0.04
Metal prod excl machinery	0.01	0.02	0.02	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Machinery & Equip	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical machinery	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.02	0.04	0.03	0.03	0.04	0.03
TV radio and equip	0.11	0.11	0.12	0.11	0.12	0.12	0.09	0.06	0.03	0.03	0.02	0.12	0.05
Professional and scientific	0.11	0.10	0.10	0.10	0.09	0.09	0.11	0.06	0.07	0.08	0.10	0.10	0.08
Motor vehicles Parts	0.08	0.07	0.06	0.07	0.05	0.05	0.03	0.03	0.04	0.04	0.02	0.06	0.03
Other transport	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00
Furniture	0.17	0.07	0.08	0.11	0.08	0.04	0.01	0.03	0.05	0.06	0.04	0.09	0.04
Other industries	0.05	0.04	0.05	0.05	0.04	0.04	0.03	0.02	0.02	0.00	0.00	0.05	0.01
Elect Gas and Steam	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.05	0.07	0.06	0.06	0.07	0.06
Building Construction	-0.01	0.00	0.00	-0.01	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01
Wholesale and Retail Trade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport and Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Finance and Insurance	-0.19	-0.18	-0.2	-0.2	-0.2	-0.2	-0.2	-0.15	-0.22	-0.17	-0.18	-0.2	-0.18
Med, dent, health and Vet	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: Federekke and Vaze, 2001

The IDC (1990) undertook a study into South Africa's effective protection. They assumed that firms set their prices up to the limit allowed by the tariff. On average the effective protection was 13% on inputs and 18% on outputs and the effective rate of protection was in the order of 30%.

Appendix 4 South Africa's exports – industries

Table A.6: Export growth during the 1970s 1980s and 1990s

	1970s	Rank	1980s	Rank	1990s	Rank	1970-2000	Rank
Furniture	61.3%	1	20.5%	2	32.4%	3	38.0%	1
Tobacco	50.5%	2	22.7%	1	15.4%	16	29.5%	2
Wood	38.0%	3	6.7%	18	10.3%	20	18.4%	5
Clothing	29.8%	4	6.5%	21	19.3%	14	18.5%	4
Non-ferrous products	29.8%	5	8.8%	14	6.0%	25	14.9%	10
Motor vehicles	24.9%	6	6.6%	19	28.9%	5	20.1%	3
Footwear	23.6%	7	-1.2%	26	29.7%	4	17.4%	6
Leather	19.9%	8	6.6%	20	24.1%	7	16.9%	7
Iron	14.4%	9	10.1%	10	3.4%	26	9.3%	22
Textiles	13.9%	10	8.8%	15	3.1%	27	8.6%	23
Chemicals	12.0%	11	8.1%	16	11.5%	19	10.6%	18
Glass	9.7%	12	13.5%	7	7.6%	23	10.3%	20
Transportation equipment	9.3%	13	7.2%	17	34.1%	1	16.8%	8
Food	8.4%	14	-2.0%	27	7.9%	22	4.8%	27
Other	6.7%	15	2.0%	25	2.9%	28	3.8%	28
Metal products	6.2%	16	12.6%	8	15.1%	17	11.3%	16
Paper	5.9%	18	15.6%	3	7.2%	24	9.6%	21
Non-metallic products	5.2%	19	-5.5%	28	17.6%	15	5.8%	25
Print	4.6%	20	6.2%	23	33.3%	2	14.7%	11
Rubber	4.4%	21	14.8%	5	19.9%	13	13.0%	12
Beverages	3.8%	22	14.2%	6	26.9%	6	14.9%	9
Scientific equipment	3.7%	23	11.6%	9	21.2%	11	12.2%	13
Electrical machinery	3.7%	24	9.8%	12	22.1%	10	11.9%	14
Machinery	1.6%	25	9.9%	11	23.1%	8	11.5%	15
Petroleum	0.3%	26	4.1%	24	12.0%	18	5.5%	26
Other chemicals	-0.6%	27	9.6%	13	22.4%	9	10.5%	19
Plastic	-3.0%	28	15.4%	4	21.0%	12	11.1%	17
Manufacturing	6.1%		6.3%		10.3%		7.6%	
Total	0.9%		1.5%		4.9%		2.4%	

Source: Own calculations using Quantec (2004)

Appendix 5 South Africa's revealed comparative advantage (RCA)

Table A.7 Revealed Comparative Advantage Index

SITC	1980-85 Rank	1986-90 Rank	1991-95 Rank	1996-00 Rank	2001 Rank					
Non metallic mineral manufactures, n.e.s.	3,28	7	1,59	15	2,38	13	5,00	6	14,05	1
Coal, coke and briquettes	4,22	4	9,29	4	14,48	2	17,03	1	10,59	2
Live animals, zoo animals, dogs, cats etc.	1,04	16	0,69	17	2,23	15	3,73	7	6,72	3
Metalliferous ores and metal scrap	3,48	6	4,74	5	5,90	6	7,39	2	6,24	4
Sugar, sugar preparations and honey	2,79	8	3,25	8	2,32	14	5,01	5	5,06	5
Crude fertilisers and crude materials (excl. coal)	4,04	5	4,53	7	10,95	3	3,62	9	3,69	6
Pulp and waste paper	1,85	13	1,87	11	3,91	7	5,26	3	3,47	7
Special transactions & commodities, not classified	29,18	1	0,47	23	10,07	4	3,66	8	3,35	8
Inorganic chemicals	1,58	15	2,19	10	3,67	8	5,21	4	3,25	9
Iron and steel	1,80	14	1,85	12	2,82	10	3,21	10	2,81	10
Commodities and transactions not elsewhere classified.	17,26	2	12,38	3	9,01	5	2,83	13	2,43	11
Hides, skins and fur skins, raw	2,45	9	1,65	13	2,54	12	3,10	12	2,36	12
Fish, crustaceans, molluscs, preparations thereof	0,76	17	0,68	18	0,93	19	1,41	20	2,04	13
Beverages	0,20	36	0,11	40	0,78	22	2,08	16	1,99	14
Miscellaneous, edible products and preparations	0,25	33	0,10	42	0,45	33	0,89	30	1,93	15
Vegetables and fruit	2,31	10	2,31	9	2,72	11	3,15	11	1,93	16
Non ferrous metals	2,18	11	4,71	6	2,94	9	2,76	14	1,74	17
Fertilisers, manufactured	0,45	24	0,22	35	1,11	17	2,30	15	1,47	18
Cork and wood	0,25	31	0,35	24	0,52	29	1,22	22	1,22	19
Live animals chiefly for food	0,10	49	0,02	64	0,06	64	0,22	58	1,20	20
Textile fibres (except wool tops) and their wastes	1,94	12	1,65	14	1,77	16	1,92	18	1,19	21
Furniture and parts thereof	0,17	40	0,25	33	0,78	23	1,94	17	1,15	22
Tobacco and tobacco manufactures	0,25	34	0,33	28	0,28	43	0,88	32	1,11	23
Essential oils & perfume mat; toilet cleansing mat	0,15	42	0,06	51	0,36	36	0,83	33	1,07	24
Machinery specialised for particular industries	0,12	46	0,08	44	0,34	39	0,96	28	1,07	25
Leather, leather products, n.e.s. and dressed furs skin	0,57	20	0,83	16	1,04	18	1,63	19	0,96	26
Arms of war and ammunition	0,00	68	0,05	53	0,05	67	1,24	21	0,84	28
Paper, paperboard pulp	0,42	26	0,48	22	0,85	20	1,02	25	0,84	29
Chemical materials and products, n.e.s.	0,33	29	0,13	39	0,62	27	1,09	24	0,82	30
Chemicals and related products, n.e.s.	0,41	27	0,34	26	0,65	26	0,96	27	0,66	32
Rubber manufactures, n.e.s.	0,11	48	0,08	46	0,34	38	1,01	26	0,65	33
Cork and wood manufactures (excl. furniture)	0,18	39	0,28	30	0,68	25	0,70	38	0,59	35
Manufactures of metal, n.e.s.	0,25	32	0,16	37	0,50	30	0,93	29	0,57	36
Dyeing, tanning and colouring materials	0,51	22	0,25	31	0,49	31	0,72	37	0,56	37
Organic chemicals	0,16	41	0,16	38	0,39	34	0,80	34	0,56	38
Road vehicles (incl. air cushion vehicles)	0,07	58	0,03	60	0,27	45	0,61	39	0,54	39
Textile yarn, fabrics, made up art., related products	0,31	30	0,25	32	0,33	41	0,48	43	0,36	45
Articles of apparel and clothing accessories	0,13	45	0,10	41	0,21	48	0,26	56	0,34	47
Crude rubber (including synthetic and reclaimed)	0,10	51	0,08	45	0,13	56	0,48	42	0,33	48
Artificial resins, plastic mat., cellulose esters/ethers	0,18	38	0,09	43	0,30	42	0,35	50	0,32	49
Petroleum, petroleum products and related materials	0,02	65	0,07	48	0,13	57	0,27	55	0,31	50
Gold, non monetary	5,72	3	18,22	2	15,18	1	0,73	36	0,31	51
General industrial machinery & equipment and parts	0,13	43	0,05	52	0,27	44	0,47	45	0,31	52
Other transport equipment	0,08	56	0,07	47	0,19	49	0,50	41	0,29	53
Metalworking machinery	0,07	57	0,04	59	0,10	60	0,24	57	0,17	57
Professional, scientific & controlling instruments	0,09	53	0,05	56	0,13	55	0,27	54	0,14	60
Electrical machinery, apparatus & appliances n.e.s.	0,10	52	0,03	62	0,10	61	0,16	62	0,12	61
Medicinal and pharmaceutical products	0,18	37	0,04	57	0,12	58	0,21	59	0,11	62
Travel goods, handbags and similar containers	0,04	62	0,05	55	0,10	59	0,18	61	0,10	63
Footwear	0,04	61	0,02	66	0,08	62	0,11	65	0,06	66
Unclassified	0,00	69	28,34	1	0,00	69	0,00	69	0,00	69

The following formula was used in calculating the revealed comparative advantage:

$$RCA_{ij} = \frac{\left(\frac{x_{ij}}{X_{it}} \right)}{\left(\frac{x_{wj}}{X_{wt}} \right)}$$

where:

- x_{ij} = the value of country i's exports of product j
- X_{it} = the value of country i's total exports
- x_{wj} = the value of world exports of product j
- X_{wt} = the value of world total exports

Appendix 6 Provincial export values per sector according to destination

Table A.8 Provincial export values per sector according to destination

	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North-West	Western Cape
Total	5 785 196	55 470	23 950 109	18 160 692	533 835	851 491	136 858	4 118 088	5 444 426
Africa	161 299	101 531	5 332 809	1 558 587	48 055	108 189	6 512	78 708	976 130
Asia	44 340	191	494 583	135 221	4 391	2 268	0	33 283	130 979
Atlantic	2 318 847	131 808	37 815 926	5 763 468	202 684	436 349	614 783	1 304 383	6 436 643
Caribbean	67 453	11 040	1 239 822	829 232	32 619	72 750	209	70 311	225 764
Central America	10 617 334	185 168	41 828 899	10 421 255	712 979	1 756 955	5 214 254	5 025 786	14 112 226
Europe	919 738	645 858	22 673 898	7 473 981	90 009	270 775	12 061	225 108	5 906 356
Middle East	1 110 029	120 156	17 609 922	5 410 641	342 247	670 933	12 922	1 753 494	3 737 740
North America	1 589 183	32 820	2 290 113	1 763 834	9 492	79 970	1 160	101 265	566 189
Oceania	7 346	78	80 259	39 679	396	7 986	0	50	71 655
South America	0	0	3 384	3 244	0	0	0	0	41 754
11 Agriculture and hunting									
Asia	48 535	1 121	458 049	40 113	54 500	15 351	18 371	36 082	774 038
Atlantic	0	0	377	0	0	0	0	0	1 648
Caribbean	0	0	59	0	0	0	0	0	438
Central America	5	1	231	262	291	0	0	961	4 884
Europe	569 396	33 163	766 848	47 240	318 566	78 658	100 569	97 828	3 436 703
Middle East	13 978	130	99 231	51 277	9 564	3 925	202	2 107	540 957
North America	11 584	315	116 998	12 420	32 514	23 771	12 111	1 949	389 864
Oceania	95	186	7 546	3 733	595	3 489	199	927	38 123
South America	3 728	0	4 154	0	2 871	19 193	168	1 186	3 946
12 Forestry and logging									
Africa	1	0	14 691	2 101	0	6 619	0	0	3 374
Asia	683	180	19 130	8 463	0	0	0	49 107	3 951
Atlantic	0	0	0	0	0	0	0	0	19
Caribbean	0	0	1	0	0	0	0	0	0
Central America	7	0	0	26	0	0	0	0	64
Europe	4 556	2 682	21 969	21 948	0	2 804	0	5 655	56 134
Middle East	0	0	3 299	6 095	0	6 007	0	17 861	476
North America	0	105	195	43	0	2	137	0	5 991
Oceania	0	0	45	12	0	0	0	0	517
South America	66	0	885	153	0	0	0	0	606
13 Fishing, operation of fish farms									
Africa	0	0	2 556	199	0	117	0	0	3 450
Asia	0	0	560	213	0	0	0	0	221 194
Atlantic	0	0	0	0	0	0	0	0	0
Caribbean	0	0	0	0	0	0	0	0	0
Central America	0	0	0	0	0	0	0	0	0
Europe	35 241	0	891	56	56	0	0	0	440 776
Middle East	0	0	7	2	0	0	0	0	0
North America	169	0	114	17	0	0	0	0	42 832
Oceania	0	0	6	413	0	0	0	0	386
South America	0	0	13	0	0	0	0	0	1
21 Mining of coal and lignite									
Africa	0	19	575 349	1 778	0	31 050	0	1 054	83
Asia	116	0	1 071 169	0	0	0	0	0	0
Atlantic	0	0	0	0	0	0	0	0	0
Caribbean	0	0	0	0	0	0	0	0	0
Central America	0	0	7 952	0	0	0	0	0	0
Europe	0	0	10 000 004	0	0	685 471	0	0	0
Middle East	0	0	1 217 858	0	0	0	0	0	0
North America	0	0	25 007	0	0	14 526	0	0	48
Oceania	0	0	16	0	0	0	0	0	0

South America	0	0	205 876	0	0	1226	0	0	0
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	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North-West	Western Cape
23 Mining of gold and uranium ore									
Africa	0	0	0	0	0	0	0	0	0
Asia	0	0	23	0	0	0	0	0	0
Atlantic	0	0	0	0	0	0	0	0	0
Caribbean	0	0	0	0	0	0	0	0	0
Central America	0	0	0	0	0	0	0	0	0
Europe	0	0	0	0	0	0	0	0	0
Middle East	0	0	11 869	0	0	0	0	0	0
North America	0	0	0	0	0	0	0	0	41
Oceania	0	0	0	0	0	0	0	0	0
South America	0	0	0	0	0	0	0	0	0
24 Mining of metal ores									
Africa	0	0	34 923	1 001	3 933	0	0	1 243	29
Asia	5 750	179	7 311 044	3 082 004	9 371	0	0	1 634 288	20 366
Atlantic	0	0	0	0	0	0	0	0	0
Caribbean	0	0	548	0	0	0	0	0	0
Central America	0	0	1 560	0	0	0	0	0	577
Europe	6 887	0	7 193 494	2 254 908	951	0	0	1 979 963	410 196
Middle East	0	0	23 455	21 026	0	0	0	0	64
North America	0	4 688	7 317 725	716 908	808	0	0	1 004 224	118 125
Oceania	0	0	32 825	533	0	0	0	0	0
South America	737	87	46 854	27 072	0	1 089	0	0	13 188
25 Other mining and quarrying									
Africa	719	11	207 298	51 649	80	81	74	84	187 690
Asia	0	21	193 081	8 069	21 676	2 251	5 993	285	15 844
Atlantic	0	0	240	0	0	0	0	0	52
Caribbean	0	0	1	0	0	0	0	0	10 959
Central America	0	0	1 407	3	4 082	0	0	0	199
Europe	135	666	2 004 444	23 280	117 362	166	5 003 048	12 155	694 562
Middle East	0	0	1 161 425	5 144	2 798	0	4 551	0	1 491
North America	0	0	252 469	18 433	72 210	1 454	0	274	4 864
Oceania	0	0	12 371	0	5 010	0	0	1	8 462
South America	0	0	2 216	15	653	1 237	0	0	1 214
30 Food, beverages and tobacco products									
Africa	142 335	3 035	2 380 780	878 215	13 018	55 300	469	1 545	759 460
Asia	183 347	4 136	218 133	669 094	5 302	8 023	978	1 120	866 832
Atlantic	0	0	1 453	83	0	0	0	0	15 581
Caribbean	3 945	0	15 696	1 718	396	0	0	0	14 292
Central America	4	0	2 716	3 954	0	0	0	0	13 669
Europe	798 983	8 458	354 986	115 925	86 531	22 029	11 229	5 379	4 533 764
Middle East	57 619	505	266 234	129 320	17 617	14 928	0	38	146 721
North America	51 490	134	110 475	96 066	11 760	3 470	188	988	742 382
Oceania	4 477	119	64 945	26 148	2 556	413	0	2 835	233 374
South America	10 085	0	7 949	3 830	0	1 007	0	42	31 704
31 Textiles, clothing and leather goods									
Africa	57 683	13 601	291 708	176 433	4 664	2 584	70	1 352	254 667
Asia	390 408	813	135 878	110 967	2	10	0	1 000	156 389
Atlantic	0	0	79	53	0	0	0	0	1 356
Caribbean	368	0	500	1 811	0	70	0	0	22 188
Central America	19 889	102	2 708	1 386	0	3	0	0	12 145
Europe	773 220	5 173	202 983	549 623	573	12 982	20	2 102	554 890
Middle East	19 668	264	21 309	39 438	0	401	0	0	117 109
North America	442 924	27 665	210 067	685 216	265	16 298	0	92	435 877
Oceania	19 702	165	21 099	66 688	15	7 271	0	29	63 888
South America	11 960	0	2 469	10 977	0	448	0	36	4 873

	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North-West	Western Cape
32 Wood, paper and printing									
Africa	22 052	2 261	1 095 038	830 291	2 891	7 295	45	1 785	198 621
Asia	818	23	837 028	3 404 907	79	6 849	0	1	10 510
Atlantic	0	0	348	0	0	0	0	0	2 260
Caribbean	77	0	928	209	0	0	0	0	219
Central America	9	0	7 107	9 859	0	0	0	0	3
Europe	39 325	234	728 866	2 118 897	4 613	9 340	2 080	370	270 220
Middle East	961	1	81 610	251 648	1	2 688	0	154	22 215
North America	6 645	106	40 587	362 136	206	8 696	37	0	152 154
Oceania	632	40	69 450	176 692	5	4 886	366	163	24 528
South America	591	55	31 164	96 633	0	0	0	0	3 300
33 Fuel, petroleum, chemical and rubber products									
Africa	380 840	524 468	5 891 297	1 678 551	8 194	12 197	672	19 715	3 132 527
Asia	66 962	45 360	2 213 977	1 386 726	225 952	59 448	3	146 736	1 512 272
Atlantic	0	0	86	1 987	0	0	0	0	6 641
Caribbean	1 068	0	18 626	4 959	0	139	0	0	3 436
Central America	735	0	65 930	50 736	0	0	0	3 838	72 421
Europe	336 042	103 448	1 993 465	1 198 563	165 436	244 880	12	151 882	1 144 772
Middle East	51 454	10 659	479 548	114 767	17 315	31	0	5 905	76 710
North America	130 686	7 510	1 244 176	1 140 623	216 619	136 372	0	124 346	991 496
Oceania	30 831	22 038	215 079	271 274	12	3 557	0	15 631	73 190
South America	6 816	9 187	271 350	311 601	26 934	6 877	0	144	114 837
34 Other non-metallic mineral products									
Africa	5 650	3 136	463 017	29 484	1 030	17 453	0	294	119 598
Asia	940	0	83 257	11 119	9 753	36	0	8 147	2 574
Atlantic	0	0	275	0	0	0	0	0	1 551
Caribbean	67	0	623	0	0	0	0	0	62
Central America	0	0	2 644	2	0	0	0	0	0
Europe	262 097	770	287 999	32 097	30	142	0	187 601	66 556
Middle East	3 652	171	51 294	1 528	0	58	0	0	1 440
North America	101 834	431	105 819	2 814	97	173	0	11 302	10 762
Oceania	1 938	65	50 618	2 088	23	3 404	0	0	4 003
South America	132	242	30 221	21	0	0	0	46	225
35 Metal products, machinery and household appliances									
Africa	40 132	29 082	6 194 931	2 613 920	29 113	86 369	1 819	67 579	485 671
Asia	244 913	1 670	7 246 839	8 865 351	207 114	755 959	111 514	2 230 826	1 145 971
Atlantic	0	0	385	536	0	0	0	0	7 450
Caribbean	8	78	26 974	10 469	0	7 695	0	50	2 961
Central America	13 537	0	339 399	67 512	0	1 935	0	27 208	6 350
Europe	3 378 603	10 370	9 205 095	2 494 341	4 983	663 464	229	2 367 472	829 248
Middle East	4 889	2 365	855 166	846 182	0	77 569	0	52 265	39 881
North America	120 257	9 909	2 605 034	1 713 466	1 046	452 032	377	607 738	195 020
Oceania	54 020	7 794	699 497	366 452	55	56 444	594	13 971	47 985
South America	4 287	1 029	480 000	354 323	2 104	41 434	41	67 993	24 817
36 Electrical machinery and apparatus									
Africa	2 395	219 724	1 696	13 756	0	2 111	5 349	1 010 475	33 530
Asia	52 901	0	111 818	18 144	12	14	0	8 471	14 445
Atlantic	0	0	0	0	0	0	0	0	1 179
Caribbean	0	0	1 512	60	0	0	0	0	1 237
Central America	0	0	3 466	737	0	3	0	1 141	6
Europe	534 770	9 982	218 354	103 031	53	16	10	155 087	54 963
Middle East	5 711	23	60 308	6 731	0	651	0	0	6 331
North America	702	3	57 489	49 448	4	4	0	59	24 500
Oceania	18 220	219	44 484	15 618	0	1	0	55 753	12 513
South America	732	0	5 266	215	0	0	0	2	397

	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North-West	Western Cape
37 Electronic, sound/vision, medical & other appliances									
Africa	5 107	6 834	1 395 388	188 912	2 332	3 449	175	5 461	95 543
Asia	147	1 118	217 215	47 647	0	41	0	248	26 399
Atlantic	0	0	0	0	0	0	0	0	585
Caribbean	0	0	1 409	71	0	0	0	0	932
Central America	0	60	37 767	74	0	0	0	0	755
Europe	13 882	629	984 724	94 533	38	41	0	661	333 423
Middle East	370	222	228 568	29 426	0	96	0	208	4 601
North America	970	392	91 893	16 896	73	16	0	141	79 988
Oceania	546	1 670	45 532	154 994	6	89	0	18	8 746
South America	2 240	246	39 492	5 434	0	0	0	8	711
38 Transport equipment									
Africa	212 421	52 694	1 947 739	368 942	7 786	2 938	185	2 132	81 704
Asia	4 766 922	42	2 910 598	26 290	23	59	0	1 008	242 830
Atlantic	0	0	141	585	0	0	0	0	1 754
Caribbean	1 679	0	12 251	1 239	0	0	0	0	13 676
Central America	10 066	0	17 208	1	0	0	0	115	3 379
Europe	3 315 092	2 471	1 880 335	885 276	553	36	0	58 852	726 584
Middle East	984	0	52 696	10 573	569	1 516	0	144	3 823
North America	224 807	347	4 326 688	552 532	378	16	0	807	250 833
Oceania	1 454 549	483	988 030	483 864	77	112	0	9 796	23 770
South America	25 027	194	107 361	16 447	0	3	0	856	12 810
39 Furniture and other items NEC and recycling									
Africa	2 182	3 212	370 772	106 141	10 056	4 052	19	1 527	80 874
Asia	22 752	807	920 986	477 619	53	3 031	0	90	430 727
Atlantic	0	0	0	0	0	0	0	0	1 679
Caribbean	134	0	1 131	7 774	0	83	0	0	1 076
Central America	88	28	4 424	127	19	327	0	19	16 525
Europe	549 004	7 122	5 967 749	456 161	13 221	33 272	97 056	778	552 900
Middle East	2 014	87 193	712 022	45 430	189	318	1 759	26	14 307
North America	17 961	66 621	1 092 614	43 622	6 266	11 404	72	1 504	276 673
Oceania	3 829	42	38 271	189 878	1 137	303	0	2 142	26 704
South America	1 052	0	4 510	2 324	58	238	0	0	13 135
Other unclassified goods									
Africa	89	183	31 115	28 794	0	1 843	0	32	10 366
Asia	0	0	1 323	3 964	0	417	0	682	85
Atlantic	0	0	0	0	0	0	0	0	0
Caribbean	0	0	0	11 367	0	0	0	0	179
Central America	0	0	61	542	0	0	0	0	1
Europe	99	0	16 625	25 372	12	3 632	0	0	6 534
Middle East	0	0	6 909	0	0	0	0	0	5
North America	0	1 928	12 572	2	0	2 699	0	70	16 290
Oceania	344	0	299	5 447	0	0	0	0	0
South America	0	0	40	188	0	0	0	0	0

Appendix 7 South Africa's preferential market access

(i) The World Trade Organization

As far as South Africa's market access is concerned, the most important player is the World Trade Organization (WTO), which superseded and replaced the General Agreement on Tariffs and Trade (GATT), a provisional, multilateral agreement governing international trade from 1947 until 1995. South Africa is a founding member of both the GATT and the WTO and is obliged to subscribe to the WTO's rules and as such has simplified its customs tariffs and has consented to limit its tariffs to WTO-agreed levels.

The WTO inherited a number of core principles from the GATT, including:

- non-discrimination
- reciprocity of trade concessions
- trade liberalisation
- transparency and predictability in import and export rules and regulations
- favourable treatment to less developed countries

The Trade Policy Review Mechanism, a non-judgemental, non-confrontational process periodically accesses a country's trade policies and notes any changes; and a Dispute Settlement Body that hands down binding judgements in trade disputes.

(ii) The Southern African Development Community

The Southern African Development Community (SADC) consists of 14 member countries, namely the five Southern African Custom Union¹ (SACU) member countries, as well as Angola, the Democratic Republic of Congo, Malawi, Mauritius, Mozambique, Seychelles, Tanzania, Zambia and Zimbabwe. In August 1996, SADC members, with the exception of Angola, signed the Trade Protocol that envisages the establishment of a Free Trade Area (FTA) by 2008. The SADC Protocol on Trade came into being on 25 January 2000 after ratification by two thirds of the signatory states.

¹ South Africa, Lesotho, Swaziland, Botswana and Namibia.

(iii) Cotonou Agreement (previously Lomé Convention)

On 23 June 2000, the European Union (EU) and the African Caribbean and Pacific (ACP) countries signed a new Agreement (Cotonou Agreement) which replaced the old Lomé Convention. The intention of the Agreement is for the EU to assist the ACP by, for example, allowing for the non-reciprocal customs duty-free entry for ACP countries' products into the EU.

South Africa, a qualified member, does not qualify for the non-reciprocal trade preferences offered under the Agreement, but does qualify for the cumulation provisions. This means that South African inputs used by the Southern African Trade Agreement's member countries will be deemed to be of local content. In addition, South African companies are now able to tender for EU contracts.

(iv) Other agreements

South Africa is a member of the Southern African Customs Union, Common Monetary Union, SADC, World Bank, International Monetary Fund, Organisation of African Unity, United Nations Organisation, the WTO and the British Commonwealth. South Africa has partially acceded to the Cotonou Agreement between the EU and several developing countries.

However, there are also agreements and trade blocs over which South Africa has no influence but which affect the way in which we trade. Perhaps the EU agreements are the most important because the EU is South Africa's biggest trading partner. Many of the regulations and directives that they pass and administer have a direct impact on trade. There are other regional integration agreements, such as NAFTA, Mercosor and Asian, that influence trade potential.

AGOA, for example, which was passed as part of the United States' Trade and Development Act of 2000, provides beneficiary countries, including South Africa, with liberal access to the American market. It reinforces African reform efforts, provides improved access to U.S. credit and technical expertise, and establishes a high-level dialogue on trade and investment in the form of a US-sub-Saharan Africa Trade and Economic Forum. AGOA authorises the American President to provide duty-free treatment under GSP for any article, after the U.S. Trade Representative and the U.S. International Trade Commission have determined that the article is not import sensitive when brought in from African countries.

Various bilateral agreements have been signed. For example, South Africa has concluded bilateral trade agreements with Malawi and Zimbabwe and has also entered into a non-reciprocal tariff concession arrangement with Mozambique. These agreements give exporters from these countries preferential market access to the South African market.

Appendix 8 Heckscher-Ohlin-Vanek (HOV) model

Vanek (1968) formalised this model, popularly known as the Heckscher-Ohlin-Vanek (HOV) model, establishing the linear relationship between trade and end-factor endowments and extending it to include multi-goods and multi-factors. It does not attempt to keep track of the trade pattern in individual goods, but instead computes the “factor content” of trade, i.e. the amounts of labour, capital, land, etc. embodied in the exports and imports of a country.

The HOV theorem states that:

$$F_i = V_i - s_i V_w \dots\dots\dots (A.1)$$

where:

- i indexes countries
- F_i is the factor content of trade
- V_i is endowments
- $V_w \equiv \sum_i V_i$
- S_i is in the country's share of world consumption expenditures

If a country is capital abundant ($V_i - s_i V_w > 0$), then it exports capital services ($F_i > 0$).

Trefler (1995) documents that the measured factor content of trade is too small compared with the theoretical prediction, labelling serious misprediction of factor content of trade as “missing trade”. He also examines alternative hypotheses and concludes that the model that allows for technology differences across countries and Armington home bias in consumption performed best.

Trefler (1995) models international technology differences using:

$$\delta_i A_i = A_{us} \dots\dots\dots (A.2)$$

where:

- A_i is country i 's technology matrix (the amount of inputs needed per unit of output)
- δ_i is country i 's gross domestic product for workers.

This leads to a new specification of HOV:

$$F_i = \delta_i V_i - s_i \sum_j \delta_j V_w \dots\dots\dots (A.3)$$

where:

$$F_i = A_{us} T_i \dots\dots\dots (A.4)$$

Davies and Weinstein (1998) examine the prediction:

$$F_i = V_i - s_i V_w \quad (\text{A.5})$$

where:

$$F_i = A_i X_i - \sum_j A_j M_{ij} \quad (\text{A.6})$$

where:

- X_i is country i 's exports; and
- M_{ij} is country i 's imports from country j .

The problem is that investment is treated as a component of consumption. $F_i = A_i X_i - \sum_j A_j M_{ij}$ is not the factor content of trade. A_i treats imported intermediate inputs as if they were produced domestically. $A_i X_i - \sum_j A_j M_{ij}$ is the factor content of trade if it is assumed that there is no trade in intermediary inputs.

Appendix 9 Categorisation of products

Table A.9 Categorisation of products

Sector	SICV5	Description	IIT 1988-94	IIT 2000	IIT 1995-2000	IIT 1988-2000	no of firms	Herfindahl-Hirschman index	Net import or exporter 2000	Homogenous/differentiated	Vertical/horizontal	Weight average of geis classification
Food	3011	Production, processing and preserving of meat and meat products	0,737	0,761	0,851	0,786	119	0,090	m	d	h	2,23
	3012	Processing and preserving of fish and fish products	0,684	0,502	0,669	0,678	46	0,131	m	d	h	2,50
	3013	Processing and preserving of fruit and vegetables	0,240	0,390	0,424	0,319	157	0,060	x	h	h	3,04
	3014	Manufacture of vegetable and animal oils and fats	0,477	0,265	0,272	0,389	16	0,146	m	d	h	2,06
	3020	Manufacture of dairy products	0,795	0,705	0,800	0,797	113	0,155	m	d	h	2,13
	3031	Manufacture of grain mill products	0,649	0,427	0,567	0,614	209	0,103	m	d	h	2,20
	3032	Manufacture of starches and starch products	0,471	0,583	0,765	0,597	8	0,397	x	d	h	2,79
	3033	Manufacture of prepared animal feeds	0,734	0,314	0,288	0,543	72	0,126	m	d	h	2,88
	3041	Manufacture of bakery products, fresh, frozen or dry	0,567	0,814	0,832	0,680	522	0,079	x	d	h	4,00
	3042	Manufacture of sugar, including golden syrup and castor sugar	0,217	0,026	0,111	0,172	7	0,039	x	h	h	2,13
	3043	Manufacture of cocoa, chocolate and sugar confectionery	0,818	0,963	0,912	0,858	72	0,023	x	d	h	3,31
	3044	Manufacture of macaroni, noodles, couscous and similar farinaceous products	0,516	0,328	0,447	0,486	15	0,227	m	d	h	3,00
	3049	Manufacture of other food products nec	0,691	0,773	0,774	0,727	182	0,234	m	d	h	2,80
	Beverages	3051	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials; manufacture of wine	0,704	0,391	0,614	0,665	97	0,050	x	d	h
3052		Manufacture of beer and other malt liquors and malt	0,697	0,771	0,860	0,767	23	0,036	m	d	h	3,00
3053		Manufacture of soft drinks; production of mineral waters	0,113	0,605	0,415	0,243	43	0,014	x	h	h	2,52
Tobacco	3060	Manufacture of tobacco products	0,562	0,674	0,855	0,687	171	0,059	m	d	h	2,94
Textiles	3111	Preparation and spinning of textile fibres; weaving of textiles	0,695	0,906	0,893	0,780		0,097	x	d	h	2,82
	3112	Finishing of textiles	0,178	0,179	0,264	0,215	95	0,036	m	h	h	3,00
	3121	Manufacture of made-up textile articles, except apparel	0,508	0,718	0,730	0,603	531	0,063	m	d	h	3,99
	3122	Manufacture of carpets, rugs and mats	0,786	0,828	0,921	0,844	31	0,058	m	d	v	4,00
	3123	Manufacture of cordage, rope, twine and netting	0,750	0,629	0,552	0,665	14	0,035	m	d	h	3,00
	3129	Manufacture of other textiles nec	0,296	0,529	0,458	0,365	98	0,017	m	d	v	3,00
Wearing apparel	3130	Manufacture of knitted and crocheted fabrics and articles	0,672	0,778	0,765	0,712	211	0,031	m	d	h	3,35
	3140	Manufacture of wearing apparel, except fur apparel	0,838	0,933	0,939	0,882	1411	0,013	x	d	h	3,97
	3150	Dressing and dyeing of fur; manufacture of articles of fur	0,182	0,381	0,313	0,238	41	0,304	x	h	h	3,54
Leather	3161	Tanning and dressing of leather	0,839	0,651	0,729	0,792	30	0,517	x	d	v	2,99
	3162	Manufacture of luggage, handbags and the like, saddlery and harness	0,292	0,258	0,404	0,340	73	0,120	m	h	v	4,00

Sector	SICV5	Description	ITT 1988-94	ITT 2000	ITT 1995-2000	ITT 1988-2000	no of firms	Herfindahl-Hirshman index	Net import or exporter 2000	Homogenous/differentiated	Vertical/horizontal	Weight average of geis classification
Footwear	3170	Manufacture of footwear	0,229	0,109	0,193	0,213	256	0,015	m	h	h	3,88
	3210	Sawmilling and planting of wood	0,236	0,374	0,288	0,258	162	0,491	m	h	h	2,18
	3221	Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board and other panels and boards	0,757	0,920	0,886	0,812	1130	0,182	x	d	h	3,00
Wood	3222	Manufacture of builders' carpentry and joinery	0,147	0,259	0,307	0,215	353	0,226	x	h	h	4,00
	3223	Manufacture of wooden containers	0,464	0,942	0,789	0,603	106	0,000	x	d	h	3,47
	3229	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials	0,507	0,591	0,307	0,421	457	0,090	m	d	h	3,22
	3231	Manufacture of pulp, paper and paperboard	0,721	0,559	0,687	0,707	22	0,215	x	d	h	2,97
Paper	3232	Manufacture of corrugated paper and paperboard	0,253	0,346	0,295	0,271	7	0,322	x	h	h	3,67
	3239	Manufacture of other articles of paper and paperboard	0,682	0,711	0,651	0,669	127	0,234	m	d	v	3,55
Printing	3251	Printing	0,190	0,380	0,328	0,249	1586	0,088	m	h	v	4,00
	3260	Reproduction of recorded media	0,131	0,060	0,050	0,096	8	0,051	m	h	v	4,00
Coke and petro products	3310	Manufacture of coke oven products	0,591	0,562	0,511	0,557	15	0,275	m	d	h	2,00
	3320	Petroleum refineries/synthesisers	0,880	0,329	0,509	0,721	40	0,060	x	d	h	2,00
	3330	Processing of nuclear fuel	0,117	0,180	0,183	0,145		0,607	x	h	h	2,40
	3341	Manufacture of basic chemicals, except fertilisers and nitrogen compounds	0,749	0,898	0,886	0,808	184	0,260	m	d	h	2,07
Basic chemicals	3342	Manufacture of fertilisers and nitrogen compounds	0,721	0,884	0,597	0,668	34	0,083	x	d	h	2,72
	3343	Manufacture of plastics in primary form and of synthetic rubber	0,341	0,457	0,448	0,387	31	0,013	m	d	h	2,00
	3351	Manufacture of pesticides and other agro-chemical products	0,821	0,963	0,902	0,856	24	0,293	m	d	h	3,89
	3352	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	0,541	0,696	0,696	0,607	177	0,128	m	d	h	3,00
Other chemicals	3353	Manufacture of pharmaceuticals, medicinal chemicals and botanical products	0,213	0,264	0,221	0,217	93	0,300	m	h	v	2,75
	3354	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	0,689	0,901	0,910	0,783	163	0,092	m	d	h	3,75
	3359	Manufacture of other chemical products nec	0,301	0,555	0,506	0,389	93	0,243	m	d	v	3,15
	3360	Manufacture of man-made fibres	0,155	0,462	0,574	0,334	6	0,038	m	h	h	2,01
Rubber products	3371	Manufacture of rubber tyres and tubes retreading and rebuilding of rubber tyres	0,549	0,802	0,797	0,656	10	0,037	m	d	h	3,75
	3379	Manufacture of other rubber products	0,234	0,434	0,382	0,298	145	0,117	m	h	h	3,12
Plastic	3380	Manufacture of plastic products	0,471	0,680	0,700	0,569	1027	0,198	m	d	v	3,23
Glass	3411	Manufacture of glass and glass products	0,701	0,724	0,613	0,663	72	0,144	m	d	h	3,23
Non-metallic minerals	3421	Manufacture of non-structural non-refractory ceramicware	0,295	0,145	0,256	0,278	110	0,063	m	h	h	4,00
	3422	Manufacture of refractory ceramic products	0,396	0,238	0,271	0,342	23	0,016	m	h	h	2,68
	3423	Manufacture of structural non-refractory clay and ceramic products	0,328	0,403	0,412	0,364	250	0,096	m	d	v	2,43
	3424	Manufacture of cement, lime and plaster	0,709	0,565	0,790	0,744	10	0,382	x	h	h	1,50
	3425	Manufacture of articles of concrete, cement and plaster	0,855	0,763	0,750	0,810	572	0,090	m	d	h	2,88
	3426	Cutting, shaping and finishing of stone	0,286	0,326	0,211	0,254	109	0,039	x	h	h	2,57

Sector	SICV5	Description	ITT 1988-94	ITT 2000	ITT 1995-2000	ITT 1988-2000	no of firms	Herfindahl-Hirshman index	Net import or exporter 2000	Homogenous/differentiated	Vertical/horizontal	Weight average of geis classification
		Manufacture of other non-metallic mineral products nec	0,275	0,395	0,404	0,330	49	0,014	m	h		h 2.60
Iron	3429											
	3510	Manufacture of basic iron and steel	0,242	0,213	0,254	0,247	91	0,034	x	h		h 2.19
Non-ferrous	3520	Manufacture of basic precious and non-ferrous metals	0,250	0,377	0,361	0,298	89	0,025	x	h		h 2.16
	3531	Casting of iron and steel	0,477	0,798	0,688	0,567	36	0,080	x	d		h 3.00
	3541	Manufacture of structural metal products	0,455	0,139	0,199	0,345	1413	0,248	x	h		h 4.00
	3542	Manufacture of tanks, reservoirs and similar containers of metal	0,360	0,952	0,811	0,553	166	0,072	m	d		h 4.00
Metal products	3543	Manufacture of steam generators, except central heating hot water boilers	0,533	0,659	0,756	0,629	96	0,032	x	d		h 4.00
	3551	Forging, pressing, stamping and roll-forming of metal powder metallurgy	0,211	0,290	0,228	0,218	27	0,042	m	d		h 3.50
	3553	Manufacture of cutlery, hand tools and general hardware	0,448	0,919	0,568	0,499	290	0,041	m	d		h 3.98
	3559	Manufacture of other fabricated metal products nec	0,609	0,625	0,623	0,615	1358	0,261	m	d		h 3.35
	3561	Manufacture of engines and turbines, except aircraft, vehicle and motorcycle engines	0,252	0,340	0,372	0,304	1379	0,084	m	d		v 4.00
	3562	Manufacture of pumps, compressors, taps and valves	0,228	0,330	0,297	0,257	229	0,082	m	d		h 4.00
	3563	Manufacture of bearings, gears, gearing and driving elements	0,249	0,338	0,336	0,286	77	0,232	m	d		h 3.79
	3564	Manufacture of ovens, furnaces and furnace burners	0,395	0,312	0,296	0,353	29	0,129	m	d		h 4.00
	3565	Manufacture of lifting and handling equipment	0,454	0,428	0,538	0,490	226	0,000	m	d	h	4,00
	3569	Manufacture of other general purpose machinery	0,250	0,367	0,317	0,279	798	0,080	m	d	v	4,00
Machinery	3571	Manufacture of agricultural and forestry machinery	0,383	0,351	0,346	0,367	195	0,124	m	d	v	4,00
	3572	Manufacture of machine tools	0,266	0,302	0,335	0,296	195	0,111	m	d	v	4,00
	3573	Manufacture of machinery for metallurgy	0,048	0,322	0,208	0,116	13	0,071	m	d	v	4,00
	3574	Manufacture of machinery for mining, quarrying and construction	0,396	0,304	0,453	0,420	271	0,157	m	d	h	4,00
	3575	Manufacture of machinery for food, beverage and tobacco processing	0,304	0,709	0,674	0,462	70	0,261	m	d	h	4,00
	3576	Manufacture of machinery for textile, apparel and leather production	0,098	0,105	0,117	0,106	16	0,061	m	d	h	4,00
	3577	Manufacture of weapons and ammunition	0,000	0,014	0,260	0,111	623	0,024	x	d	v	3,00
	3579	Manufacture of other special purpose machinery	0,257	0,956	0,617	0,412		0,161	m	d	v	4,00
	3580	Manufacture of household appliances nec	0,166	0,331	0,302	0,224	106	0,493	m	d	h	3,90
	3590	Manufacture of office, accounting and computing machinery	0,239	0,254	0,288	0,260	36	0,091	m	d	h	4,00
Electrical machinery	3610	Manufacture of electric motors, generators and transformers	0,267	0,647	0,462	0,351	99	0,066	m	d	h	4,00
	3620	Manufacture of electricity distribution and control apparatus	0,196	0,291	0,310	0,245	181	0,119	m	d	h	3,90
	3630	Manufacture of insulated wire and cable	0,539	0,998	0,836	0,666	36	0,139	m	d	h	4,00
	3640	Manufacture of accumulators, primary cells and primary batteries	0,516	0,599	0,590	0,548	12	0,126	m	d	h	3,91
	3650	Manufacture of electric lamps and lighting equipment	0,298	0,417	0,407	0,345	84	0,456	m	d	h	4,00

Sector	SICV5	Description	ITT 1988-94	ITT 2000	ITT 1995-2000	ITT 1988-2000	no of firms	Herfindahl-Hirshman index	Net import or exporter 2000	Homogenous/differentiated	Vertical/horizontal	Weight average of geis classification
	3660	Manufacture of other electrical equipment nec	0,224	0,504	0,489	0,338	640	0,136	m	d	v	4,00
	3710	Manufacture of electronic valves and tubes and other electronic components	0,091	0,131	0,115	0,101	18	0,063	m	d	h	4,00
TV, radio and communication	3720	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	0,204	0,173	0,222	0,212	36	0,019	m	d	h	4,00
	3730	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods	0,154	0,176	0,146	0,150	123	0,092	m	d	h	4,00
	3741	Manufacture of medical and surgical equipment and orthopaedic appliances	0,223	0,198	0,252	0,236	339	0,182	m	d	h	4,00
Professional and scientific equipment	3742	Manufacture of instruments and appliances for measuring, checking, testing, navigating and for other purposes	0,210	0,267	0,264	0,233	180	0,589	m	d	v	4,00
	3743	Manufacture of industrial process control equipment	0,155	0,122	0,113	0,137	28	0,220	m	d	v	4,00
	3750	Manufacture of optical instruments and photographic equipment	0,196	0,289	0,320	0,249	41	0,018	m	d	v	4,00
	3760	Manufacture of watches and clocks	0,048	0,068	0,114	0,076	4	0,018	m	d	h	4,00
	3810	Manufacture of motor vehicles	0,219	0,938	0,688	0,420	146	0,085	m	d	h	4,00
Motor vehicles and parts	3820	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	0,610	0,820	0,679	0,640	220	0,185	m	d	h	4,00
	3830	Manufacture of parts and accessories for motor vehicles and their engines	0,448	0,240	0,286	0,379	762	0,054	m	d	h	4,00
	3841	Building and repairing of ships	0,653	0,694	0,688	0,668	135	0,173	x	d	v	3,74
	3850	Manufacture of railway and tramway locomotives and rolling stock	0,236	0,078	0,143	0,196	32	0,000	x	d	h	3,94
Other transport equipment	3860	Manufacture of aircraft and spacecraft	0,365	0,207	0,444	0,399	73	0,589	m	d	v	4,00
	3871	Manufacture of motor cycles	0,436	0,125	0,235	0,350	10	0,220	m	d	h	4,00
	3872	Manufacture of bicycles and invalid carriages	0,083	0,123	0,177	0,123	11	0,018	m	d	h	4,00
Furniture	3910	Manufacture of furniture	0,696	0,447	0,368	0,555	1554	0,018	x	d	v	3,11
	3921	Manufacture of jewellery and related articles	0,237	0,156	0,118	0,186	330	0,085	x	d	v	3,21
Other manufacturing	3922	Manufacture of musical instruments	0,279	0,241	0,670	0,447	11	0,185	m	d	v	4,00
	3923	Manufacture of sports goods	0,313	0,253	0,223	0,274	70	0,054	m	d	v	4,00
	3924	Manufacture of games and toys	0,084	0,081	0,119	0,099	55	0,173	m	d	v	4,00
	3929	Other manufacturing nec	0,386	0,562	0,479	0,426				d	v	3,63

Table A.10 Krause classification of manufactures (as in Tsikata, 1999)

SIC 3 rd edition	Product
(1) Agricultural resource intensive	
311	Food
313	Beverages
314	Tobacco
323	Leather goods, fur excluding footwear and clothing
33111-3	Sawmills, planing and other wood mills
3411	Pulp, paper and paperboard
(2) Mineral resource intensive	
3512	Fertilisers and pesticides
353	Petroleum refineries
354	Miscellaneous petroleum and coal products
361	Pottery, china, earthenware
363-9	Building products and minerals, non-metallic
372	Non-ferrous metal basic industries
(3) Unskilled labour intensive	
321	Textiles
322	Wearing apparel, excluding footwear
324	Footwear excluding rubber, plastic footwear
331	Rest of wood, cork excluding furniture, and excluding 33111-3
332	Furniture, fixtures, excluding those primarily metal
522	Drugs and medicines
356	Plastic products n.e.s.
362	Glass, glass products
3811	Cutlery, hand tools, general hardware
3812	Furniture, fixtures primarily of metal
38329	Electronic components, communication
3841	Ship building and repairing
3849	Transport equipment n.e.s.
390	Rest of other manufacturing, excluding jewellery
(4) Technology intensive	
351	Rest of industrial chemicals, except 3512
3529	Chemical products n.e.s.
3813	Structural metal products
382	Machinery excluding electrical
3831	Electrical industrial machinery
3839	Electrical apparatus and supplies n.e.s.
3845	Aircraft
3851	Professional, scientific equipment
3852	Photographic and optical goods
(5) Human capital intensive	
341	Rest of paper and paper products excluding 3411
342	Printing, publishing and related
352	Rest of other chemical products excluding 3522
3551	Rubber products
371	Iron and steel basic industries
3814-9	Fabricated metal products n.e.s.
38321-8	Radio, television, communication equipment
3833	Electrical appliances and housewares
3842-4	Railroad equipment vehicles, bicycles 3853 Watches and clocks
3901	Jewellery and related articles

Manufactures are further subdivided into low-skill and high-skill manufactures as (SITC-Classification):

Table A.11 Low-Skill Manufactures

Leather and leather manufactures	61
Rubber articles	62
Cork and wood manufactures, paper and paperboard	63-64
Textiles, clothing, travel goods and footwear	65, 83, 84, 85
Non-metallic mineral products, excluding precious stones	66 less 667

Iron and steel	67
Fabricated metal products	69
Sanitary and plumbing equipment	81
Transport equipment other than road motor vehicles and aircraft	78 less 781–784, 79 less 792
Furniture and parts thereof	82
Miscellaneous manufactured articles	89
Commodities and manufactures not classified elsewhere other than live animals and non-monetary gold	9 less 941, 97

Table A.12 High-Skill Manufactures

Chemicals and pharmaceutical products	5 less 522.24, 522.56, 524
Diamonds, cut or otherwise worked but not mounted or set	667.29
Non-electrical machinery	71–74
Computers and office equipment	75
Communication equipment and semiconductors	76, 776
Electrical machinery	77 less 776
Road motor vehicles	781–784
Aircraft and associated equipment	792
Scientific instruments, watches and photographic equipment	87, 88

Source: UNCTAD. 2002. The Least developed Countries Report 2002, New York: UNCTAD.

Appendix 10 Data

As with all econometric models the choice of variables is very important. What data represents each variable is often contentious. Data are very seldom collected for theoretical analysis. It is usually a by-product of some administrative procedure. Within a single country, the choice is difficult enough. Once the international dimension is added matters are complicated. Even though the past half-century the United Nations and other international agencies have tried to standardise reporting, there are still discrepancies. Data are not always comparable.

For this study, two sets of data were collected, for quarterly (1988 to 2000) and annual (1970 to 2000) models. Since 1990, South Africa returned to normal trading environment. It was therefore less exposed to politically driven trade policies, market access, and other anomalous determinants of trade. Therefore, although both were tested, only the quarterly model, which gives a greater number of observations, this is reported.

(i) Data

A serious problem is encountered when estimating South African export demand and supply equations is that export data, both for volume and value, collected by the Department of Customs and Excise, is aggregated for SACU. Although this is not as serious when estimating the total export functions for the South African economy, potential problems arise when analysing the various manufacturing sectors. This is because no other SACU member has a large economy relative to South Africa. However, when analysing sectors, individual member countries may export a significant percentage of the SACU sectoral totals.

Estimations are based largely on Quantec's South African Standardised Industry Database from Trade and Industrial Policy Strategies (TIPS) in South Africa². It covers more than 40 industries (28 manufacturing sectors) containing a large range of economic variables that can be traced at industry level, for the period 1970 to 2000. Aggregate data were taken from the South African Reserve Bank Quarterly Bulletins, the International Financial Statistics and the OECD databank. Data are based on 1995 prices and foreign data were converted to SA currency.

The descriptive analysis and the econometric analysis are based on long term trends for a range of sectors and a number of economic variables. Long-term economic trends for a number of aggregated (1 digit SIC level) economic variables are available for a limited

number of production activities in the South African economy from StatsSA and the SARB Quarterly Bulletin. There is only limited sectoral detail available. The chapter uses a set of sectoral data compiled by Quantec for 38 sectors of the South African economy shown below:

Table 13 Sectoral disaggregation

SIC code (5 th ed)	Sector description	SIC code (5 th ed)	Sector description
1. 11-13	Agriculture, forestry and fishing	20. 341	Glass & glass products
2. 21	Coal mining	21. 342	Non-metallic minerals
3. 23	Gold and uranium ore mining	22. 351	Basic iron & steel
4. 22, 24, 25, 29	Other mining	23. 352	Basic non-ferrous metals
5. 301-304	Food	24. 353-355	Metal products excluding machinery
6. 305	Beverages	25. 356-359	Machinery and equipment
7. 306	Tobacco	26. 361-366	Electrical machinery
8. 311-312	Textiles	27. 371-373	Television, radio and communication
9. 313-315	Wearing apparel	28. 374-376	Professional and scientific equipment
10. 316	Leather and leather products	29. 381-383	Motor vehicles, parts and accessories
11. 317	Footwear	30. 384-387	Other transport equipment
12. 321-322	Wood & wood products	31. 391	Furniture
13. 323	Paper & paper products	32. 392	Other industries
14. 324-326	Printing, publishing and recorded media	33. 41-42	Electricity, gas and steam
15. 331-333	Coke & refined petroleum products	34. 51-53	Building construction
16. 334	Basic chemicals	35. 61-63	Wholesale & retail trade
17. 335-336	Other chemicals and man-made fibres	36. 71-72	Transport & storage
18. 337	Rubber products	37. 81-83	Finance & insurance
19. 338	Plastic products	38. 93-99	Community services

Foreign trade statistics provide a differentiated picture of trade flows among countries. Merchandise trade statistics, a by-product of customs control, tend to be fairly reliable compared with most other economic data. In contrast to statistics on value added, production or savings, they relate to the movement of physical goods that have to pass through a limited number of ports, airports and other border stations that are monitored by customs authorities. They are comprehensive in terms of product coverage (more than 5,000 products under the Harmonised System), geographical coverage (over 80 countries covering 90% of world trade) and time series (data under the Harmonized System are available for the last decade). Using other classification systems (such as Standard Industrial Classification (SIC) or Standard International Trade Classification (SITC)) longer series are possible. Various researchers (O'Rourke, 1999) have even used trade data collected by authorities to test trade theories in the middle ages.

Despite this, perfect trade data do not exist. Unfortunately errors arise from omissions, owing to smuggling and other forms of non-reporting. In general, however, omissions are

² Refer to www.tips.org.za. There are also numerous research papers, listed in the TIPS website, that have used the same dataset.

commodity-specific and stem from the prohibition of trade in that commodity (e.g. drugs) or from high duties and taxes (which people try to circumvent by smuggling). Errors also arise from erroneous classification of goods, values or quantities. This may be related to duties, excise taxes, trade restrictions or levies. In South Africa's case sanctions were imposed on certain products during the late-1980s. Because of this, much of the data is unclassified. Both the commodity specifications and the country of destination are not specified. Most countries include imports for re-exports and re-exports in their trade statistics. This is particularly a problem in countries with large entrepôt trade.

Although rules regarding the valuation of imports and exports have been standardised, there are many problems. Most countries use CIF-values (including the transport port and insurance costs) for to determine import values and FOB-value (free on board) for exports (South Africa uses FOB for both imports and exports). Over and under invoicing occurs especially where duties are high, VAT can be reclaimed or exchange controls are applied. The value generally refers to the total or contract value, and can be substantially different from local value added. The level of imported inputs and local non-tradables will influence this as well. Detailed trade statistics are available only for merchandise trade and not for services.

Exchange rates fluctuations are not always properly recorded in international trade statistics. Values are normally aggregated over the period of one year in local currency and converted into US dollars.

The classification systems that are used for customs purposes are designed for collecting customs duties. South Africa used the system for trade policy purposes and earned the dubious "honour" of a country with the second most difficult Customs Tariff. At one stage, before the acceptance of the Uruguay Round of GATT, there were more than 6000 8-digit subdivisions of the international 5 or 6-digit tariff subheadings. At that stage there were 5019 international subheadings and the local tariff comprised almost 12000 subheadings (Gouws and Bothma, 1999).

The World Customs Organization (WCO) (prior to June 1994 was known as the Customs Co-operation Council) makes recommendations to ensure the uniform interpretation and application of conventions for the classification of goods. Rapid changes in technology forced the WCO to introduce the Harmonised Commodity Description and Coding System (Harmonised System or HS). It provides a legal, systematic and logical structure and forms the basis on which goods are encoded, trade statistics are developed, and from which the

customs departments of countries can compile their statistics, within which a total of 1241 headings are grouped in 98 chapters (first two digits of HS number) themselves being arranged in 22 sections. These are broken down into 1241 headings and 5019 subheadings that give the six digit standard international system, common to all countries and form third two digits of HS number. South Africa uses an additional two digits. This nomenclature is sometimes misleading. Aggregated product groups are general and provide limited guidance on the leading items within the group of products concerned.

This classification system does not allow for the demarcation of products into homogenous, heterogeneous or differentiated products, nor does it discriminate according to factor inputs although products are arranged mainly by their main input. Even at the lowest level of disaggregation, product groups in the trade nomenclatures do not necessarily reflect trade names and often contain a wide spread of different products. Various classification systems have been developed (according to economic theory) to allow for disaggregation of products and product categories. A criticism of some work done on South African data is that it uses classifications constructed internationally and not locally. As technology varies, categories may be inaccurate and lead to incorrect results. This thesis relies on disaggregation of South African data according to the South African Input Output table and interviews.

To allow comparison, trade has been re-categorised using an adaptation of the Industrial Development Corporation's concordance table.

Mirror statistics invert the reporting standards by valuating exports in cif terms (i.e. including transport cost and insurance) and imports in fob terms (excluding these items).

The trade data used in most of the regressions is obtained from the TIPS database that was compiled by Quantec. The data is obtained from South African Customs and Excise. Data has also been obtained from Comtrade (The UN's trade database).

All South African trade data (before 1999) is collected for SACU countries. Although South Africa is the major exporter, the other Customs Union partners' data is included. This presents certain problems for certain product groups. (Golub, 2000) was of the opinion that due to South Africa's "overwhelming majority of SACU trade, this should make little difference."

Foreign trade statistics provide a differentiated picture of trade flows among countries. They are comprehensive in terms of product coverage (more than 5,000 products under the

Harmonized System) and time series (data under the Harmonised System or HS are available for the last decade). Exports, for the purpose of this study, are the actual exports reported to the South African Customs and Excise. Although the Harmonised System of classification is currently being used, a Concordance Table is used to estimate the exports per manufacturing sector. Prior to 1988, the BTN was used. Sectoral estimates were also made using another Concordance table. Only annual data from 1969 to 1987 is available. Monthly, quarterly and annual data is available from 1988. Because this, two sets of equations are estimated.

- Trade data are never complete. The following factors regarding foreign trade statistics need to be emphasised:
- Smuggling and non-reporting represent a serious problem in a number of countries.
- Trade statistics are not free of mistakes and omissions.
- Most countries include imports for re-exports and re-exports in their trade statistics.
- The export value refers to the total or contract value, and can be different from local value added.
- Detailed trade statistics are available only for merchandise trade and not for services.
- Even at the lowest level of disaggregation, product groups in the trade nomenclatures do not necessarily reflect trade names and often contain a wide spread of different products.
- The nomenclature is sometimes misleading. Aggregated product groups are general and provide limited guidance on the leading items within the group of products concerned.
- Exchange rates fluctuations are not always properly recorded in international trade statistics. Values are normally aggregated over the period of one year in local currency and converted into US dollars.

For countries which do not report trade data to the United Nations, a partner country data approach, referred to as mirror statistics, is used. Mirror statistics are a second-best:

- They do not cover trade with other non-reporting countries. Mirror statistics hardly cover South-South trade and an assessment of intra-African trade using mirror statistics are not a suitable source of information.
- Trans-shipments hide the actual source of supply.
- Mirror statistics invert the reporting standards by valuating exports in cif terms (i.e. including transport cost and insurance) and imports in fob terms (excluding these items).

Perfect trade data do not exist. The trade data used in most of the regressions is obtained from the TIPS database that was compiled by Quantec. The data is obtained from Customs and Excise. Unfortunately errors arise from omissions, owing to smuggling and other forms of non-reporting. In general, however, omissions are commodity-specific and stem from the prohibition of trade in that commodity (e.g. drugs) or from high duties and taxes (which people try to circumvent by smuggling). Errors also arise from erroneous classification of goods, values or quantities, which may be related to trade restrictions and levies. In South Africa's case sanctions were imposed on certain products during the late-

1980s. Because of this, much of the data is unclassified. Both the commodity specifications and the country of destination are not specified.

The data is collected for SACU countries. Although South Africa is the major exporter, the other Customs Union partners' data is included. This presents certain problems for certain product groups. (Golub, 2000) was of the opinion that due to South Africa's "overwhelming majority of SACU trade, this should make little difference."

(ii) Aggregation

Trade can be disaggregated across countries and sectors. The simplest models assume two countries (for country being modelled and the rest of the world). In the systems approach bilateral trade between various countries is used. Murata *et al* (2000) point out that although bilateral trade relationships are often unique to the specific countries, export equations generally represent the behaviour of a common set of agents in the world market.

Sectors are not often used in trade analysis. This is because data, especially export price data, is very difficult to obtain at any disaggregated level. Although product information (at a country level) would even be more preferable, the complexities of obtaining the data currently are almost impossible. Although Joubert (2000) attempts to disaggregate trade data (from individual transaction data) into products, the number of assumptions made make the results questionable. In addition the complexity of the task makes the process problematical. Disaggregating the sectoral data by country is also difficult. Although export values are available per sector per country, compatible price data is not always available. Dridi and Zieschang 2002 recommend that sample surveys need to be taken within each category to determine product characteristics. As far as can be ascertained, this has not been done for SACU data.

Appendix 11 Methodology and the data-generating processes

There are a number of econometric procedures, each with its limitations that can be used to estimate economic relationships. However, a fundamental assumption of regression analysis is that the right-hand side variables are uncorrelated with the disturbance term. If this assumption is violated, OLS are biased and inconsistent. The finding that many macro time series may contain a unit root has spurred the development of the theory of non-stationary time series analysis. Engle and Granger (1987) pointed out that a linear combination of two or more non-stationary series may be stationary. If such a stationary linear combination exists, the non-stationary time series are said to be cointegrated. The stationary linear combination is called the cointegrating equation and may be interpreted as a long-run equilibrium relationship among the variables. The purpose of the cointegration test is to determine whether a group of non-stationary series are cointegrated or not.

Notwithstanding potential defects, the Engle-Granger two-step and Engle and Yoo three-step estimation procedures are used.³ Stationarity of the residuals using the Augmented Dickey-Fuller test determines whether a long-run cointegrating relationship exists. If the null hypothesis (no cointegration) can be rejected, an error correction model can be estimated. This is done by comparing the test statistic with the calculated p critical value using response surface analysis. The Engle-Granger two-stage procedure amounts to testing the residuals for the presence or absence of unit roots using the ADF test on residuals of the long-run equilibrium equation represented by:

$$\Delta \varepsilon_t = \bar{\Psi} * \varepsilon_{t-1} + \sum_{i=1}^{p-1} \Psi_i * \Delta \varepsilon_{t-1} + \mu + \delta_t + \omega_t \dots\dots\dots (A.10)$$

Where $\omega_t \sim \text{IID}(0, \sigma^2)$ and ε_t refers to the error term.

It would appear from the literature and comments that the augmented Dickey-Fuller (ADF) (1981) unit root test has become the most popular of the various tests. This strategy is necessary to determine if an intercept, an intercept plus a time trend, or neither an intercept nor a time trend, should be included in the regression run to conduct the unit-root test (Elder and Kennedy, 2001).

The Error-Correction Model (ECM) contains the long-run for integration equation in the form of the stationary residual from the long-run relationship, lagged by one period, (called the error correction mechanism), as well as the short-run dynamic structure of the system. The size of the coefficient of the error correction mechanism reflects the speed of adjustment towards equilibrium.

³ The Engle and Yoo (1991) three-step procedure is used to improve the long run coefficient and statistical tests.

The cointegrating regression is estimated in the form:

$$Y_t = a^1 X_t + Z_t \dots\dots\dots (A.11)$$

where:

- Z_t is the ordinary least square (OLS) residual; and
- a^1 is the first stage coefficients.

Once a cointegrating relationship is established, then an ECM can be estimated to determine the dynamic behaviour. Following Hendry's (1995) general-to-specific modelling approach, the first 4 lags of the explanatory variables are included, and then gradually eliminate the insignificant variables.

The second stage ECM is estimated using the residuals from the cointegrating regression to impose long-run constraints:

$$\Delta Y_t = \phi(L)\Delta Y_{t-1} + \Omega(L)\Delta X_t + \delta Z_{t-1} + \mu_t \dots\dots\dots (A.12)$$

The Engel and Yoo (1991) three-step procedure can be used to determine coefficients and t-statistics that are closer to their true values. This step provides a correction to the parameter estimates of the first stage static regression and makes them asymptotically equivalent to full information maximum likelihood (FIML). It provides a set of standard errors allowing the valid calculation and evaluation of standard t-tests.

The third step consists simply of a further regression of the conditioning variable from the static regression multiplied by minus the error correction parameter, regressed on the errors from the second-stage error correction model. It is given by:

$$\mu_t = \varepsilon(-\hat{\delta}X_t) + v_t \dots\dots\dots (A.13)$$

The correction for the first-stage estimates, a^3 , is calculated as follows:

$$a^3 = a^1 + \varepsilon$$

The standard errors, ε ($SE\varepsilon$), are given by third-stage regression. The t-values for the corrected coefficients, a^3 , are given by:

$$t = \frac{a^3}{SE_\varepsilon} \dots\dots\dots (A.14)$$

In most cases the adjustment made by the third stage is small. These small variations are important when the calculated elasticities are included in larger models. The third stage and only reported for total exports and the manufacturing sector, and not for individual industries.

Problems associated with the single equation approach

The most severe limitation of the single equation model follows from the possibility of more than one cointegrating vector present in the data when the cointegration regression contains more than two variables. Including n variables in the equation may yield $(n-1)$ equilibrium relationships governing the joint evolution of the variables, and hence there may exist $(n-1)$ cointegrating relationships in the data. Single equation techniques assume that only one cointegrating vector exists in the data. Inefficiency in the estimation will occur if this is not the case, since the cointegrating vector will be a linear combination of all cointegrating relationships present in the data.

When estimating the long-run equilibrium relationship, the Engle-Granger approach ignores the short-run dynamics. This effectively shifts the short-run dynamics to the error term, subjecting the residuals to serial correlation.

Charemza and Deadman (1997:151) point out that the distinction between the types of variables appearing in a multiple equation system is in stark contrast with single equation structural modelling. Usually, what is on the left-hand side of a single equation structural model is simply treated as endogenous and what is on the right-hand side as exogenous. Charemza and Deadman (1997: 150) refer to a model of aggregate income, Y_t , and aggregate consumption, C_t , to demonstrate that a rise in income will lead to a rise in consumption. Due to the income identity, it is impossible to change the value of C_t , without influencing Y_t . Both variables would thus be regarded as endogenous variables and be described as jointly dependent variables. This type of observed simultaneity between variables is disregarded in a single equation approach.

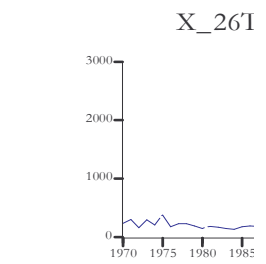
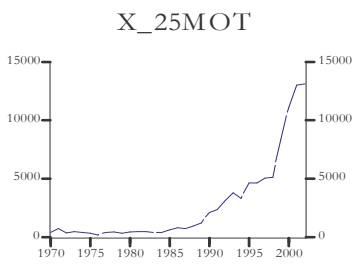
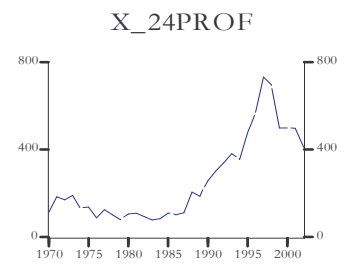
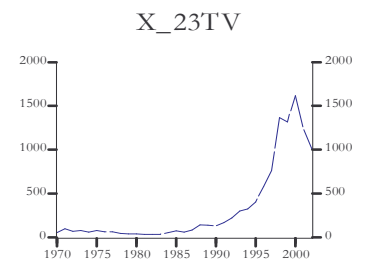
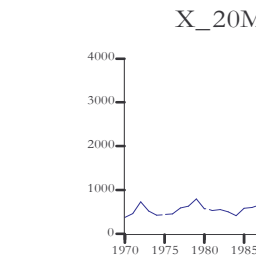
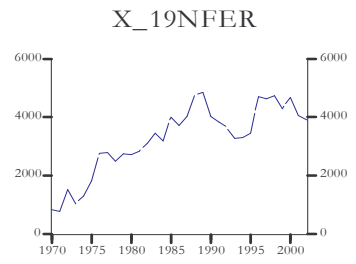
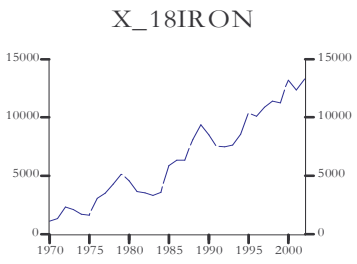
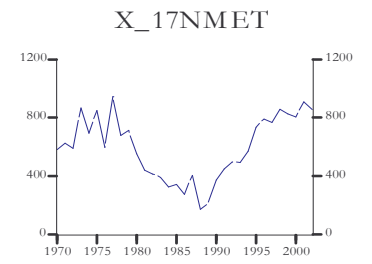
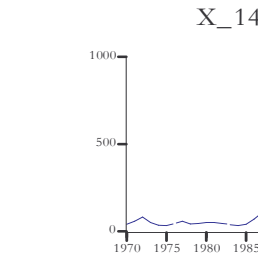
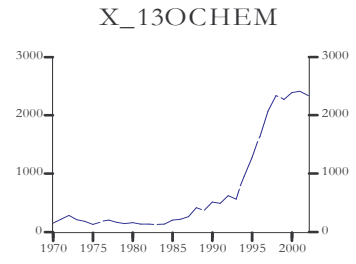
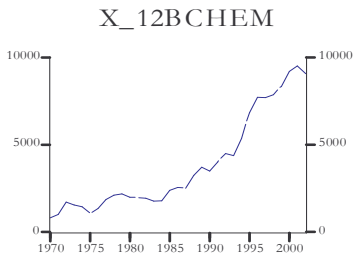
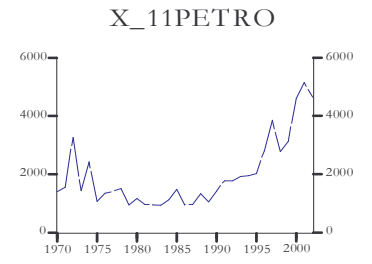
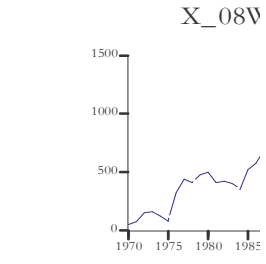
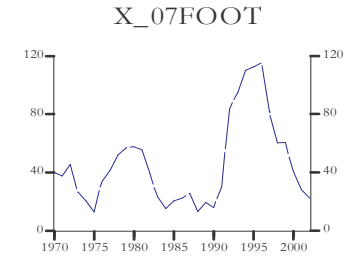
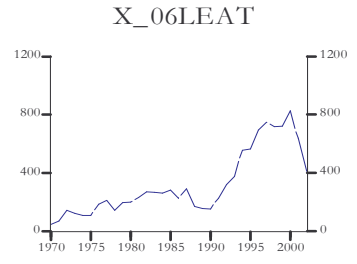
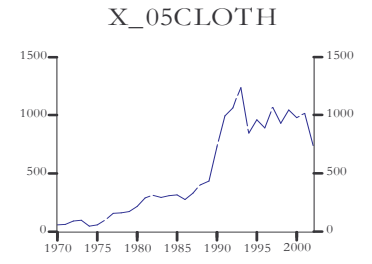
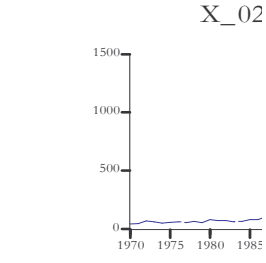
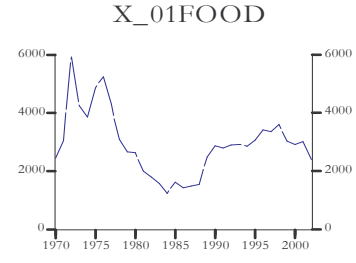
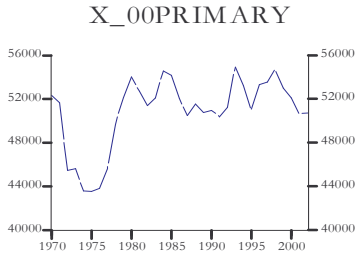
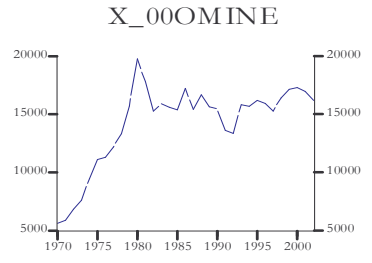
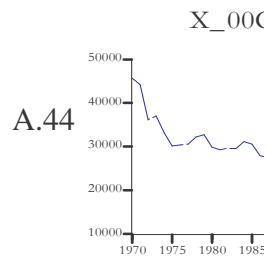
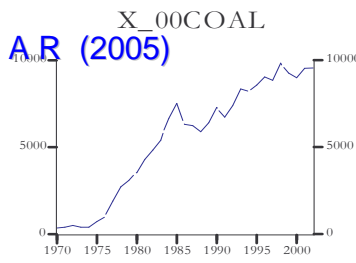
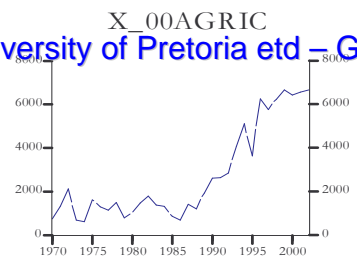
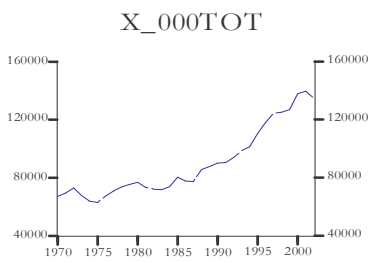
Appendix 12 A list of the explanatory variables

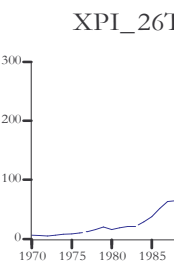
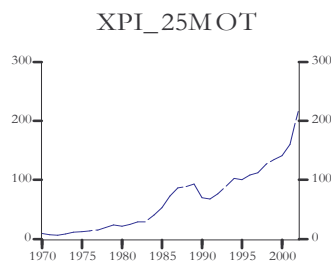
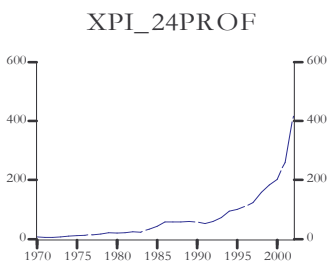
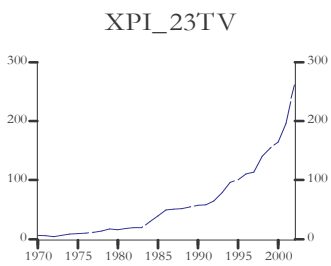
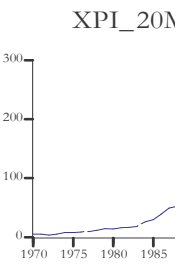
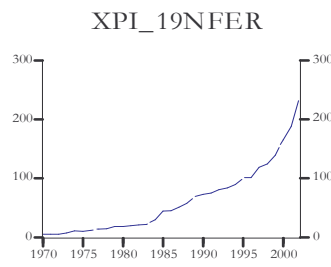
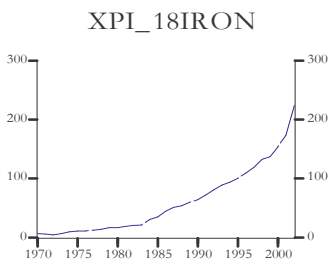
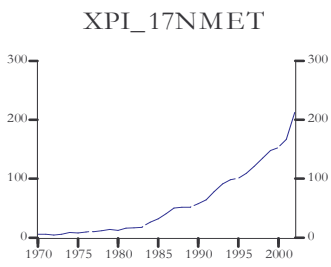
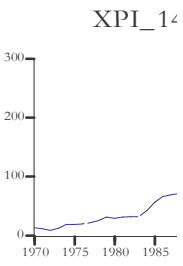
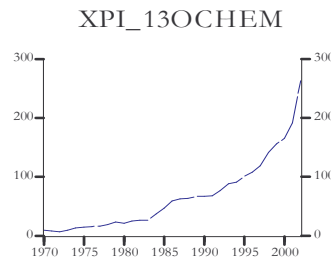
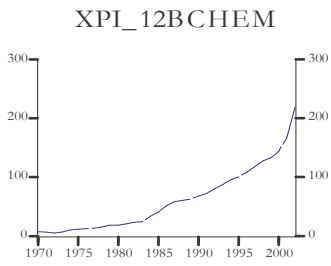
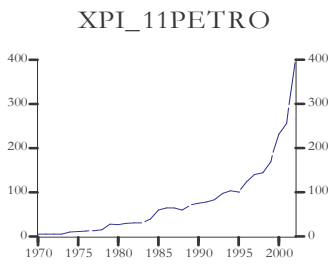
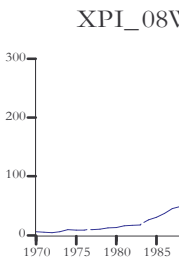
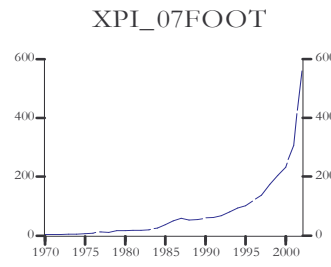
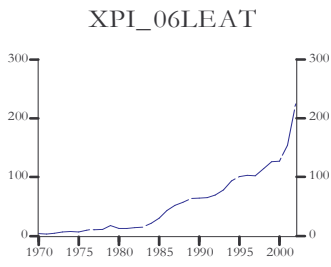
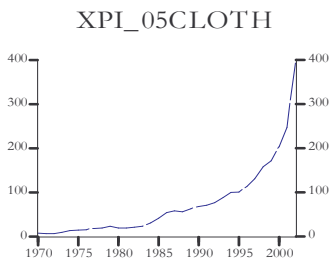
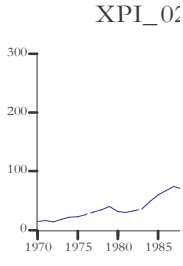
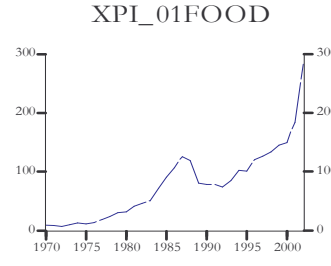
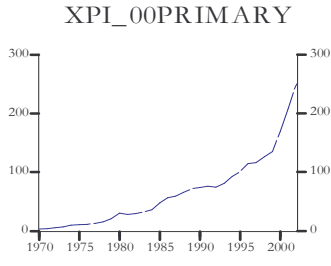
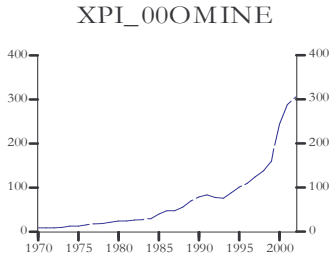
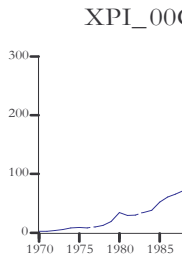
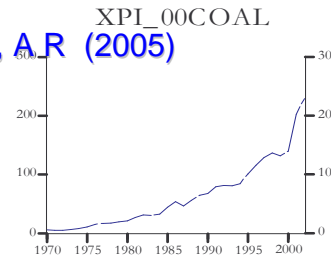
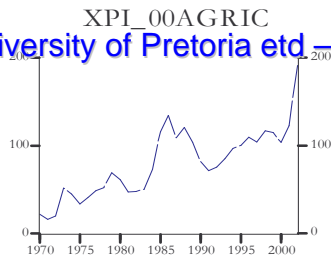
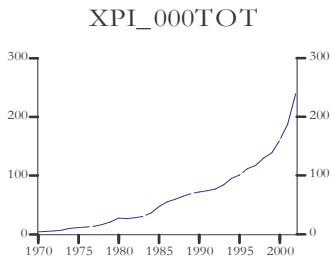
Variable	log	Name	Source
a_i		the ratio of the cost of the imported input to the price of the final commodity in the absence of tariffs	Stats SA Input output table
CAP_*	LCAP_*	Capacity utilisation	Stats SA
CAPUT_*	LCAPUT_*	Capacity utilisation	Stats SA
CIFFOB_SA	LCIFFOB_SA	Shipping and transaction costs proxied by CIF and FOB differential	IMF - IFS
CUUDEM_*	LCUUDEM_*	Spare capacity due to lack of local demand	Stats SA
CUUOTHER_*	LCUUOTHER_*	Spare capacity due to other reasons	Stats SA
CUURAW_*	LCUURAW_*	Spare capacity due to shortage of raw materials	Stats SA
CUUSEMI_*	LCUUSEMI_*	Spare capacity due to shortage of semi-skilled labour	Stats SA
CUUSKILL_*	LCUUSKILL_*	Spare capacity due to shortage of skilled labour	Stats SA
D_9496		Dummy variable (0 for 1994-1996, else 1)	Dummy variable
D_DROUGHT		Dummy variable: periods of severe drought	Dummy variable
D_GEIS		Dummy variable: 1990 to 1997	Dummy variable
D_POSTSANC		Dummy variable	Dummy variable
D_SANC		Dummy variable	Dummy variable
D_TIME		Dummy variable	Dummy variable
ERP_*	LERP_*	Effective rate of protection	$g = \frac{t - a_i t_i}{1 - a_i}$
FR	LFR	Shipping costs – northbound to Europe	Chasomeris (2003)
g		effective rate of protection to producers of a final commodity	$g = \frac{t - a_i t_i}{1 - a_i}$
GDE	LGDE	South African Nominal Gross Domestic Expenditure	SARB
GDEN	LGDEN	South African Gross Domestic Expenditure	SARB
GDP	LGDP	South African Gross Domestic Product	SARB
GDP_OECD	LGDP_OECD	OECD Gross Domestic Product	OECD
GDPFACN	LGDPFACN	Nominal South African Gross Domestic Product at factor costs	SARB

Variable	log	Name	Source
GDPN	LGDPN	Nominal South African Gross Domestic Product	SARB
		Expenditure on gross domestic product at current prices, seasonally adjusted (quarterly): Gross capital formation - gross fixed capital formation (Unit: R millions, seasonally adjusted at annual rate (Period))	SARB RB6009L
IFN	LIFN	Expenditure on gross domestic product at constant 1995 prices, seasonally adjusted (quarterly): Gross capital formation - gross fixed capital formation	SARB RB6009D
IFRB	LIFRB	National Interest Rates - Developing Countries - Africa - South Africa	
IRATE	LIRATE	(Unit: Lending Rates (60p)(Period averages in percent per annum))	IMF -IFS19960P..ZF... 80% of SA lending rate +20% of SDR
IRATEX	LIRATEX	Interest rates applicable to South African exporters	
MUV_OECD	LMUV_OECD	OECD import unit value	IMF - IFS
MUV_SA	LMUV_SA	South African import unit value	IMF - IFS
MUV_WORLD	LMUV_WORLD	World import unit value	IMF - IFS
n		the number of employees	Quantec's South African standardised industry
NPI_*	LNPI_*	Productivity index	NPI
OECDGDP	LOECDGDP	OECD's GDP	OECD
OIL_USD	LOIL_USD	Price of Oil	IMF - IFS
P_GOLD	LP_GOLD	Price of gold	IMF - IFS
PKN	LPKN	Yields on bonds traded on the bond exchange: Eskom bonds	SARB RB2004M
POILZ	LPOILZ	Oil price in South African currency	IMF
PPI	LPPI	South African Producer Price Index	SARB KB7048J
PROD	LPROD	Labour productivity	
PRODN	LPRODN	Nominal labour productivity	
PSA	LPSA		
PW	LPW		
q		represents output	Quantec's South African standardised industry
REER_IMF	LREER_IMF	Real Effective Exchange Rate	IMF- IFS
RELX	LRELX	Real Effective Exchange Rate	SARB

Variable	log	Name	Source
t		nominal tariff rate on consumers of the final product	Customs and Excise
TAX	LTAX	South African income tax rate	SARB
TECH_*	LTECH_*	Technology dummy index per sector	
t_i		the nominal tariff on the imported input	Customs and Excise
UCC	LUCC	User cost of capital	$ucc_t = p_k \left(\frac{i_t - \delta_t}{1 - t_i} \right)$
ULC	LULC	Unit labour cost	$ulc = \frac{(w^* n)}{q}$
USMPI_*	LUSMPI_*	World price per sector based on USA's import price index per sector	USA Bureau of Labour Quantec's South African standardised industry
w		the wage rate	
WDEM		World demand dummy	
WY	LWY	World income	IMF- IFS
XUV_OECD	LXUV_OECD	OECD's export unit value	IMF- IFS
XUV_SA	LXUV_SA	South African export unit value	IMF- IFS
XUV_WORLD	LXUV_WORLD	World's export unit value	IMF- IFS
XVSHARE	LXVSHARE	South Africa's share of world trade	IMF- IFS
XWORLD	LXWORLD	World exports	IMF- IFS
ZAF_PROD_*	LZAF_PROD_*	South African productivity per sector	IMF- IFS
ZAR_CPI	LZAR_CPI	South African consumer price index	IMF- IFS
ZAR_I	LZAR_I	South African interest rates	IMF- IFS
ZAR_R	LZAR_R		IMF- IFS
ZAR_TAX	LZAR_TAX	South African tax rates	IMF- IFS
ZARUSD	LZARUSD	South African USA exchange rate	IMF- IFS

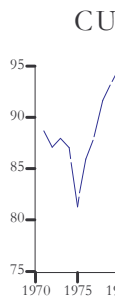
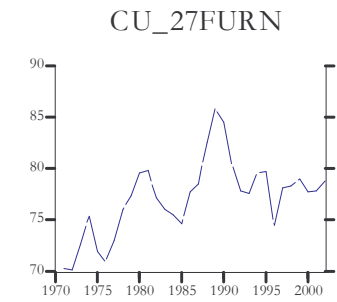
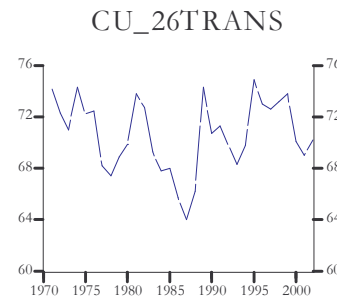
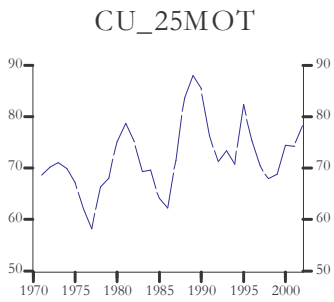
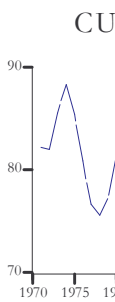
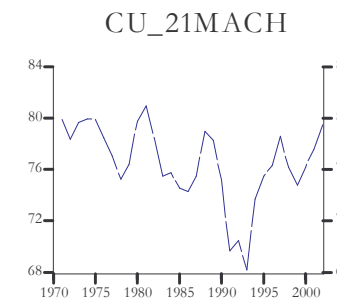
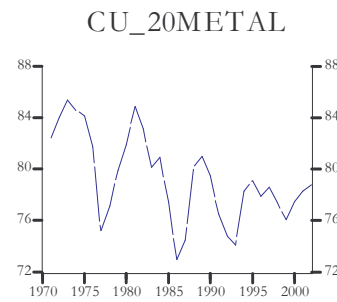
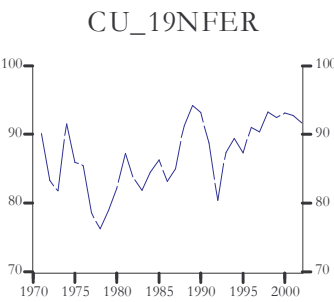
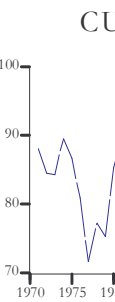
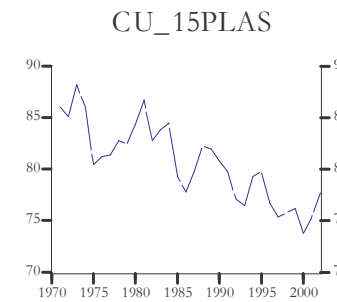
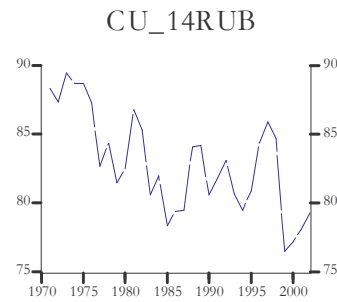
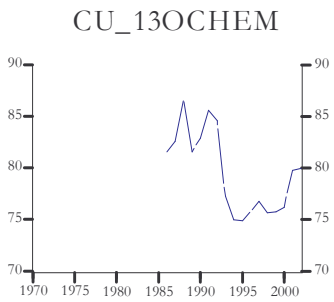
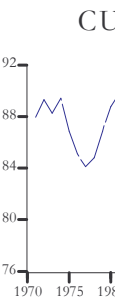
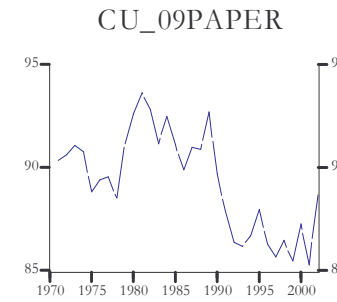
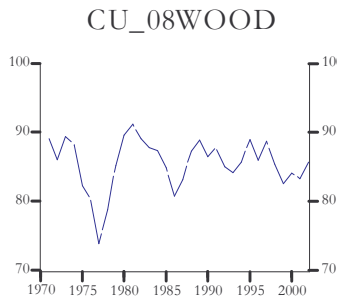
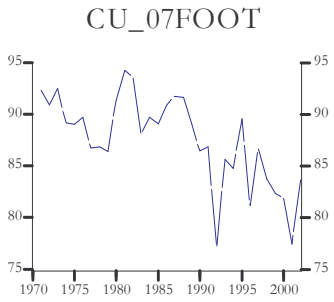
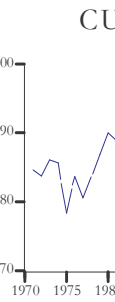
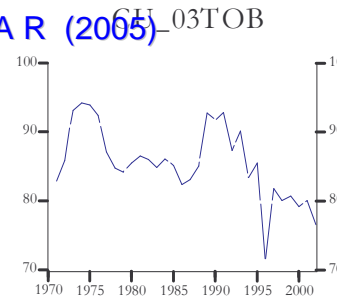
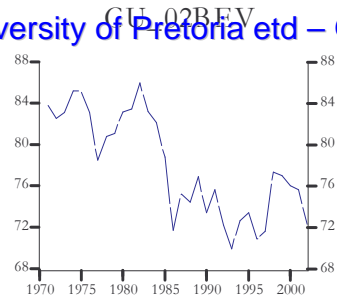
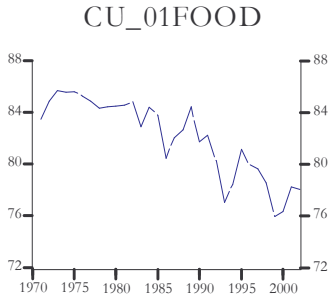
Appendix 13 A graphical representation of the variables





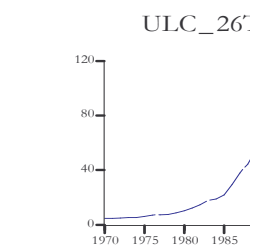
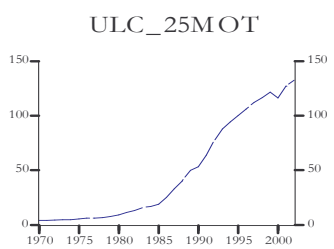
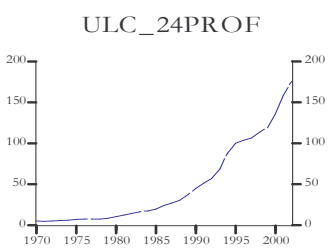
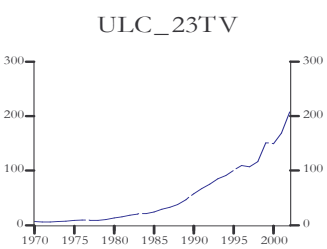
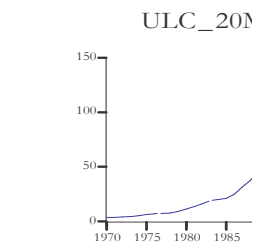
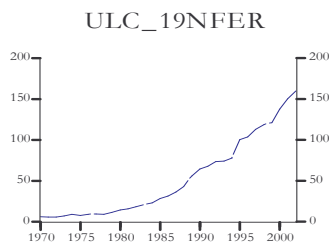
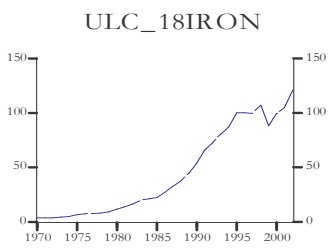
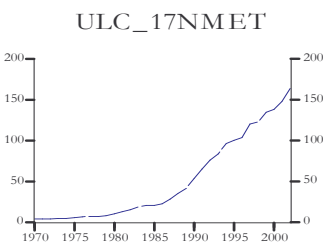
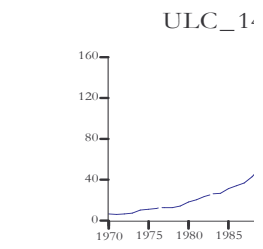
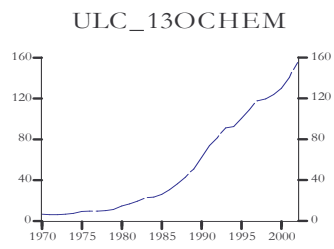
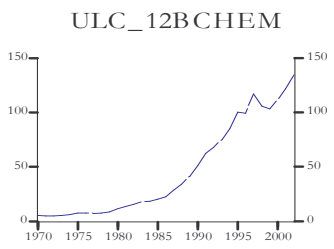
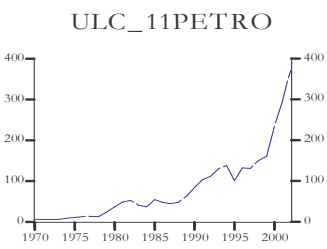
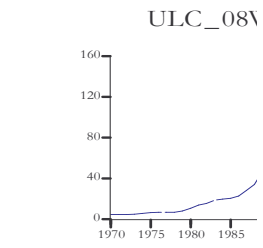
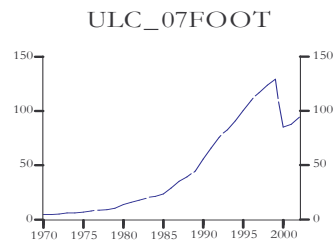
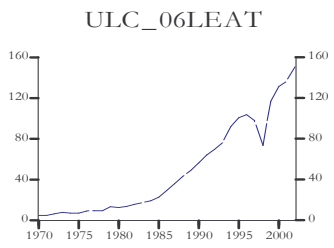
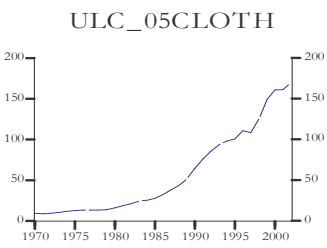
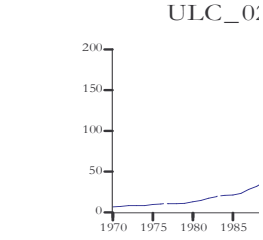
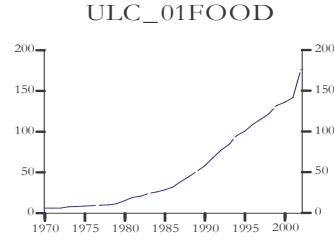
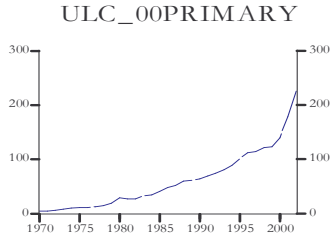
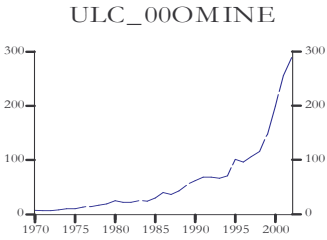
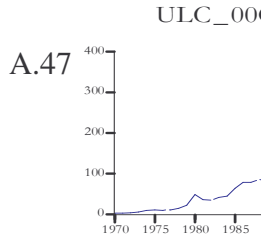
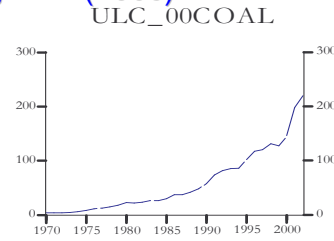
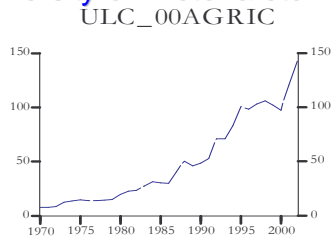
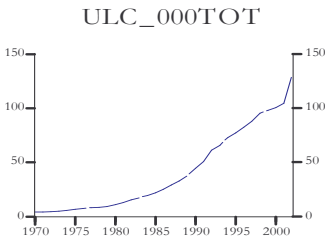
University of Pretoria etd – Gouws, A R (2005)

A.46

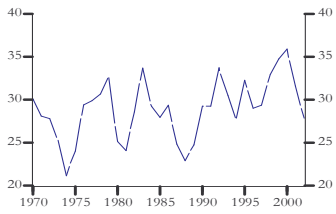


University of Pretoria etd – Gouws, A R (2005)

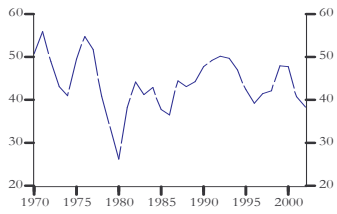
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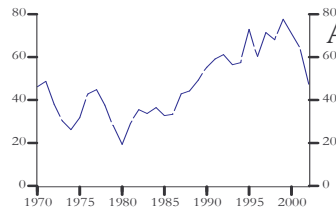
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WAGE_00COWI



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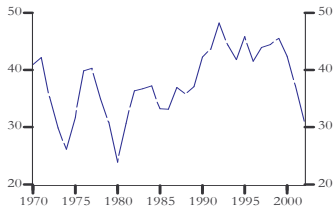


A.48

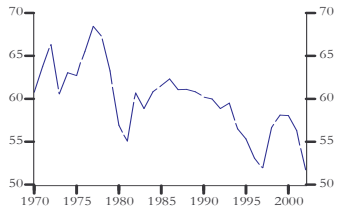
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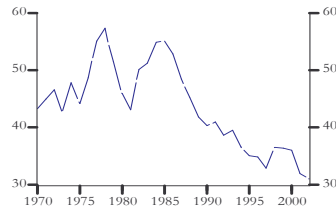
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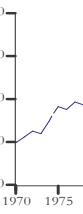
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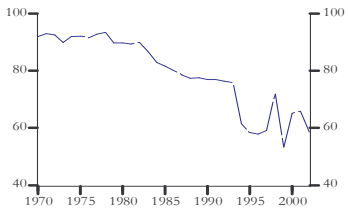
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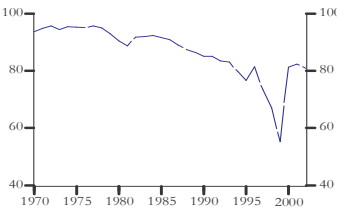
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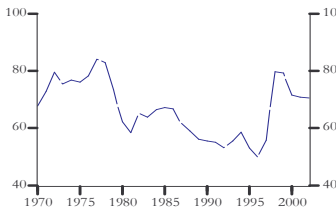
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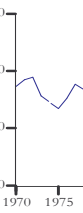
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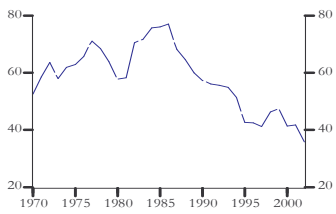
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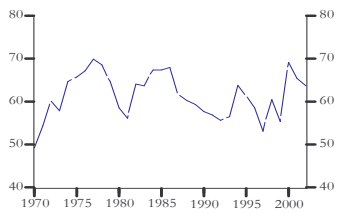
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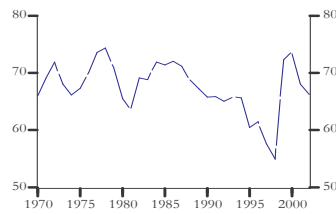
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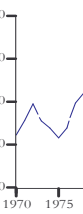
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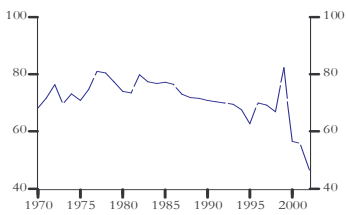
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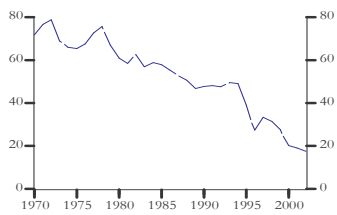
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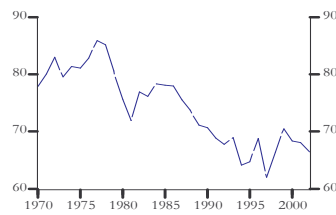
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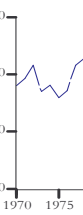
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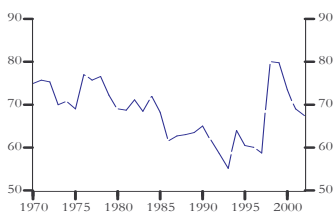
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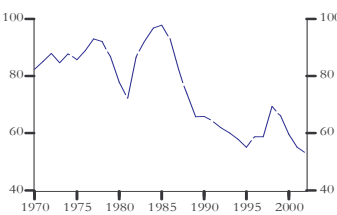
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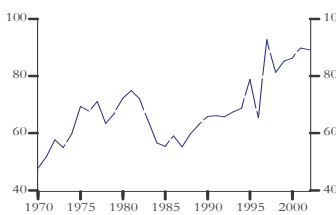
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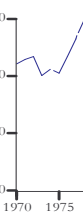
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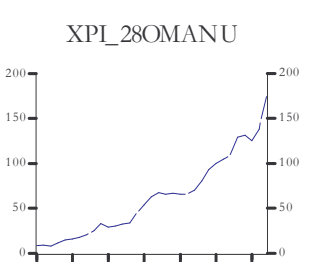
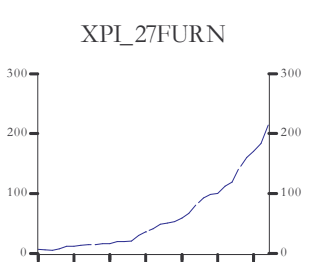
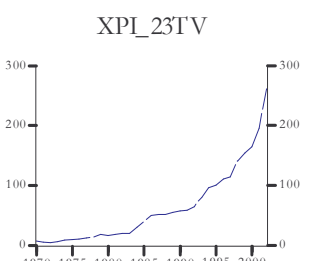
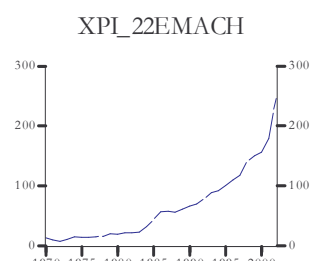
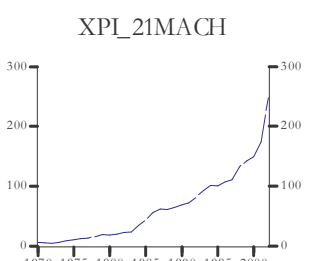
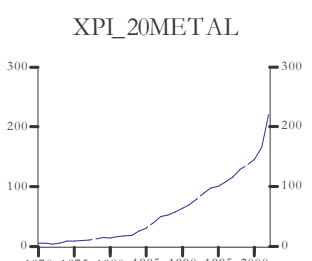
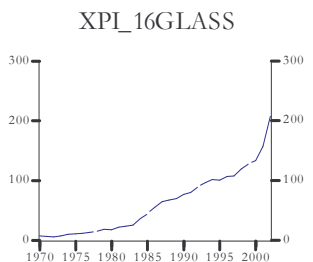
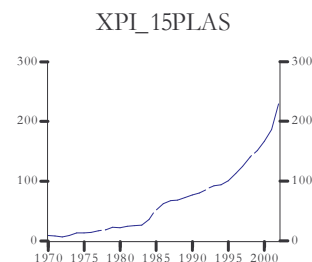
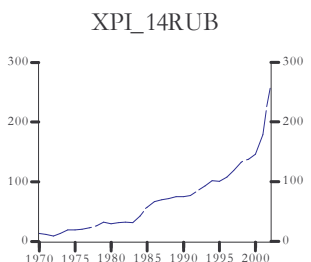
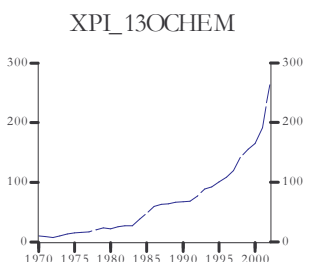
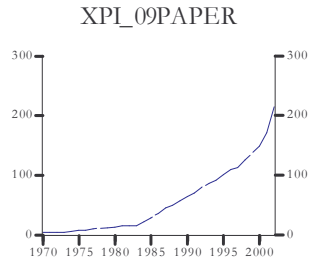
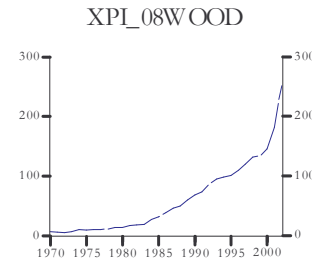
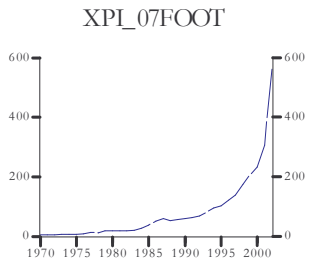
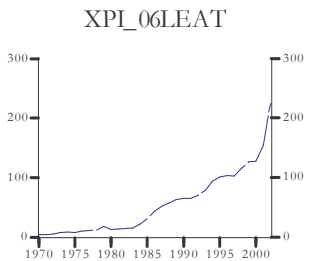
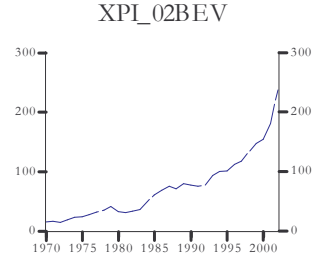
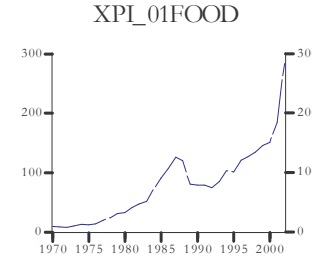
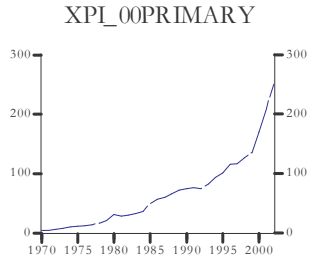
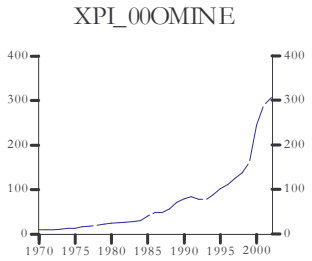
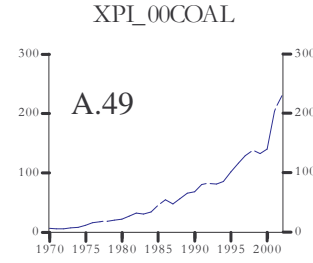
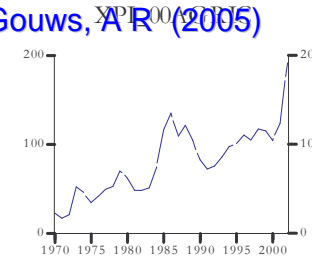
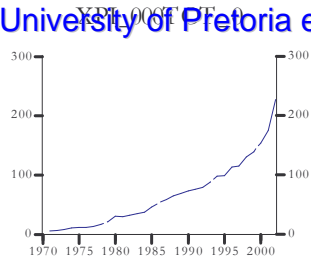
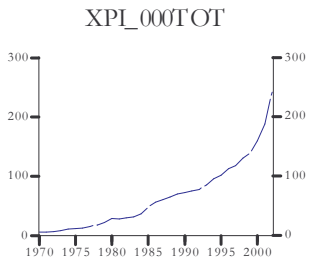
WAGE_26TRANS

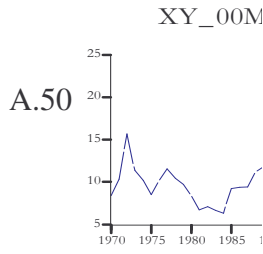
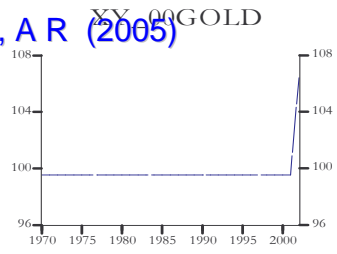
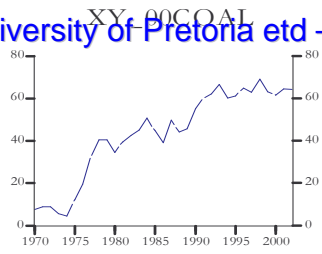
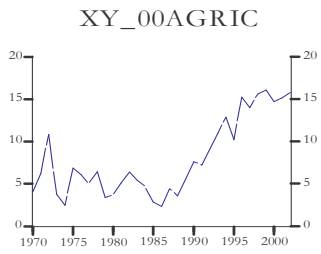


WAGE_27

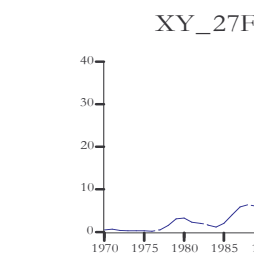
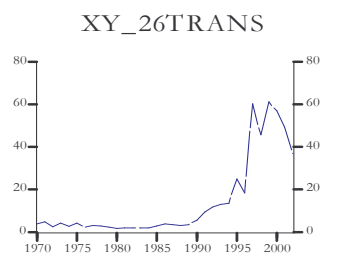
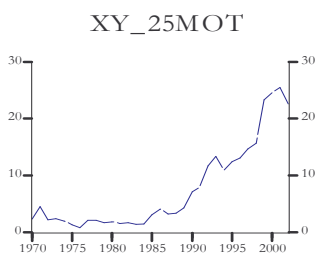
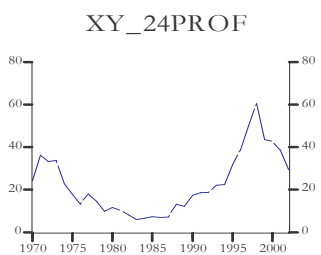
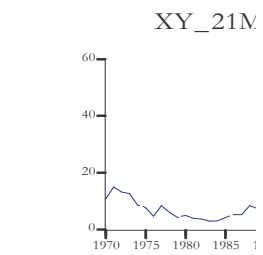
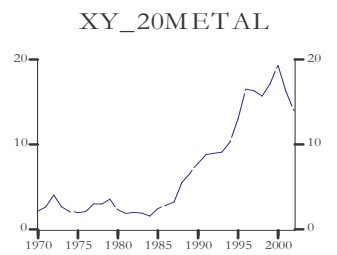
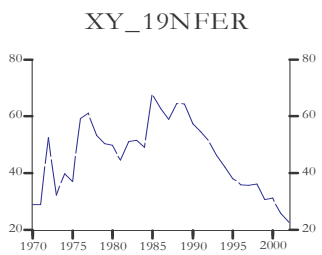
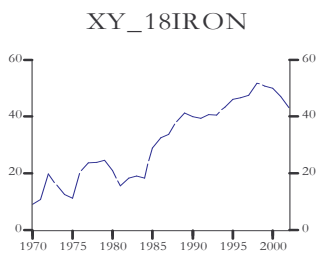
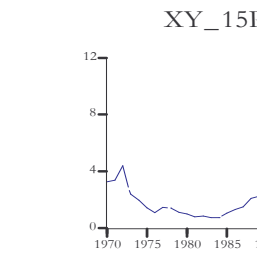
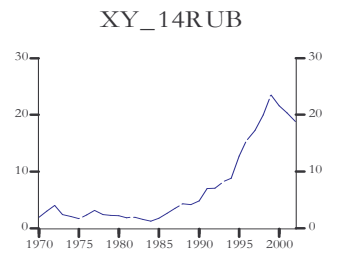
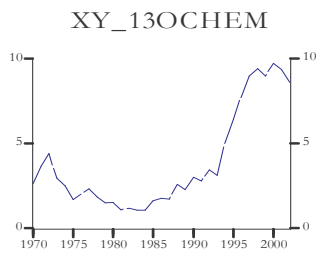
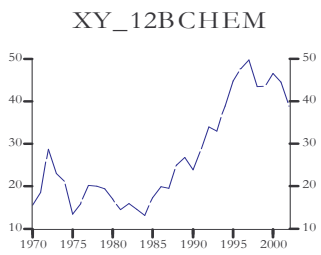
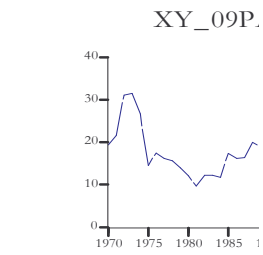
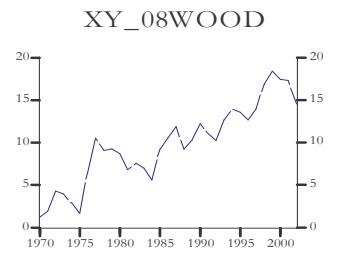
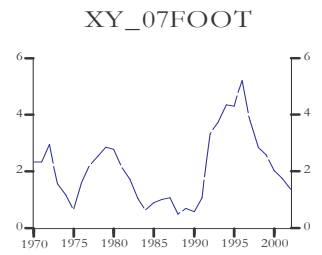
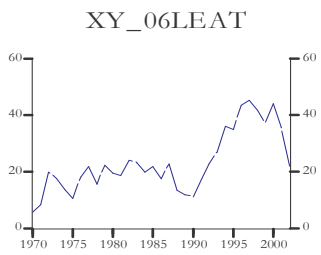
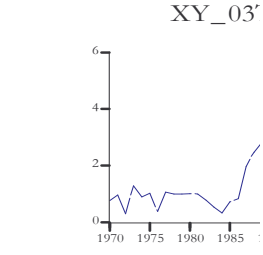
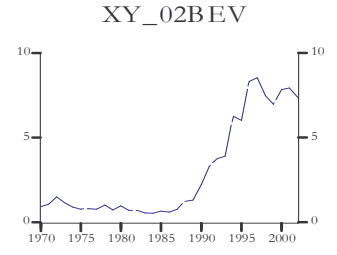
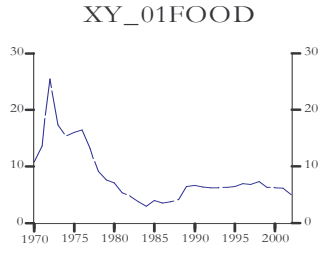
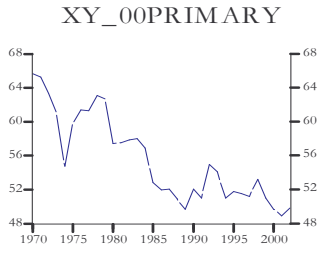


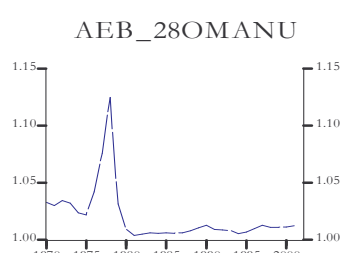
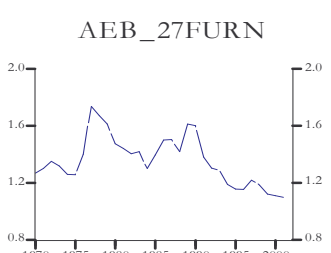
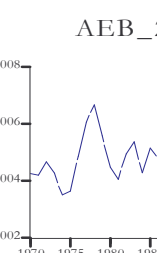
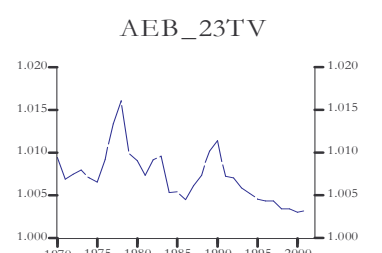
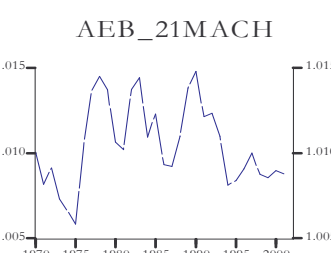
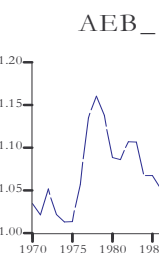
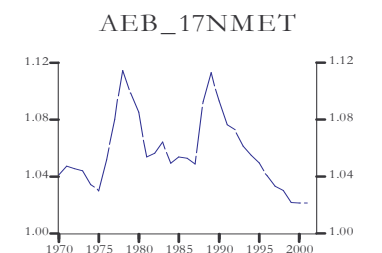
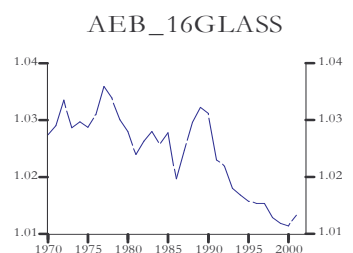
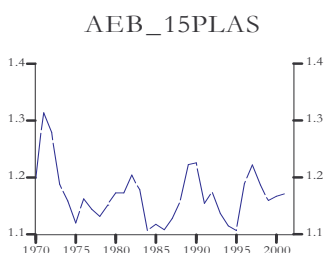
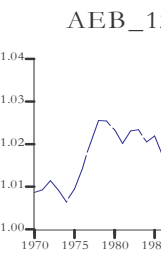
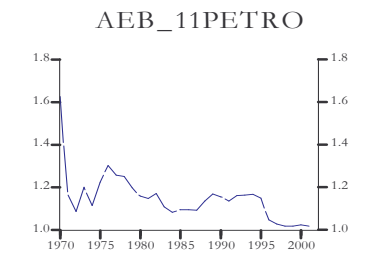
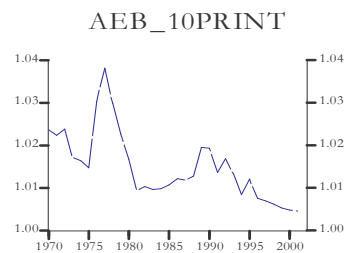
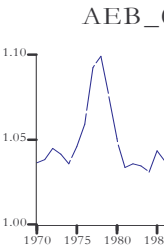
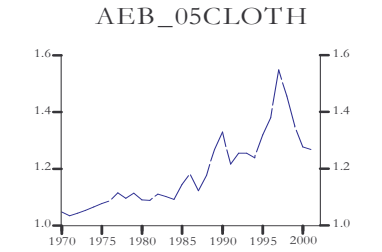
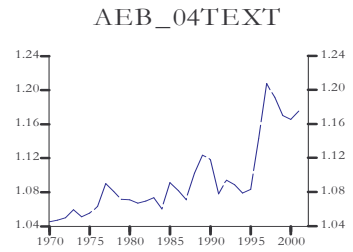
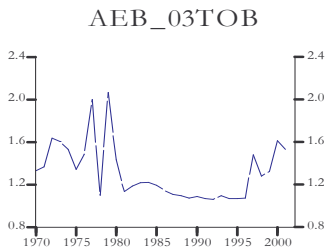
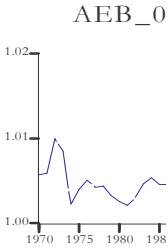
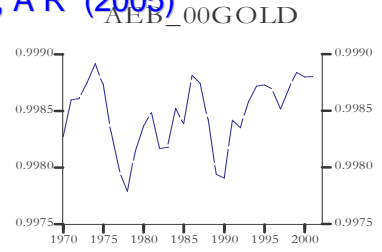
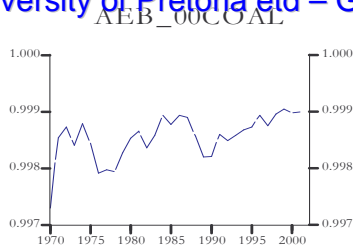
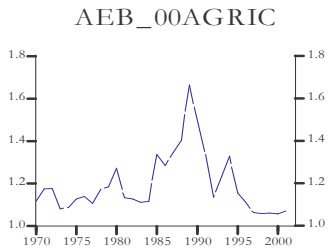
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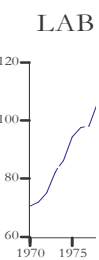
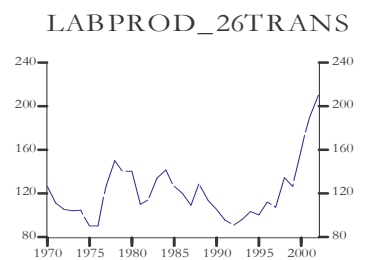
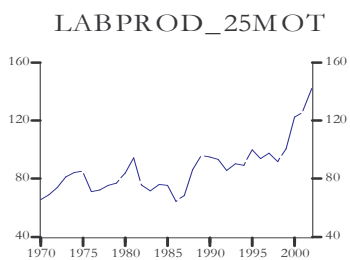
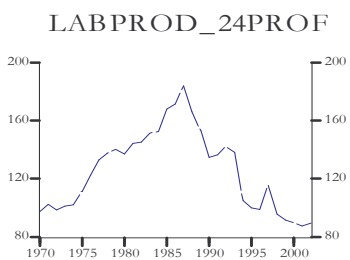
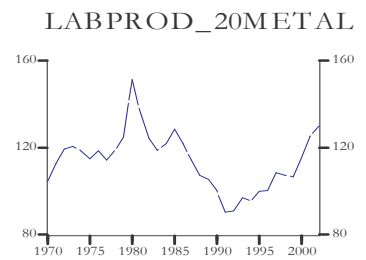
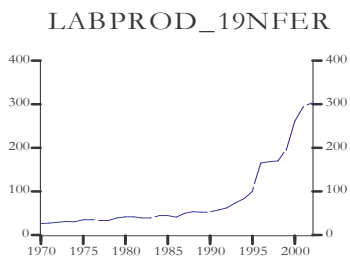
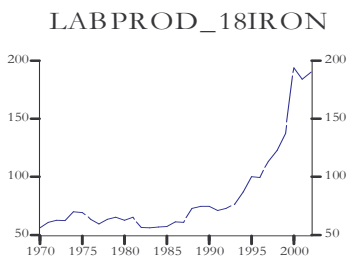
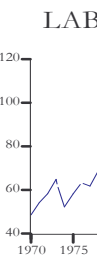
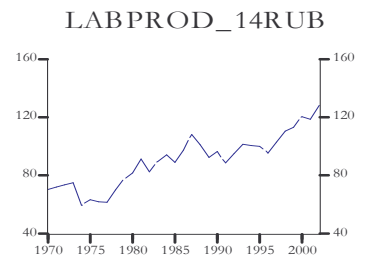
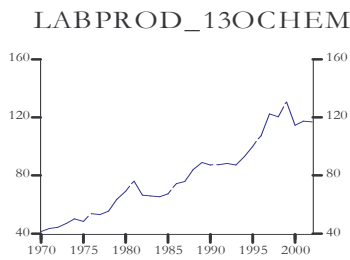
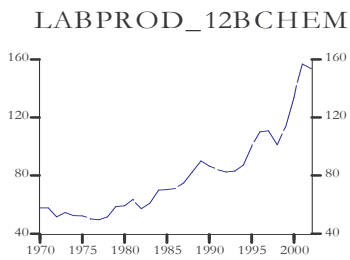
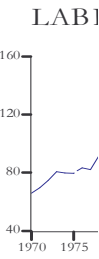
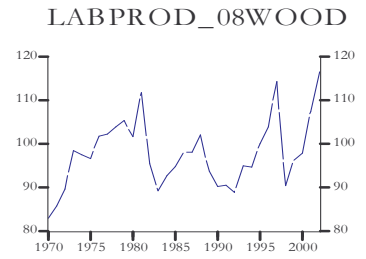
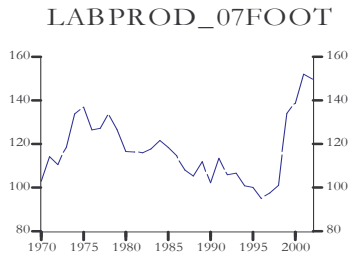
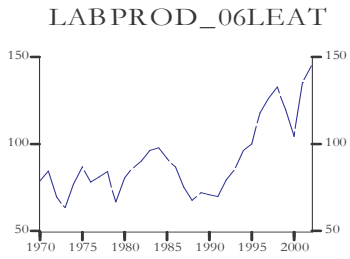
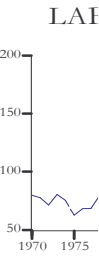
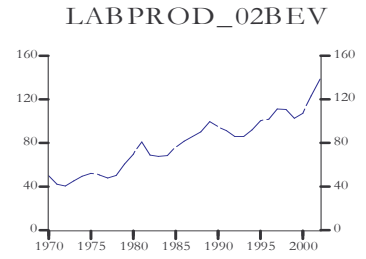
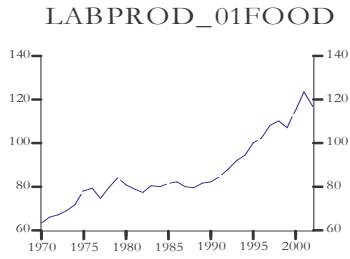
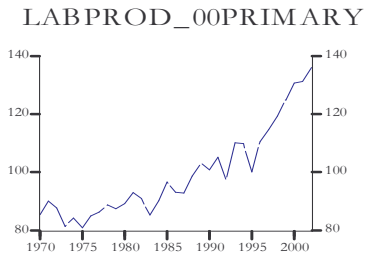
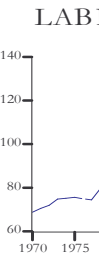
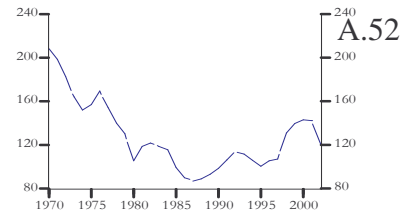
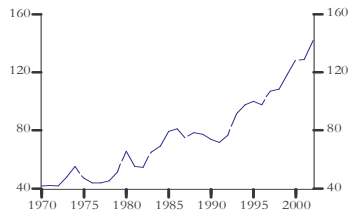
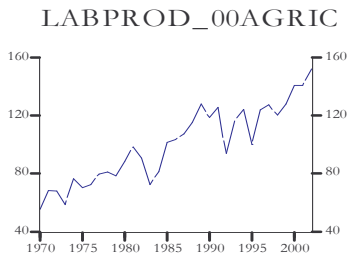


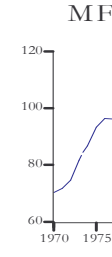
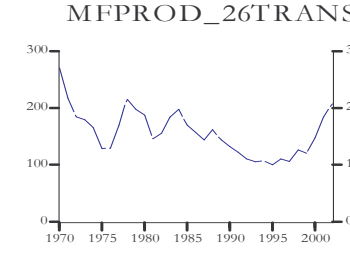
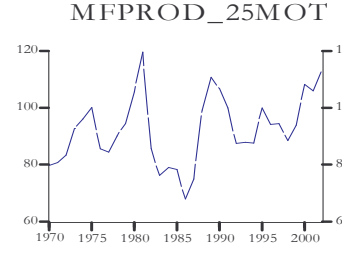
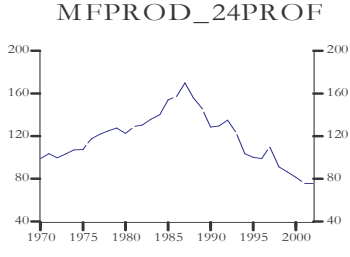
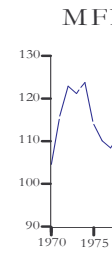
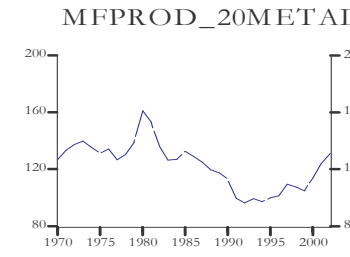
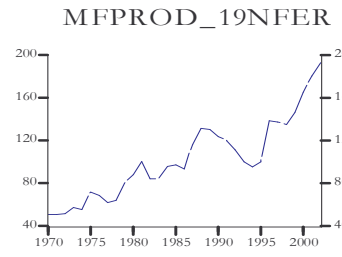
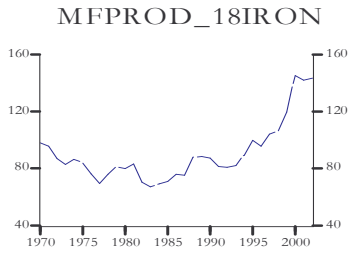
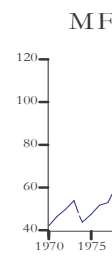
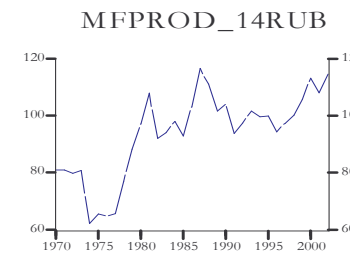
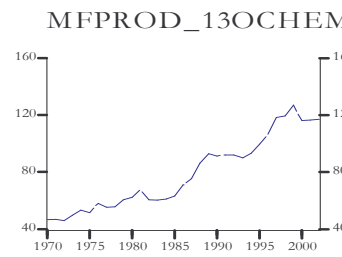
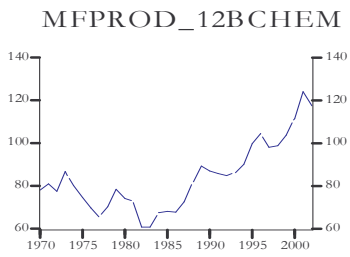
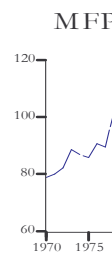
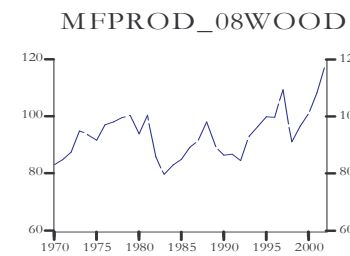
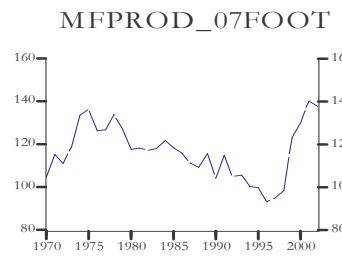
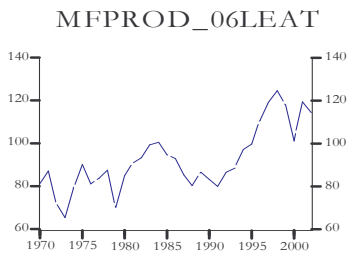
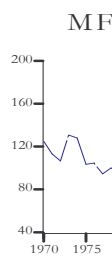
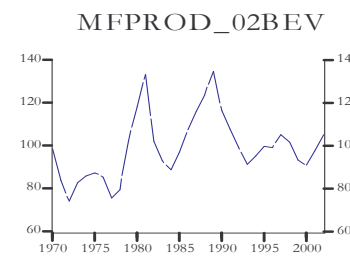
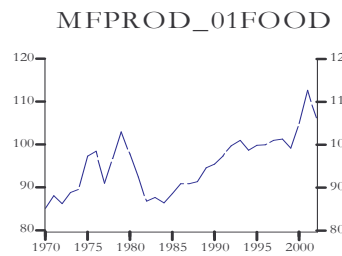
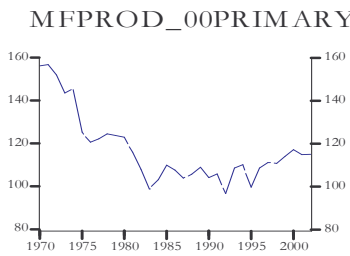
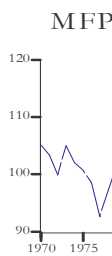
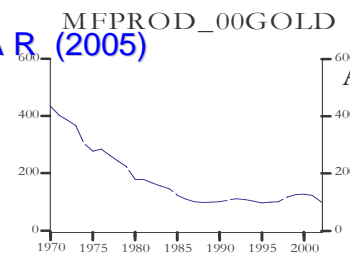
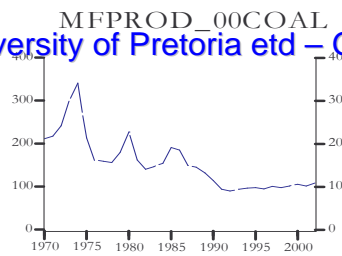
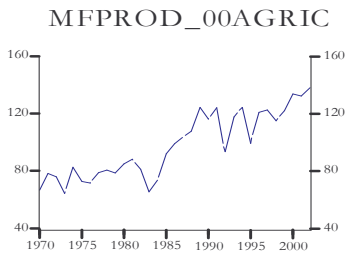


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Appendix 14 Econometric estimations and statistical tests

Augmented Dickey-Fuller test for non-stationarity (Capacity Utilisation 1988-2000)

	lag	τ	lag	τ_{μ}	Φ_3	lag	τ_{τ}	Φ_1
TOTAL	0	-0.498495	0	-4.205071 ***	17.68262 ***	0	-4.146651 ***	8.683674 ***
MANU	4	-0.493387	4	-3.214249 **	9.759792 ***	4	-3.143063 **	8.10051 ***
FOOD	3	-0.396208	0	-5.145861 ***	26.47989 ***	0	-5.36911 ***	14.4285 ***
BEV	4	-0.310283	4	-2.32057	7.30E+00 ***	4	-2.521218	6.242247 ***
TOB	4	0.066298	4	-3.133039 **	14.31018 ***	4	-3.023346	11.70272 ***
TEXT	0	-0.54903	0	-1.833509	3.361754 **	0	-1.785035	1.668331
CLOTH	0	0.375921	0	-2.283431	5.214055 **	0	-3.206746 **	5.232033 ***
LEAT	0	0.26712	0	-1.890778	3.57504 **	0	-2.55291	3.757951 **
FOOT	3	-0.395151	3	-1.692372	31.83395 ***	3	-1.452611	25.06304 ***
WOOD	1	3.743027	1	-0.531556	7.097138 ***	1	-2.15047	6.518517 ***
PAPER	1	-0.151444	1	-1.410353	4.13923 **	0	-2.344535	2.971931 **
PRINT	1	-0.904108	1	-0.389389	4.863945 **	1	-0.756883	4.016318 **
PETRO	2	-0.538335	2	-2.333939	15.93613 ***	2	-2.903163	13.29456 ***
ICHEM	0	0.048647	0	-2.028947	4.116624 **	0	-2.307811	2.717679 **
CHEM	0	-0.215568	0	-3.045573 **	9.275514 ***	0	-2.983573	4.563231 **
RUB	0	-0.343348	0	-2.975756 **	8.86E+00 ***	0	-3.11318	5.441647 ***
GLASS	3	-0.426575	3	-1.900388	4.723874 ***	0	-4.054027 **	8.237124 ***
NONM	2	-0.734574	0	-4.0643 ***	16.51853 ***	0	-4.737746 ***	11.24428 ***
IRON	3	-0.261146	3	-1.23146	8.438847 ***	0	-4.963074 ***	12.32016 ***
NONF	1	-0.47143	0	-3.290328 **	10.82626 ***	0	-3.219207 **	5.347485 ***
METAL	1	-0.263339	0	-5.068041 ***	25.68504 ***	0	-5.252421 ***	13.94491 ***
MACH	2	-0.344191	0	-3.677142 ***	13.52137 ***	0	-3.639361 **	6.694835 ***
EMACH	4	-0.365084	4	-1.960492	25.42877 ***	5	-2.715279	18.86814 ***
PROF	2	-0.136042	0	-4.973606 ***	24.73675 ***	0	-5.326916 ***	14.21404 ***
MOT	0	-0.156778	0	-2.894557 **	8.378462 ***	1	-3.656956 **	4.601054 ***
TRAN	0	-0.182046	0	-3.442687 **	11.85209 ***	0	-3.634197 **	6.794949 ***
FURN	1	0.308018	0	-2.800747 **	7.844184 ***	0	-3.178047 **	5.700859 ***
OTHER	1	-0.336099	0	-5.253021 ***	27.59423 ***	0	-5.60915 ***	16.02708 ***
D(TOTAL)	0	-10.02387 ***	0	-9.923375 ***	98.47336 ***	0	-9.800091 ***	48.60739 ***
D(MANU)	3	-2.390325 **	3	-2.415942	37.40812 ***	3	-2.467574	29.79074 ***
D(FOOD)	2	-7.67191 ***	2	-7.616732 ***	36.95855 ***	2	-7.564234 ***	27.3122 ***
D(BEV)	3	-2.525316 **	3	-2.507803	41.73627 ***	0	-11.38355 ***	64.86994 ***
D(TOB)	3	-2.6043 **	3	-2.525073	60.3594 ***	3	-2.602519	47.85576 ***
D(TEXT)	0	-6.856546 ***	0	-6.839957 ***	46.78501 ***	0	-6.815966 ***	23.24182 ***
D(CLOTH)	1	-7.553081 ***	1	-7.538548 ***	39.60784 ***	1	-7.488442 ***	26.03798 ***
D(LEAT)	0	-7.46078 ***	0	-7.399219 ***	54.74844 ***	0	-7.489433 ***	28.11561 ***
D(FOOT)	2	-15.81223 ***	2	-15.68016 ***	132.4725 ***	2	-15.67743 ***	99.24183 ***
D(WOOD)	2	-1.594327 **	0	-4.500933 ***	20.2584 ***	0	-4.455395 ***	10.00444 ***
D(PAPER)	0	-10.39773 ***	0	-10.30707 ***	106.2357 ***	0	-10.33094 ***	53.36432 ***
D(PRINT)	0	-10.8794 ***	0	-10.88757 ***	118.5392 ***	0	-11.0323 ***	60.8974 ***
D(PETRO)	1	-11.41715 ***	1	-11.3502 ***	68.31219 ***	1	-11.31365 ***	45.23954 ***
D(ICHEM)	0	0.048647	0	-2.028947	4.116624 **	0	-2.307811	2.717679 **
D(CHEM)	0	-9.490189 ***	0	-9.422953 ***	88.79204 ***	0	-9.398378 ***	44.2185 ***
D(RUB)	0	-9.228732 ***	0	-9.154564 ***	8.38E+01 ***	0	-9.227457 ***	42.59347 ***
D(PLAS)	0	-7.315618 ***	0	-7.219811 ***	52.12567 ***	0	-7.121151 ***	25.38608 ***
D(GLASS)	2	-7.247764 ***	2	-7.200987 ***	37.8943 ***	2	-7.124049 ***	27.86365 ***
D(NONM)	1	-8.915444 ***	1	-8.901531 ***	68.30595 ***	1	-8.917965 ***	45.56721 ***
D(IRON)	2	-9.236472 ***	2	-9.155443 ***	48.25156 ***	2	-9.065002 ***	35.48043 ***
D(NONF)	0	-9.799996 ***	0	-9.740238 ***	94.87224 ***	0	-9.717816 ***	47.22091 ***
D(METAL)	0	-13.46408 ***	0	-13.35009 ***	178.225 ***	0	-13.32526 ***	88.78295 ***
D(MACH)	1	-8.320561 ***	1	-8.257107 ***	48.70384 ***	1	-8.323006 ***	32.84147 ***
D(EMACH)	3	-3.816177 ***	3	-3.772397 ***	122.5102 ***	3	-3.767698 **	96.65207 ***
D(PROF)	0	-12.17595 ***	0	-12.08134 ***	145.9588 ***	0	-11.98543 ***	71.82582 ***
D(MOT)	0	-7.063987 ***	0	-7.001872 ***	49.02621 ***	0	-6.961836 ***	24.23582 ***
D(TRAN)	0	-9.279389 ***	0	-9.205436 ***	84.74006 ***	0	-9.18664 ***	42.25158 ***
D(FURN)	0	-10.4295 ***	0	-10.35003 ***	107.1232 ***	5	-6.745619 ***	23.64337 ***
D(OTHER)	0	-13.04562 ***	0	-12.94448 ***	167.5596 ***	0	-13.00469 ***	84.56716 ***

Significant at a 10*, 5**, 1*** percent level.

- a At a 5(1) percent significance level the MacKinnon critical values are **-3.60(-4.38)** when a trend and a constant are included (τ_c), and **-3.00(-3.75)** when only a constant is included (τ), and **-1.95(-2.66)** when neither is included (τ). The standard normal critical value is **-1.708(-2.485)**.
- b At a 5(1) percent significance level the Dickey-Fuller critical values (for 25 observations) are 7.24(10.61) when a trend and a constant are included (M3), and 5.18(7.88) when only a constant is included (M1).

Augmented Dickey-Fuller test for non-stationarity (Capacity Utilisation 1988-2000)

	lag	τ	lag	τ_{μ}	Φ_1	lag	τ_{τ}	Φ_3
LGEIS_TOT	0	-0.94146	0	-1.295574	1.678511	0	-2.039407	2.91597 *
LGEIS_MANU	0	-0.844164	0	-1.310753	1.718073	0	-1.600831	2.557437 *
LGEIS_FOOD	0	-0.997514	0	-1.334334	1.780448	0	-2.067755	2.834083 *
LGEIS_BEV	1	-0.874518	1	-1.355814	1.21E+00	1	-1.696108	1.974202
LGEIS_TOB	0	-1.02062	0	-1.422416	2.023266	0	-1.763798	2.276532
LGEIS_TEXT	0	-0.875871	0	-1.362203	1.855598	0	-1.649201	2.547514 *
LGEIS_CLOTH	1	-0.869381	1	-1.340923	1.205293	1	-1.72822	2.025531
LGEIS_LEAT	0	-0.931246	0	-1.385287	1.919021	0	-1.712505	2.446536 *
LGEIS_WOOD	0	-0.884526	0	-1.313619	1.725594	0	-1.686565	2.508414 *
LGEIS_PAPER	0	-0.925873	0	-1.375991	1.893352	0	-1.722691	2.475014 *
LGEIS_PRINT	1	-0.879018	1	-1.360224	1.193399	1	-1.747902	2.006272
LGEIS_CHEM	1	-0.843046	1	-1.302148	0.938662	1	-1.71028	1.907024
LGEIS_RUB	1	-0.943404	1	-1.43013	1.8033	1	-1.787082	2.277562 *
LGEIS_GLASS	0	-0.887725	0	-1.317386	1.735507	0	-1.668282	2.466958 *
LGEIS_NONM	0	-0.859001	0	-1.274258	1.623733	0	-1.663204	2.533795 *
LGEIS_IRON	0	-1.008019	0	-1.411222	1.99E+00	0	-1.872272	2.505151 *
LGEIS_NONF	0	-0.874175	0	-1.254596	1.57401	0	-1.753675	2.589998 *
LGEIS_MET	0	-0.84586	0	-1.314822	1.728757	0	-1.591079	2.537713 *
LGEIS_MACH	0	-0.836625	0	-1.269332	1.611203	0	-1.59312	2.524518 *
LGEIS_EMACH	0	-0.836307	0	-1.299327	1.68825	0	-1.571794	2.535446 *
LGEIS_TRAN	0	-0.936606	0	-1.424927	2.030416	0	-1.725268	2.492902 *
LGEIS_OTHER	0	-0.873778	0	-1.358294	1.844961	0	-1.645326	2.545976 *
D(LGEIS_TOTAL)	0	-6.407404 *	0	-6.479892 *	41.989 ***	0	-6.705468 *	22.49054 ***
D(LGEIS_MANU)	0	-7.135675 *	0	-7.062487 *	49.87872 ***	0	-7.382907 *	27.25366 ***
D(LGEIS_FOOD)	0	-7.979041 *	0	-7.913369 *	62.62141 ***	0	-8.031875 *	32.25551 ***
LGEIS_BEV	1	-0.874518	1	-1.355814	1.214314	1	-1.696108	1.974202
D(LGEIS_TOB)	0	-7.813133 *	0	-7.732996 *	59.79922 ***	0	-7.915221 *	31.32536 ***
D(LGEIS_TEXT)	0	-7.161086 *	0	-7.087637 *	50.23459 ***	0	-7.38114 *	27.24061 ***
D(LGEIS_CLOTH)	0	-6.259547 *	0	-6.195345 *	38.3823 ***	0	-6.465531 *	20.90154 ***
D(LGEIS_LEAT)	0	-7.544499 *	0	-7.467117 *	55.75784 ***	0	-7.724601 *	29.83473 ***
D(LGEIS_WOOD)	0	-6.915885 *	0	-6.844951 *	46.85336 ***	0	-7.084484 *	25.09496 ***
D(LGEIS_PAPER)	0	-7.727645 *	0	-7.648385 *	58.49779 ***	0	-7.925678 *	31.40819 ***
D(LGEIS_PRINT)	0	-6.304696 *	0	-6.240031 *	38.93798 ***	0	-6.502992 *	21.14445 ***
D(LGEIS_CHEM)	0	-6.585417 *	0	-6.517873 *	42.48266 ***	0	-6.805337 *	23.15631 ***
D(LGEIS_RUB)	0	-5.861593 *	0	-5.801473 *	33.65709 ***	0	-6.018406 *	18.11061 ***
D(LGEIS_PLAS)	1	-4.428485 *	1	-4.38112 *	17.38168 ***	1	-4.684589 *	12.64424 ***
D(LGEIS_GLASS)	0	-7.177485 *	0	-7.103868 *	50.46494 ***	0	-7.362634 *	27.10419 ***
D(LGEIS_NONM)	0	-6.64527 *	0	-6.577111 *	43.25839 ***	0	-6.813123 *	23.20932 ***
D(LGEIS_IRON)	0	-7.787775 *	0	-7.707899 *	59.4117 ***	0	-7.89806 *	31.18967 ***
D(LGEIS_NONF)	1	-4.411553 *	1	-4.364369 *	24.02413	1	-4.621917 *	16.98288
D(LGEIS_METAL)	0	-6.849567 *	0	-6.779313 *	45.95908	0	-7.069489 *	24.98884
D(LGEIS_MACH)	0	-6.557367 *	0	-6.490111 *	42.12153	0	-6.748247 *	22.76942
D(LGEIS_EMACH)	0	-7.053306 *	0	-6.980962 *	48.73384	0	-7.30098 *	26.65216
D(LGEIS_MOT)	0	-7.59626 *	0	-7.518348 *	5.65E+01	0	-7.860221 *	30.89154
D(LGEIS_TRAN)	0	-6.867794 *	0	-6.797353 *	46.20401	0	-7.008633 *	24.56047
D(LGEIS_OTHER)	0	-7.368688 *	0	-7.29311 *	53.18945	0	-7.609195 *	28.94992

Augmented Dickey-Fuller test for non-stationarity (Real exports 1988-2000)

	lag	τ	lag	τ_{μ}	Φ_1	lag	τ_{τ}	Φ_3
LX_TOT	0	7.162475	0	1.099583	1.209083	0	2.884888	***
LX_MANU	1	3.240483	1	-0.573481	3.979837 **	1	-3.214825 *	5.293073 ***
LX_FOOD	0	0.174495	0	-1.595516	2.545671	0	-3.654857 **	7.388624 ***
LX_BEV	1	2.453632	1	-1.679768	4.69E+00 **	1	-2.592879	3.430038 **
LX_TOB	1	0.738373	1	-1.642835	9.821411 ***	1	-6.424875 ***	20.68989 ***
LX_TEXT	0	0.169863	0	-2.20053	4.842332 **	0	-3.496725 *	6.142308 ***
LX_CLOTH	1	1.353212	1	-1.734435	5.761547 ***	1	-3.377857 *	5.729934 ***
LX_LEAT	1	1.611692	2	-1.965685	5.945741 ***	2	-0.423853	4.36598 ***
LX_FOOT	0	0.272496	0	-1.847265	3.412388 *	0	-1.057032	1.672094
LX_WOOD	1	1.195885	0	-1.748385	3.056849 *	0	-4.085505 **	8.45685 ***
LX_PAPER	1	0.603469	1	-1.399766	5.459363 ***	1	-3.801118 **	7.256761 ***
LX_PRINT	1	0.558338	0	-2.32487	5.40502 **	0	-4.951021 ***	12.29899 ***
LX_PETRO	1	0.293385	0	-4.432062 ***	19.64317 ***	0	-5.976764 ***	17.89753 ***
LX_CHEM	1	1.920356	1	-1.695749	9.797537 ***	1	-2.369389	8.089165 ***
LX_OCHEM	1	2.121871	1	-0.29583	2.568296 *	1	-3.478523 *	6.279646 ***
LX_RUB	1	2.858877	1	-1.617744	7.47E+00 ***	1	-3.470617 *	6.103057 ***
LX_PLAS	1	2.709003	1	-1.40131	12.06702 ***	1	-1.946612	9.350744 ***
LX_GLAS	0	0.567346	0	-1.225445	0.226265 ***	0	-3.242044 *	5.344847 ***
LX_NMET	1	1.912909	1	-3.195262 **	6.4303 ***	1	-2.207132	3.956369 **
LX_IRON	1	1.121332	1	-2.576275	7.609362 ***	1	-4.46382 ***	9.970743 ***
LX_NONF	1	0.512851	0	-2.639725 *	0.011097 ***	0	-3.630892 **	6.593436 ***
LX_MET	0	1.360302	0	-1.197943	0.236702 ***	0	-2.747533	3.845903 **
LX_MACH	0	1.825845	0	-0.515709	0.608377 ***	0	-5.09383 ***	13.07539 ***
LX_EMACH	1	2.103199	1	-1.550747	3.575909 **	1	-4.654827 ***	11.04131 ***
LX_PROF	2	2.227134	2	-0.667987	7.420263 ***	2	-4.252173 ***	9.041549 ***
LX_MOT	0	2.163999	0	-0.749671	0.562006	0	-3.31781 *	5.503971 ***
LX_TRAN	2	2.147804	2	-0.745426	11.02915 ***	2	-7.04065 ***	24.78646 ***
LX_FURN	0	1.647587	0	-0.944672	0.892405	0	-1.236899	0.910696
LX_OTHER	1	0.407606	0	-5.131927 ***	26.33667 ***	0	-5.812836 ***	16.90293 ***
LX_TV	4	4.260249	4	0.534518	0.107966 ***	4	-4.801549 ***	-1.962949 ***
D(LX_TOT)	6	0.17054	0	-8.334985 ***	69.47198 ***	0	-8.613336 ***	37.20114 ***
D(LX_MANU)	0	-9.242363 ***	0	-10.61537 ***	112.686 ***	0	-10.50028 ***	55.18126 ***
D(LX_FOOD)	0	-8.500624 ***	0	-8.42924 ***	71.0521 ***	0	-8.470561 ***	35.87933 ***
D(LX_BEV)	0	-9.266855 ***	0	-10.25223 ***	105.1082 ***	0	-10.33978 ***	53.58338 ***
D(LX_TOB)	0	-12.32863 ***	0	-12.35127 ***	152.5539 ***	0	-12.21179 ***	74.70821 ***
D(LX_TEX)	0	-9.485523 ***	0	-9.428776 ***	88.90182 ***	0	-9.324983 ***	43.53877 ***
D(LX_CLOTH)	0	-10.16235 ***	0	-10.41758 ***	108.526 ***	0	-10.35413 ***	53.63125 ***
D(LX_LEAT)	0	-10.72257 ***	0	-11.19419 ***	125.3099 ***	0	-7.602898 ***	44.7975 ***
D(LX_FOOT)	0	-7.808569 ***	0	-7.991614 ***	63.86589 ***	0	-8.560913 ***	36.86814 ***
D(LX_WOOD)	0	-10.80131 ***	0	-10.94861 ***	119.872 ***	0	-10.7764 ***	58.72998 ***
D(LX_PAPER)	0	-10.5402 ***	0	-10.49994 ***	110.2488 ***	0	-10.4043 ***	54.13141 ***
D(LX_PRINT)	0	-11.79508 ***	0	-11.86939 ***	140.8823 ***	0	-11.81293 ***	70.31677 ***
D(LX_PETRO)	0	-11.14555 ***	0	-11.06239 ***	122.3764 ***	0	-10.94293 ***	59.9152 ***
D(LX_CHEM)	0	-11.50566 ***	0	-12.03912 ***	1.45E+02 ***	0	-12.06745 ***	72.81243 ***
D(LX_OCHEM)	0	-8.887715 ***	0	-9.464745 ***	89.5814 ***	0	-9.388544 ***	44.07794 ***
D(LX_RUB)	0	-10.49841 ***	0	-11.87854 ***	141.0996 ***	0	-12.00552 ***	73.01458 ***
D(LX_PLAS)	0	-12.41024 ***	0	-13.77819 ***	189.8386 ***	0	-13.80265 ***	95.7086 ***
D(LX_GLAS)	0	-7.889837 ***	0	-8.052503 ***	64.84281 ***	0	-7.943921 ***	32.1983 ***
D(LX_NMET)	0	-7.933509 ***	0	-8.617351 ***	74.25874 ***	0	-9.365108 ***	43.88985 ***
D(LX_IRON)	0	-10.28672 ***	0	-10.38911 ***	107.9335 ***	0	-10.35364 ***	53.62115 ***
D(LX_NONF)	0	-9.675564 ***	0	-9.629491 ***	92.7271 ***	0	-9.52901 ***	45.40125 ***
D(LX_MET)	0	-8.90101 ***	0	-9.643883 ***	93.00448 ***	0	-9.799521 ***	48.44333 ***
D(LX_MACH)	0	-10.08525 ***	3	-5.637291 ***	39.08898 ***	3	-5.573229 ***	30.54984 ***
D(LX_EMACH)	0	-8.551413 ***	0	-9.242638 ***	85.42636 ***	0	-9.229677 ***	42.69714 ***
D(LX_PROF)	0	-11.34995 ***	1	-8.555507 ***	77.56284 ***	1	-8.465843 ***	50.62109 ***
D(LX_MOT)	0	-8.116004 ***	0	-9.252683 ***	85.61214 ***	0	-9.156844 ***	42.02066 ***
D(LX_TRAN)	0	-12.15597 ***	1	-9.530568 ***	-0.479415	1	-9.422504 ***	63.07768 ***
D(LX_FURN)	1	-3.406794 ***	1	-3.691608 ***	-2.2007	1	-7.657353 ***	29.36507 ***
D(LX_OTHER)	0	-11.15129 ***	3	-6.164752 ***	-1.503687	3	-6.086922 ***	28.14805 ***
D(LX_TV)	0	-7.828958 ***	3	-7.494302 ***	-1.653552	3	-7.518286 ***	21.30341 ***

Augmented Dickey-Fuller test for non-stationarity (Export price 1988-2000)

	lag	τ	lag	τ_{μ}	Φ_1	lag	τ_{τ}	Φ_3
LXPI_TOT	0	7.689492	0	2.34031	5.47705 **	0	-0.178451	2.845809 *
LXPI_MANU	0	6.93795	0	0.879072	0.772767	0	-1.773094	2.171631
LXPI_FOOD	0	1.709448	0	-1.721153	2.962366 *	0	-3.392318 *	5.894523 ***
LXPI_BEV	0	8.949411	0	1.286588	1.66E+00	0	-2.610104	4.720013 **
LXPI_TOB	0	6.41658	0	1.17654	1.384246	0	-3.990664 **	9.578771 ***
LXPI_TEXT	1	5.409112	1	0.819804	-4.31635	0	-2.759317	4.183842 **
LXPI_CLOTH	0	6.099413	0	0.307649	0.094648	0	-3.248279 *	5.492975 ***
LXPI_LEAT	0	3.744908	0	0.817852	0.668881	0	-2.151971	3.304018 **
LXPI_FOOT	0	6.844433	0	1.323528	1.751725	0	-4.009691 **	9.887941 ***
LXPI_WOOD	0	5.355865	0	-1.661814	2.761624	0	-1.481286	2.054331
LXPI_PAPER	0	6.899633	1	1.238379	-4.469587	0	-1.294289	1.581094
LXPI_PRINT	0	2.645396	0	-0.081929	0.006712	0	-2.129225	2.438218 *
LXPI_PETRO	0	4.445287	0	1.501266	2.253801	0	-0.711893	1.668937
LXPI_CHEM	0	6.937466	0	1.405492	1.975408	0	-3.08051	6.47814 ***
LXPI_OCHEM	0	5.58774	0	1.157613	1.340068	0	-2.529242	4.582988 **
LXPI_RUB	0	6.115002	0	2.015283	4.06E+00 **	0	-1.578736	3.955598 **
LXPI_PLAS	0	6.068707	0	1.113985	1.240962	0	-2.726191	4.885914 **
LXPI_GLAS	0	4.048206	0	0.397736	0.158194	0	-1.737286	1.82601
LXPI_NMET	0	7.060898	0	1.385132	1.91859	0	-3.749644 **	8.935498 ***
LXPI_IRON	0	5.97123	0	1.874221	3.512703 *	0	-1.588787	3.506655 **
LXPI_NONF	0	3.594132	0	0.975048	0.950719	0	-1.36006	1.922071
LXPI_MET	0	6.537459	0	0.467766	0.218805	0	-3.154656	5.284046 ***
LXPI_MACH	0	6.148514	0	0.492736	0.242789	0	-2.906821	4.559054 **
LXPI_EMACH	0	8.035706	0	1.084141	1.175362	0	-2.616185	4.351029 **
LXPI_PROF	0	4.569652	0	0.110946	0.012309	0	-2.529056	3.329596 **
LXPI_MOT	0	4.509291	0	0.537914	0.289351	0	-2.481458	3.575245 **
LXPI_TRAN	0	5.096224	0	-0.605833	0.367033	0	-2.188832	2.428558 *
LXPI_FURN	0	7.295307	0	1.117231	1.248206	0	-2.134274	3.294053 **
LXPI_OTHER	0	7.425502	0	1.227851	1.507617	0	-2.158727	3.449005 **
LXPI_TV	0	4.613318	0	0.130108	0.016928	0	-2.600372	3.518832 **
D(LXPI_TOT)	5	0.320328	0	-6.576488 ***	43.2502 ***	1	-6.439945 ***	-4.466264
D(LXPI_MAN)	5	-0.666123	0	-7.364071 ***	54.22953 ***	0	-7.409142 ***	-4.598088
D(LXPI_FOOD)	0	-7.351466 ***	0	-7.87925 ***	62.08257 ***	0	-7.881094 ***	-1.482523
D(LXPI_BEV)	1	-1.885232 *	0	-6.184058 ***	38.24257 ***	0	-6.322323 ***	-4.770222
D(LXPI_TOB)	3	-0.890606	0	-7.810392 ***	61.00222 ***	0	-8.052571 ***	-3.637905
D(LXPI_TEXT)	1	-2.881087 ***	0	-9.07818 ***	82.41335 ***	0	-9.135881 ***	-4.32399
D(LXPI_CLOTH)	0	-4.469333 ***	0	-7.118129 ***	50.66776 ***	0	-7.068037 ***	-4.779245
D(LXPI_LEAT)	3	-1.372433	0	-7.280319 ***	53.00304 ***	0	-7.579375 ***	-3.767635
D(LXPI_FOOT)	1	-2.308953 **	0	-6.964141 ***	48.49926 ***	0	-7.222916 ***	-4.662959
D(LXPI_WOOD)	0	-4.82877 ***	0	-7.240886 ***	52.43043 ***	0	-7.507325 ***	-4.261641
D(LXPI_PAPER)	1	-1.989457 **	0	-8.288564 ***	68.70029 ***	0	-8.454421 ***	-4.473697
D(LXPI_PRINT)	0	-7.540499 ***	0	-8.67519 ***	75.25893 ***	0	-8.660202 ***	-3.032387
D(LXPI_MACH)	1	-2.647359 ***	0	-8.143643 ***	66.31893 ***	0	-8.586985 ***	-3.120619
D(LXPI_EMACH)	5	0.312628	0	-7.507334 ***	5.64E+01 ***	0	-7.837897 ***	-6.577875
D(LXPI_PROF)	1	-2.73792 ***	0	-7.15329 ***	51.16956 ***	0	-7.415472 ***	-3.971005
D(LXPI_MOT)	1	-2.652103 ***	0	-7.008434 ***	49.11815 ***	0	-7.625814 ***	-4.373786
D(LXPI_TRAN)	5	-0.506667	0	-7.198481 ***	51.81814 ***	0	-7.466879 ***	-5.010394
D(LXPI_FURN)	0	-5.252889 ***	0	-6.68684 ***	44.71383 ***	0	-6.686177 ***	-6.273824
D(LXPI_OTHER)	5	-0.258309	0	-7.144646 ***	51.04597 ***	0	-7.336496 ***	-6.630351
D(LXPI_TV)	1	-2.230512 **	0	-7.737118 ***	59.863 ***	0	-8.356979 ***	-4.347797
D(LXPI_BEV)	1	-3.342085 ***	0	-7.659997 ***	58.67556 ***	0	-7.937182 ***	-3.637314
D(LXPI_TOB)	1	-2.391984 **	0	-8.117909 ***	65.90045 ***	0	-8.118329 ***	-4.48787
D(LXPI_TEXT)	0	-4.601067 ***	0	-7.463062 ***	55.69729 ***	0	-7.452188 ***	-4.607412
D(LXPI_CLOTH)	1	-2.028376 **	0	-7.212822 ***	52.0248 ***	0	-7.352527 ***	-5.184508
D(LXPI_LEAT)	3	-1.174898	0	-8.665934 ***	75.09841 ***	0	-8.620784 ***	-3.602229
D(LXPI_FOOT)	3	-1.374847	0	-6.657605 ***	44.32371 ***	0	-6.718474 ***	-3.911117
D(LXPI_WOOD)	3	-1.120811	0	-8.341679 ***	69.58361 ***	0	-8.259415 ***	-4.355005
D(LXPI_PAPER)	3	-0.876748	0	-6.966726 ***	48.53527 ***	0	-7.104933 ***	-4.606428
D(LXPI_PRINT)	1	-2.311347 **	0	-7.033285 ***	49.46709 ***	0	-7.207674 ***	-4.782862
D(LXPI_MACH)	0	-5.754974 ***	0	-8.049522 ***	64.79481 ***	0	-8.009345 ***	-3.908614

Augmented Dickey-Fuller test for non-stationarity (Export demand price 1988-2000)

	lag	τ	lag	τ_{μ}	Φ_1	lag	τ_{τ}	Φ_3
LXDPI_TOT	0	-2.080314 **	0	-1.991513	3.966124 *	0	-1.839268	2.047921
LXDPI_MANU	0	-3.521704 ***	0	-3.577912 ***	12.80145 ***	0	-3.540351 **	6.270226 ***
LXDPI_FOOD	0	-3.090212 ***	0	-3.079768 **	9.48497 ***	0	-3.490968 *	6.784583 ***
LXDPI_BEV	4	0.076669	4	0.045597	5.40E+00 ***	4	-2.112635	6.049996 ***
LXDPI_TOB	4	0.838253	4	0.010409	5.792605 ***	4	-0.898441	5.822804 ***
LXDPI_TEXT	0	-0.608855	0	-1.692937	2.866034 *	0	-1.914564	1.895071
LXDPI_CLOTH	4	-0.20433	4	-0.860831	7.488471 ***	4	-3.32037 *	9.335117 ***
LXDPI_LEAT	0	-1.214259	0	-1.201479	1.443553	0	-0.524614	1.200745
LXDPI_FOOT	4	-0.928695	4	-1.396204	1.002597	1	-0.019024	1.0296
LXDPI_WOOD	0	-0.24496	0	-1.584912	2.511946	0	-1.662876	1.43762
LXDPI_PAPER	1	-3.990026 ***	0	-3.325326 **	11.05779 ***	0	-2.459994	6.991405 ***
LXDPI_PRINT	4	-0.373605	0	-1.080899	1.168342	0	-2.599056	3.533628 **
LXDPI_PETRO	8	2.737534	8	2.31256	5.148484 ***	10	3.524745	-3.355075
LXDPI_BCHEM	0	-1.383038	0	-1.675839	2.808436	0	-1.843393	1.896652
LXDPI_OCHEM	0	-0.317816	0	-1.387576	1.925367	0	-1.090474	1.044453
LXDPI_RUB	0	-1.365983	0	-0.704967	4.97E-01	0	-1.32416	0.89533
LXDPI_PLAS	0	1.834975	0	0.867863	0.753187	0	-0.106328	0.912489
LXDPI_GLASS	0	1.347668	0	0.359664	0.129358	0	-0.979348	0.821034
LXDPI_NONM	0	1.641636	0	0.537867	0.289301	0	-0.533543	0.476334
LXDPI_IRON	4	-0.368669	4	-0.779825	4.885168 ***	4	-2.139284	5.141431 ***
LXDPI_NONF	0	1.226947	0	0.47691	0.227443	0	-0.101327	1.505884
LXDPI_MET	0	3.200658	0	2.174806	4.729782 **	0	-1.341413	6.520731 ***
LXDPI_MACH	4	-1.190324	4	-1.910699	5.454711 ***	4	-1.163053	4.491649 ***
LXDPI_EMACH	0	-0.302196	0	-0.15845	0.025106	0	-2.072388	2.26194
LXDPI_PROF	8	-0.991387	8	-2.537024	10.77655 ***	8	-3.438902 *	12.54676 ***
LXDPI_MOT	0	-0.379109	0	-1.147217	1.316107	0	-2.143919	2.301794
LXDPI_TRAN	4	-2.554213 **	4	-2.021022	24.22053 ***	4	-0.590799	19.69877 ***
LXDPI_FURN	4	-1.771094 *	4	-2.206042	2.704895 **	2	0.554989	1.25428
LXDPI_OTHER	4	1.144457	4	0.803636	5.562382 ***	4	-0.248924	5.718562 ***
D(LXDPI_TOT)	0	-6.796839 ***	0	-6.817447 ***	46.47759 ***	0	-6.996305 ***	24.74734 ***
D(LXDPI_MANU)	0	-10.40249 ***	0	-10.29602 ***	106.008 ***	0	-10.1907 ***	51.93346 ***
D(LXDPI_FOOD)	0	-7.8582 ***	0	-7.804401 ***	60.90867 ***	0	-8.015617 ***	32.1469 ***
D(LXDPI_BEV)	3	-1.31347	3	-1.973921	30.56339 ***	3	-2.245177	24.97267 ***
D(LXDPI_TOB)	3	-2.450899 **	3	-2.60826 *	35.26938 ***	3	-3.174996	30.26578 ***
D(LXDPI_TEXT)	0	-7.42571 ***	0	-7.696056 ***	59.22929 ***	0	-7.639504 ***	29.20728 ***
D(LXDPI_CLOTH)	3	-1.599341	3	-1.874379	33.04739 ***	3	-1.38445	25.85156 ***
D(LXDPI_LEAT)	0	-6.930167 ***	0	-6.863869 ***	47.1127 ***	0	-7.027603 ***	24.7016 ***
D(LXDPI_FOOT)	3	-3.116332 ***	3	-3.057526 **	17.00709 ***	0	-7.423415 ***	27.55375 ***
D(LXDPI_WOOD)	0	-6.614611 ***	0	-6.619961 ***	43.82389 ***	0	-6.581441 ***	21.66766 ***
D(LXDPI_PAPER)	0	-5.161679 ***	1	-3.967891 ***	20.59572 ***	1	-4.826789 ***	17.15979 ***
D(LXDPI_PRINT)	3	-2.436018 **	0	-9.760275 ***	95.26297 ***	0	-9.796516 ***	48.04897 ***
D(LXDPI_PETRO)	3	0.114774	3	-0.273054	14.4722 ***	7	-2.485839	11.09861 ***
D(LXDPI_BCHEM)	0	-8.845527 ***	0	-8.807464 ***	77.57142 ***	0	-8.844218 ***	39.16722 ***
D(LXDPI_OCHEM)	0	-7.787391 ***	0	-7.714973 ***	5.95E+01 ***	0	-7.806477 ***	30.47406 ***
D(LXDPI_RUB)	3	-2.078845 **	0	-5.8354 ***	34.05189 ***	0	-5.763829 ***	16.7377 ***
D(LXDPI_PLAS)	3	-1.625979 *	3	-1.809899	21.91607 ***	0	-7.51232 ***	28.25108 ***
D(LXDPI_GLASS)	0	-6.06172 ***	0	-7.194182 ***	51.75626 ***	0	-7.227387 ***	26.11943 ***
D(LXDPI_NONM)	1	-2.875571 ***	1	-3.826151 ***	24.02532 ***	0	-6.983552 ***	24.39267 ***
D(LXDPI_IRON)	3	-2.355255 **	3	-2.334161	33.48013 ***	3	-2.394058	26.5164 ***
D(LXDPI_NONF)	1	-3.506996 ***	1	-3.661488 ***	25.56043 ***	0	-7.270275 ***	26.46439 ***
D(LXDPI_MET)	3	-1.381947	0	-6.516416 ***	42.46368 ***	0	-8.043714 ***	32.35871 ***
D(LXDPI_MACH)	3	-2.012257 **	3	-1.992383	31.52689 ***	3	-2.197088	26.55157 ***
D(LXDPI_EMACH)	0	-7.461684 ***	0	-8.759044 ***	76.72085 ***	0	-8.717762 ***	38.0444 ***
D(LXDPI_PROF)	7	-0.168288	7	-0.502312	30.66782 ***	7	-1.755154	29.1716 ***
D(LXDPI_MOT)	0	-7.134298 ***	0	-7.147113 ***	51.08123 ***	0	-7.081356 ***	25.07921 ***
D(LXDPI_TRAN)	3	-2.11636 **	3	-2.615396 *	112.083 ***	3	-3.149821	96.18671 ***
D(LXDPI_FURN)	3	-2.009137 **	3	-2.022997	13.30828 ***	1	-5.470889 ***	13.75984 ***
D(LXDPI_OTHER)	3	-0.741348	3	-1.053918	22.84461 ***	3	-1.957236	21.03352 ***

Augmented Dickey-Fuller test for non-stationarity (Export supply price 1988-2000)

	lag	τ	lag	τ_{μ}	Φ_1	lag	τ_{τ}	Φ_3
LXSPI_TOT	0	-3.221976 ***	1	-2.950097 **	6.950596 ***	0	-0.385811	9.342639 ***
LXSPI_MANU	0	-0.906794	0	-1.111804	1.236108	0	-0.273724	8.050779 ***
LXSPI_FOOD	0	-2.663736 ***	0	-3.064391 **	9.390491 ***	0	-3.04657	4.680015 **
LXSPI_BEV	0	-0.570522	0	-0.752644	5.66E-01	0	-1.695748	11.85574 ***
LXSPI_TOB	4	-0.514909	4	-1.148122	3.540935 ***	4	-1.875049	4.142413 ***
LXSPI_TEXT	0	-1.105534	0	-1.301791	1.69466	0	-1.415231	8.153874 ***
LXSPI_CLOTH	0	-3.232021 ***	0	-3.115778 **	9.708074 ***	0	-2.50795	10.10597 ***
LXSPI_LEAT	0	-1.71934 *	0	-1.820253	3.313321 *	0	-1.4144	5.882112 ***
LXSPI_FOOT	0	-1.543955	0	-1.86947	3.49492 *	0	-1.73746	9.956087 ***
LXSPI_WOOL	0	-0.879855	0	-1.481534	2.194942	0	-2.333326	4.081981 **
LXSPI_PAPER	0	-2.309797 **	0	-2.421678	5.864524 **	0	-0.34835	9.53987 ***
LXSPI_PRINT	0	-2.462916 **	0	-2.222972	4.941605 **	4	-1.618395	3.924612 ***
LXSPI_PETRC	1	-2.949531 ***	0	-3.174395 **	10.07678 ***	0	-2.989021	5.090614 ***
LXSPI_BCHEI	0	-1.968166 **	0	-2.028305	4.11402 **	0	-1.46255	12.22756 ***
LXSPI_OCHEI	0	-0.241981	0	-0.126049	0.015888	0	-2.30956	7.705145 ***
LXSPI_RUB	0	-0.455482	0	-0.679713	4.62E-01	0	-1.211289	10.41963 ***
LXSPI_PLAS	0	-3.949958 ***	0	-3.70415 ***	13.72073 ***	0	-3.137448	6.949996 ***
LXSPI_GLASS	0	-3.935278 ***	0	-3.630978 ***	13.184 ***	0	-1.442736	7.776907 ***
LXSPI_NONM	0	-4.644363 ***	0	-4.274343 ***	18.27001 ***	0	-2.692906	10.91788 ***
LXSPI_IRON	1	-0.216306	1	-0.462661	0.183369	1	-0.598445	7.429256 ***
LXSPI_NONF	4	0.026735	4	-0.586615	4.564782 ***	4	-1.60818	5.024772 ***
LXSPI_MET	0	-0.491595	0	-0.739389	0.546695	0	-1.500349	8.285176 ***
LXSPI_MACH	0	-0.655154	0	-0.891469	0.794718	0	-1.440407	7.008493 ***
LXSPI_EMAC	0	-2.16636 **	0	-2.297004	5.276225 **	0	-2.075909	10.18302 ***
LXSPI_PROF	0	-2.280673 **	0	-2.432177	5.915487 **	0	-2.094979	3.483854 **
LXSPI_MOT	0	-2.55493 **	4	-2.111027	5.591501 ***	0	-1.389012	8.021706 ***
LXSPI_TRAN	0	1.827514	0	1.415825	2.00456	0	-1.411026	6.078281 ***
LXSPI_FURN	0	-0.683086	0	-0.906764	0.82222	0	-1.5064	11.28951 ***
LXSPI_OTHEI	0	0.880652	0	0.537745	0.289169	0	-0.802136	9.806121 ***
LXSPI_TV	0	-0.379496	0	-0.379765	0.144221	0	-2.173091	5.512847 ***
D(LXSPI_TOT)	0	-4.921144 ***	0	-5.019447 ***	25.19485 ***	0	-6.975244 ***	24.46999 ***
D(LXSPI_MAI)	0	-5.783631 ***	0	-5.718921 ***	32.70606 ***	0	-7.190887 ***	25.85666 ***
D(LXSPI_FOC)	0	-8.083667 ***	0	-8.0719 ***	65.15558 ***	0	-8.026995 ***	32.2348 ***
D(LXSPI_BEV)	0	-5.101621 ***	0	-5.054019 ***	25.54311 ***	0	-6.527621 ***	21.31123 ***
D(LXSPI_TOE)	3	-2.950328 ***	3	-2.877657 *	20.66135 ***	3	-3.314174 *	17.94497 ***
D(LXSPI_TEX)	0	-6.322473 ***	0	-6.257519 ***	39.15654 ***	0	-7.873379 ***	31.02165 ***
D(LXSPI_CLC)	0	-6.122451 ***	0	-6.110417 ***	37.33719 ***	0	-7.438525 ***	27.67413 ***
D(LXSPI_LEA)	0	-6.670489 ***	0	-6.616856 ***	43.78278 ***	0	-8.179789 ***	33.5085 ***
D(LXSPI_FOC)	0	-5.681201 ***	0	-5.617853 ***	31.56027 ***	0	-7.063173 ***	24.94969 ***
D(LXSPI_WOI)	0	-6.294029 ***	0	-6.226406 ***	38.76813 ***	0	-6.38665 ***	20.39503 ***
D(LXSPI_PAP)	0	-5.342305 ***	0	-5.296842 ***	28.05654 ***	0	-6.985019 ***	24.39923 ***
D(LXSPI_PRI)	3	-2.138731 **	3	-2.073188	25.89776 ***	0	-9.127824 ***	41.67827 ***
D(LXSPI_PET)	0	-10.28785 ***	0	-10.28067 ***	105.6923 ***	0	-10.54076 ***	55.56471 ***
D(LXSPI_BCF)	0	-5.350177 ***	0	-5.294763 ***	2.80E+01 ***	0	-7.283373 ***	26.52928 ***
D(LXSPI_OCF)	0	-6.110147 ***	0	-6.091287 ***	37.10378 ***	0	-7.012385 ***	24.58681 ***
D(LXSPI_RUE)	0	-5.534346 ***	0	-5.48501 ***	30.08534 ***	0	-7.24359 ***	26.28531 ***
D(LXSPI_PLA)	0	-6.541345 ***	0	-6.617343 ***	43.78923 ***	0	-7.007292 ***	24.55253 ***
D(LXSPI_GLA)	0	-5.850175 ***	0	-5.943651 ***	35.32699 ***	0	-7.312929 ***	26.74003 ***
D(LXSPI_NOF)	0	-5.507983 ***	0	-5.579071 ***	31.12603 ***	0	-6.558227 ***	21.56762 ***
D(LXSPI_IRO)	1	-3.178936 ***	1	-3.15376 **	34.01893 ***	0	-9.731266 ***	47.41758 ***
D(LXSPI_NOF)	3	-2.06098 **	3	-2.094562	24.92808 ***	3	-2.646329	21.32245 ***
D(LXSPI_MEN)	0	-6.172717 ***	0	-6.121359 ***	37.47104 ***	0	-7.610735 ***	28.97654 ***
D(LXSPI_MAI)	0	-6.967534 ***	0	-6.899136 ***	47.59808 ***	0	-8.686378 ***	37.73018 ***
D(LXSPI_EMU)	0	-5.699008 ***	0	-5.632632 ***	31.72654 ***	0	-6.964978 ***	24.25578 ***
D(LXSPI_PRC)	0	-8.90757 ***	0	-8.816147 ***	77.72445 ***	0	-9.351739 ***	43.73563 ***
D(LXSPI_MOV)	3	-1.751867 *	3	-1.577209	17.19075 ***	0	-7.298883 ***	26.64852 ***
D(LXSPI_TRA)	3	-1.90761 *	0	-6.713009 ***	45.06448 ***	0	-8.104285 ***	32.84545 ***
D(LXSPI_FUR)	0	-5.772239 ***	0	-5.714001 ***	32.64981 ***	0	-7.66677 ***	29.39324 ***
D(LXSPI_OTH)	0	-5.766317 ***	0	-5.775166 ***	33.35254 ***	0	-7.803814 ***	30.45035 ***
D(LXSPI_TOT)	0	-6.105547 ***	0	-6.222105 ***	43.74506 ***	0	-8.282116 ***	34.24787 ***

Augmented Dickey-Fuller test for non-stationarity

	lag	τ	lag	τ_{μ}	Φ_1	lag	τ_{τ}	Φ_3
REER	0	-0.63286	0	-1.077243	1.160452	0	-1.666277	2.197657
LPI_OIL	3	0.677796	3	-3.189574 **	5.313249 ***	3	-3.178423	4.203713 ***
LGDP_G7	0	-1.006372	0	-0.32982	0.108781	0	-1.03813	1.625423
LGDP_OECD	1	3.343897	1	0.165822	7.59E+00 ***	1	-1.547381	6.079497 ***
D(REER)	0	-7.068691 ***	0	-7.021897 ***	49.30703 ***	0	-7.274115 ***	26.56486 ***
D(LPI_OIL)	2	-3.490074 ***	2	-3.557829 **	20.07777 ***	1	-6.571895 ***	17.73026 ***
D(LGDP_G7)	0	-7.34373 ***	0	-7.402685 ***	54.79974 ***	0	-7.643487 ***	29.21347 ***
D(LGDP_OEC)	0	-2.05635 **	0	-4.034513 ***	16.2773 ***	0	-4.02076 **	8.088922 ***

τ_{τ} represents the most general model with a drift and trend; τ_{τ} is the model with a drift and without trend; τ is the most restrictive model without a drift and without trend .

Numbers in brackets are number of lags used in the ADF test in order to remove serial correlation in the residuals.

D(variable) represents the corresponding variable in first differences.

Tests for unit roots have been carried out on E-VIEWS 4.1.

Table A.14 Export volumes

	FOOD	BEV	TOB	TEXT	CLOTH	LEAT	FOOT	WOOD	PAPER
C	-3,667	-14,895	-11,1	-4,477	3,758	-11,202	-28,053	-3,471	-2,115
	(-1.891)	**(-5.471)	*(-2.555)	**(-2.836)	-1,729	**(-7.649)	**(-5.715)	**(-3.028)	(-1.040)
income	0,485	0,818	0,815	0,581	-0,132	0,803	2,083	0,323	0,334
	** (2.962)	** (3.831)	* (2.566)	** (3.847)	(-0.690)	** (5.799)	** (4.768)	** (3.205)	* (2.012)
world price	0,016	-1,818	0,297	-0,129	0,861	-0,743	-4,634	0,151	0,005
	-0,097	**(-6.378)	-0,992	(-0.877)	** (7.099)	**(-5.139)	**(-8.852)	-1,688	-0,037
export price	-0,41	2,475	-0,626	-0,551	-0,688	0,562	3,086	-0,191	-0,181
	**(-5.845)	** (5.607)	(-1.445)	*(-2.222)	*(-2.316)	* (2.327)	** (5.544)	(-1.422)	(-0.553)
R-squared	0,752	0,929	0,698	0,583	0,85	0,891	0,853	0,732	0,565
Adjusted R-squared	0,737	0,924	0,679	0,557	0,84	0,884	0,843	0,716	0,538
F-statistic	48,583	208,165	36,908	22,337	90,44	130,125	92,52	43,786	20,795
Prob(F-statistic)	0	0	0	0	0	0	0	0	0
Engle-Grainger	-3,3516	-4,42242	-6,77133	-3,84286	-5,73936	-3,3444	-3,3099	-4,72357	-4,07257
	-0,0176	-0,0008	0	-0,0046	0	-0,0179	-0,0195	-0,0003	-0,0024

	PRINT	PETRO	BCHEM	OCHEM	RUB	PLAS	GLASS	NONM	IRON
C	4,668	4,225	-5,727	-8,877	-10,666	-12,23	-3,536	-11,42	-0,184
	-0,597	-1,384	**(-3.162)	**(-4.350)	**(-6.145)	**(-7.263)	**(-2.765)	**(-3.358)	(-0.103)
income	-0,414	-0,259	0,58	0,634	0,864	0,68	0,344	0,757	0,225
	(-0.757)	(-0.994)	** (3.203)	** (3.718)	** (5.795)	** (3.680)	** (2.787)	** (2.871)	-1,438
world price	0,954	-0,201	-0,455	-0,471	-0,825	-0,653	-0,018	-0,388	-0,035
	-1,841	(-1.128)	(-1.664)	*(-2.172)	**(-4.853)	**(-5.285)	(-0.100)	(-1.477)	(-0.255)
export price	-0,069	0,868	1,779	0,549	0,299	1,13	-1,402	4,47	-0,034
	(-0.136)	-1,882	* (2.069)	* (2.575)	-1,126	** (3.063)	* (-2.312)	** (3.264)	(-0.158)
R-squared	0,657	0,334	0,86	0,917	0,96	0,954	0,783	0,839	0,645
Adjusted R-squared	0,635	0,293	0,851	0,912	0,957	0,951	0,77	0,829	0,623
F-statistic	30,601	8,039	98,066	176,235	382,056	329,691	57,867	83,513	29,038
Prob(F-statistic)	0	0	0	0	0	0	0	0	0
Engle-Grainger	-5,04014	-6,30652	-2,36122	-3,90803	-4,63382	-6,00702	-3,02679	-2,55899	-4,50246
	-0,0001	0	-0,1577	-0,0038	-0,0004	0	-0,0398	-0,1083	-0,0006

	NONF	METAL	MACH	EMACH	MOT	TRAN	FURN	OTHER
C	-1,588	-8,211	-10,261	-5,785	-9,807	-10,778	-25,846	3,599
	(-1.392)	**(-3.458)	**(-6.119)	(-1.710)	**(-4.972)	**(-5.176)	**(-11.145)	-1,33
income	0,409	0,591	0,796	0,221	0,743	0,83	2,063	-0,169
	** (3.274)	** (2.993)	** (4.847)	-0,73	** (4.220)	** (3.640)	** (10.137)	(-0.710)
world price	0,761	0,268	-0,587	-0,162	-0,44	-1,229	-3,058	-0,185
	** (4.201)	** (3.464)	* (-2.355)	(-0.656)	(-1.685)	* (-2.031)	** (-11.436)	(-0.692)
export price	-1,311	-0,125	0,434	1,08	0,354	0,934	1,37	0,611
	**(-3.550)	(-0.448)	-1,861	* (2.294)	-1,016	* (2.158)	** (4.437)	-1,925
R-squared	0,612	0,9	0,958	0,927	0,931	0,858	0,962	0,239
Adjusted R-squared	0,588	0,894	0,956	0,923	0,927	0,849	0,959	0,191
F-statistic	25,251	143,632	367,101	203,928	215,491	96,433	399,706	5,027
Prob(F-statistic)	0	0	0	0	0	0	0	0,004
Engle-Grainger	-4,09667	-3,41377	-5,16155	-4,4953	-3,31872	-6,94424	-5,43786	-6,23152
	-0,0022	-0,0149	-0,0001	-0,0007	-0,0191	0	0	0

Table A.15 Export Volumes

	FOOD	BEV	TOB	TEXT	CLOTH	LEAT	FOOT	WOOD	PAPER
C	2,327	-1,101	-0,025	1,408	-0,697	-3,559	-3,009	-0,833	1,796
	** (14.750)	** (-5.889)	(-0.135)	** (7.100)	** (-2.730)	** (-18.820)	** (-7.434)	(-1.804)	** (4.977)
Domestic price	0,433	0,995	0,261	-0,079	1,026	0,949	2,219	-0,28	0,006
	** (5.808)	** (6.955)	-1,006	(-0.838)	** (7.607)	** (13.416)	** (7.285)	** (-2.716)	-0.379
export price	-0,276	-0,218	0,113	0,326	-0,372	0,31	-1,27	0,908	0,241
	** (-3.270)	(-1.349)	-0.423	** (2.688)	* (-2.349)	** (4.136)	** (-3.817)	** (4.604)	** (2.710)
R-squared	0,548	0,927	0,658	0,46	0,844	0,951	0,814	0,669	0,479
Adjusted R-squared	0,53	0,924	0,644	0,438	0,837	0,949	0,806	0,656	0,455
F-statistic	29,716	310,429	47,161	20,859	132,302	474,493	106,953	49,553	19,339
Prob(F-statistic)	0	0	0	0	0	0	0	0	0
Engle-Grainger	-2,79695	-3,4619	-6,35018	-3,50556	-5,24775	-6,60243	-2,19218	-4,70451	-3,67902
	-0,0658	-0,0132	0	-0,0117	-0,0001	0	-0,2116	-0,0003	-0,008
	PRINT	PETRO	BCHEM	OCHEM	RUB	PLAS	GLASS	NONM	IRON
C	-1,154	1,513	2,493	-1,11	-1,543	-4,174	1,168	1,088	2,409
	(-1.295)	** (5.229)	** (8.239)	** (-5.939)	** (-6.591)	** (-11.566)	** (3.900)	-1,442	** (10.004)
Domestic price	0,752	0,087	0,421	0,216	0,266	0,361	0,323	0,395	-0,008
	** (4.729)	-0,359	** (7.298)	** (2.883)	** (4.607)	** (3.056)	** (7.408)	** (5.600)	(-0.537)
export price	-0,153	0,195	-2,685	0,579	0,507	0,95	-1,832	-1,542	0,23
	(-0.464)	-0,762	* (-2.217)	** (6.004)	** (5.234)	** (5.351)	* (-2.031)	(-0.679)	** (4.587)
R-squared	0,726	0,313	0,894	0,908	0,927	0,933	0,597	0,836	0,429
Adjusted R-squared	0,715	0,285	0,89	0,905	0,924	0,93	0,581	0,829	0,388
F-statistic	64,845	11,168	206,566	242,634	312,253	338,656	36,312	124,465	10,522
Prob(F-statistic)	0	0	0	0	0	0	0	0	0
Engle-Grainger	-6,42455	-6,11287	-2,99511	-3,47809	-2,94668	-2,1962	-2,98646	-2,56482	-3,80741
	0	0	-0,0422	-0,0126	-0,047	-0,2102	-0,0429	-0,1069	-0,0072
	NONF	METAL	MACH	EMACH	MOT	TRAN	FURN	OTHER	
C	1,651	-0,389	-2,124	-2,628	-1,58	-3,182	-3,803	1,947	
	* (2.123)	(-1.936)	** (-10.413)	** (-11.252)	** (-5.693)	** (-3.120)	** (-9.642)	** (9.692)	
Domestic price	0,071	0,204	-0,07	0,493	0,443	0,301	0,765	0,06	
	-1,998	-1,639	(-0.298)	** (3.848)	** (3.051)	-1,381	* (2.516)	-0,393	
export price	0,245	0,479	1,172	0,59	0,533	0,92	0,579	0,085	
	-1,313	** (3.240)	** (5.441)	** (3.683)	** (2.906)	* (2.193)	* (2.108)	-0,513	
R-squared	0,448	0,877	0,938	0,943	0,914	0,824	0,836	0,207	
Adjusted R-squared	0,405	0,872	0,935	0,941	0,911	0,817	0,829	0,175	
F-statistic	10,548	175,032	368,898	408,142	260,469	115,002	124,481	6,402	
Prob(F-statistic)	0	0	0	0	0	0	0	0,003	
Engle-Grainger	-2,94905	-2,71109	-4,30456	-4,91386	-2,92151	-5,91639	-1,52583	-5,97153	
	-0,0524	-0,0791	-0,0012	-0,0002	-0,0498	0	-0,5127	0	

Table A.16 Export Volumes

	FOOD	BEV	TOB	TEXT	CLOTH	LEAT	FOOT	WOOD	PAPER
C	2,365	-5,041	5,917	3,821	2,437	-5,392	-10,6	-24,967	2,522
	**(2.762)	**(-3.273)	-1,428	**(-3.223)	-1,862	**(-4.483)	**(-4.683)	**(-4.206)	-1,436
Domestic price	0,433	1,153	0,088	-0,089	0,859	1,01	2,211	-0,212	0,011
	**(-5.747)	**(-7.752)	-0,311	(-0.684)	**(-5.907)	**(-12.596)	**(-8.001)	*(-2.324)	-0,558
export price	-0,277	-0,327	0,267	0,098	-0,078	0,212	-1,227	0,322	0,209
	**(-3.235)	*(-2.057)	-0,936	-0,405	(-0.404)	*(2.173)	**(-4.060)	-1,435	-1,786
Capacity	-0,019	1,972	-3,085	-0,715	-1,978	1,073	3,882	3,671	-0,309
	(-0.045)	*(2.576)	(-1.436)	(-1.877)	*(-2.437)	-1,543	**(-3.398)	**(-4.075)	(-0.423)
R-squared	0,548	0,936	0,672	0,174	0,861	0,953	0,85	0,754	0,482
Adjusted R-squared	0,52	0,932	0,652	0,089	0,852	0,95	0,84	0,739	0,444
F-statistic	19,408	232,96	32,809	2,038	99,07	326,03	90,501	49,09	12,7
Prob(F-statistic)	0	0	0	0,13	0	0	0	0	0
Engle-Grainger	-2,8029	-3,8902	-6,7447	-4,5025	-6,2784	-7,0659	-3,2086	-5,24966	-3,59943
	-0,0649	-0,0041	0	-0,0018	0	0	-0,0252	-0,0001	-0,0098
	PRINT	PETRO	BCHEM	OCHEM	RUB	PLAS	GLASS	NONM	IRON
C	-7,648	2,423	6,682	1,647	-1,816	-7,163	6,462	8,636	2,614
	*(-2.279)	-0,767	**(-4.674)	-0,826	(-1.800)	**(-6.721)	**(-5.069)	**(-4.692)	**(-3.013)
Domestic price	0,484	0,079	0,454	0,208	0,271	0,021	0,306	0,346	-0,008
	*(2.365)	-0,318	**(-8.303)	**(-2.797)	**(-4.445)	-0,128	**(-8.097)	**(-5.647)	(-0.535)
export price	0,358	0,189	-3,431	0,585	0,497	1,701	-1,42	-1,763	0,221
	-0,877	-0,731	**(-2.982)	**(-6.112)	**(-4.799)	**(-5.402)	(-1.813)	(-0.909)	**(-3.537)
Capacity	2,801	-0,448	-2,063	-1,418	0,155	0,573	-2,819	-3,819	-0,084
	-2,003	(-0.290)	**(-2.988)	(-1.388)	-0,278	-1,67	**(-4.241)	**(-4.378)	(-0.246)
R-squared	0,747	0,314	0,911	0,912	0,927	0,914	0,707	0,882	0,43
Adjusted R-squared	0,731	0,271	0,905	0,906	0,923	0,907	0,689	0,875	0,367
F-statistic	47,226	7,334	162,98	165,46	204,27	120,61	38,593	120,125	6,799
Prob(F-statistic)	0	0	0	0	0	0	0	0	0,001
Engle-Grainger	-6,4978	-6,1352	-5,4654	-3,7678	-2,9673	-5,4124	-4,54396	-3,68503	-3,78259
	0	0	0	-0,0057	-0,0449	-0,0001	-0,0006	-0,0072	-0,0076
	NONF	METAL	MACH	EMACH	MOT	TRAN	FURN	OTHER	
C	11,33	0,519	0,048	-6,232	0,246	3,475	-6,09	2,808	
	**(-3.202)	-0,757	-0,024	**(-3.612)	-0,18	-0,751	(-1.419)	-1,109	
Domestic price	0,076	0,101	-0,225	0,591	0,317	0,301	0,939	0,035	
	*(2.389)	-0,7	(-0.827)	**(-4.467)	-1,844	-1,398	*(2.100)	-0,204	
export price	0,08	0,57	1,309	0,542	0,712	0,857	0,436	0,104	
	-0,455	**(-3.550)	**(-5.275)	**(-3.468)	**(-3.173)	*(2.056)	-1,133	-0,59	
Capacity	-4,705	-0,462	-1,109	1,782	-1,068	-3,293	1,119	-0,431	
	**(-2.789)	(-1.384)	(-1.101)	*(2.107)	(-1.361)	(-1.475)	-0,535	(-0.341)	
R-squared	0,579	0,882	0,939	0,948	0,917	0,832	0,837	0,209	
Adjusted R-squared	0,528	0,875	0,935	0,945	0,912	0,821	0,826	0,16	
F-statistic	11,459	119,5	247,4	292,67	177,28	79,231	81,874	4,23	
Prob(F-statistic)	0	0	0	0	0	0	0	0,01	
Engle-Grainger	-2,0076	-2,3264	-4,3361	-4,9687	-3,1881	-6,1625	-2,00644	-5,98923	
	-0,2816	-0,1679	-0,0011	-0,0001	-0,0265	0	-0,2832	0	

Table A.20 Export price with trade policy

	TOT	MANU	FOOD	BEV	TOB	TEXT	CLOTH	LEAT	FOOT	WOOD	PAPER	PRINT	BCHEM	OCHEM	PETRO	RUB	PLAS	GLASS	NONM	IRON	NONF	MET	MACH	EMACH	MOT	TRAN	FURN	OTHER
Cost of capital	-0	0,336	0,826	0,879	0,566	0,663	1,128	0,257	-1,61	0,399	0,052	1,216	0,113	-0,17	0,687	0,235	0,444	0,438	0,792	0,224	0,992	0,442	0,33	0,119	0,998	0,328	-0,53	0,162
	(-0.010)	*(3.610)	*(4.139)	*(2.288)	*(2.393)	*(4.149)	*(2.554)	-0,69	**(-3.081)	-1,09	-0,25	-1,65	-0,57	(-1.210)	-1,81	-1,08	*(2.061)	*(2.445)	*(2.398)	-1,44	*(3.721)	*(2.372)	-1,53	-0,45	*(3.717)	-0,99	(-1.703)	-0,75
Unit labour costs	1,665	1,409	0,581	-0,09	-0,44	1,092	0,044	-3,25	-5,27	-0,5	-0,79	1,056	-0,58	0,199	-0,18	-0,23	-0,92	0,032	-0,06	-0,27	-0,15	-1,44	0,13	-0,21	-1,31	-0,1	0,715	0,652
	**14.208	**10.094	*(2.215)	(-0.163)	(-1.544)	*(3.353)	-0,05	**(-5.173)	**(-5.765)	(-1.082)	*(-2.360)	-0,41	(-2.000)	-0,75	(-0.364)	(-0.528)	**(-2.985)	-0,11	(-0.189)	(-0.764)	(-0.416)	**(-4.442)	-0,49	(-0.324)	**(-5.053)	(-0.227)	-1,3	-1,88
Demand dummy	0,009	0,015	0,017	0,03	0,027	0,006	0,008	0,003	0,016	0,011	0,017	0,024	0,022	0,026	0,012	0,019	0,022	0,004	0,028	0,01	0,006	0,024	0,025	0,021	0,02	0,019	0,033	0,01
	**10.928	**17.805	**4.362	**6.355	**3.103	**5.575	-1,18	-0,89	**4.568	**3.737	**11.238	-1,78	**14.145	**27.125	**4.647	**18.580	**16.558	-1,4	**5.237	**12.912	**2.853	**13.336	**8.258	**8.068	**9.158	**8.869	**9.707	**4.375
Trade policy - ERP	15,37	69,66	-39,5	-227	-32,2	-10	-4,8	52,18	85,39	117,7	5,54	-68,8	85,26	51,48	-142	8,426	15,91	0,965	-537	30	35,99	346,7	-254	61,2	52,35	792,9	10,31	50,93
	-1,77	**9.577	*(-2.361)	(-1.522)	(-1.027)	(-1.086)	(-0.326)	**4.957	**5.962	-1,53	**7.393	(-0.779)	**7.347	**3.087	(-1.469)	-0,93	**3.056	-1,32	*(-2.638)	**6.554	*(2.442)	**5.878	*(-2.594)	-1,27	**4.558	*(2.205)	-0,56	*(2.663)
R-squared	0,893	0,859	0,735	0,859	0,859	0,566	0,554	0,869	0,82	0,483	0,754	0,5	0,889	0,969	0,561	0,936	0,939	0,328	0,786	0,829	0,2	0,927	0,903	0,883	0,878	0,772	0,93	0,409
Adjusted R-squared	0,885	0,848	0,715	0,848	0,848	0,532	0,52	0,859	0,806	0,443	0,735	0,462	0,88	0,967	0,527	0,931	0,935	0,277	0,77	0,815	0,138	0,922	0,896	0,874	0,868	0,754	0,925	0,363
Engle-Grainger	-3,76	-3,06	-3,52	-2,08	-4,96	-4,39	-1,83	-2,08	-2,69	-2,45	-4,17	-3,42	-3,76	-4,2	-5,48	-1,32	-4,08	-3,16	-2,17	-5,04	-3,28	-3,5	-3	-3,46	-3,44	-5,48	-1,47	-4,31
	-0,01	-0,04	-0,01	-0,25	-0	-0	-0,36	-0,25	-0,08	-0,13	-0	-0,02	-0,01	-0	0	-0,61	-0,03	-0,22	-0	-0,02	-0,01	-0,04	-0,01	-0,01	-0,01	0	-0,54	-0

Appendix 15 Comprehensive results

(i) Manufacturing

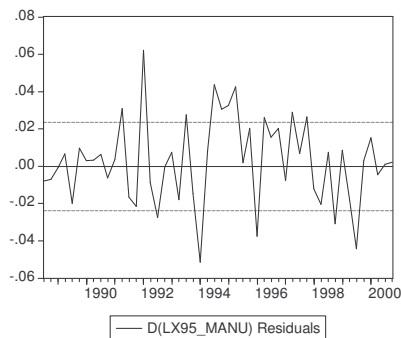
Dependent Variable: LX95_MANU
Sample: 1988:1 2000:4
Included observations: 52

Variable	Estimate (t-stat)
LXPI_MANU	-0.043 *(-2.572)
LGDP OECD	0.708 **(76.116)
D_DROUGHT	-0.044 **(-4.699)
R-squared	0.824
Adjusted R-squared	0.817
Engle-Grainger	-4.019617 (0.0028)
Lag Length: 0	

Dependent Variable: D(LX95_MANU)
Sample(adjusted): 1988:3 2000:4
Included observations: 50 after adj endpoints

Variable	Estimate (t-stat)
RRXU00MANU(-1)	-0.617 **(-4.556)
D(LX95_MANU(-1))	0.262 (1.934)
D(LXPU_MANU)	-0.128 *(-2.464)
D_SANC	-0.017 *(-2.078)
R-squared	0.369
Adjusted R-squared	0.328
Engle-Grainger	-6.879771 (0.0000)
Lag Length: 0	

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	0.075139	0.963127
Homoscedasticity	ARCH LM	nR ² (1)	0.269434	0.603711
Heteroskedasticity	White	nR ² (10)	4.891021	0.769158
Serial correlation	Breusch-Godfrey	nR ² (2)	0.299233	0.861038
Serial correlation	Lunq Box Q	Q(12)	4.4954	0.610
Misspecification	Ramsey Reset	LR(2)	0.917715	0.406940
Parameter stability	Recursive estimate	Indicative of stability		



(ii) Food

Dependent Variable: LX95_FOOD
Sample: 1988:1 2000:4
Included observations: 52

Variable	Estimate (t-stat)
LXPU_FOOD	-0.052 **(-3.256)
LGDP OECD	0.190 **(55.134)
R-squared	0.324
Adjusted R-squared	0.310
Engle-Grainger	-3.157824 (0.0285)
Lag Length: 0	

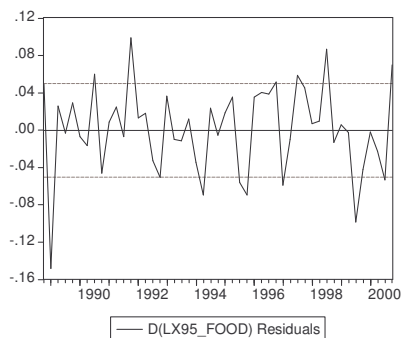
Dependent Variable: D(LX95_FOOD)
Sample(adjusted): 1988:4 2000:4
Included observations: 49 after adj endpoints

Variable	Estimate (t-stat)
C	0.052 **(3.664)
RRXU01FOOD(-1)	-0.631 **(-5.116)
D(LXPU_FOOD)	-0.077 (-1.624)
D_SANC	-0.076 **(-3.887)
D(LFR(-2))	0.468 (1.979)
D_DROUGHT	-0.061 **(-2.710)
R-squared	0.406
Adjusted R-squared	0.337
F-statistic	5.890
Prob(F-statistic)	0.000
Engle-Grainger	-7.311524

Lag Length: 0

(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	4.087276	0.129557
Homoscedasticity	ARCH LM	nR ² (1)	0.250662	0.616609
Heteroskedasticity	White	nR ² (10)	32.00323	0.000400
Serial correlation	Breusch-Godfrey	nR ² (2)	2.367056	0.306197
Serial correlation	Lunq Box Q	Q(12)	2.3383	0.886
Misspecification	Ramsey Reset	LR(2)	18.50787	0.000002
Parameter stability	Recursive estimate	Indicative of stability		



(iii) Beverages

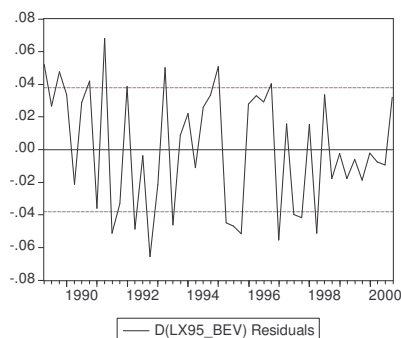
Dependent Variable: LX95_BEV
Sample: 1989:1 2000:4
Included observations: 48

Variable	Estimate (t-stat)
C	1.159 **(24.270)
LXPL_BEV(-1)	0.275 **(25.714)
D_DROUGHT	-0.102 **(-3.417)
D_POSTSANCW	0.093 **(3.302)
R-squared	0.952
Adjusted R-squared	0.948
Engle-Grainger	-4.476012 (0.0009)
Lag Length: 5	

Dependent Variable: D(LX95_BEV)
Sample: 1989:1 2000:4
Included observations: 48

Variable	Estimate (t-stat)
C	0.027 **(4.415)
RRXU02BEV(-1)	-0.308 **(-3.137)
D(LXPU_BEV)	0.327 **(9.695)
D(LFR(-2))	0.345 (1.890)
R-squared	0.783
Adjusted R-squared	0.767
Engle-Grainger	-7.484999 (0.0000)
Lag Length: 0	

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	3.201214	0.201774
Homoscedasticity	ARCH LM	nR ² (1)	0.362593	0.547070
Heteroskedasticity	White	nR ² (10)	8.077829	0.232457
Serial correlation	Breusch-Godfrey	nR ² (2)	1.088146	0.580380
Serial correlation	Lunq Box Q	Q(12)	13.045	0.042
Misspecification	Ramsey Reset	LR(2)	2.226305	0.120813
Parameter stability	Recursive estimate	Indicative of stability		



(iv) Tobacco

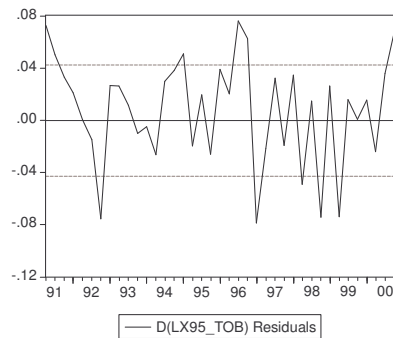
Dependent Variable: LX95_TOB
 Sample: 1991:1 2000:4
 Included observations: 40

Variable	Estimate (t-stat)
C	56.356 **(8.684)
LXPL_TOB	0.435 **(16.980)
LGDP OECD	-3.244 **(-8.939)
LREER	-0.444 *(-2.470)
R-squared	0.952
Adjusted R-squared	0.948
Engle-Grainger	-3.947304
Lag Length: 0	(0.0041)

Dependent Variable: D(LX95_TOB)
 Sample(adjusted): 1991:2 2000:4
 Included observations: 39 after adj endpoints

Variable	Estimate (t-stat)
RRXU03TOB(-1)	-0.689 **(-4.561)
D(LX95_TOB(-3))	0.067 (1.874)
D(LXPU_TOB)	0.449 **(-26.116)
R-squared	0.953
Adjusted R-squared	0.951
Engle-Grainger	-6.162321
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	2.063171	0.356441
Homoscedasticity	ARCH LM	nR ² (1)	0.055551	0.813671
Heteroskedasticity	White	nR ² (10)	5.361908	0.498302
Serial correlation	Breusch-Godfrey	nR ² (2)	0.000000	1.000000
Serial correlation	Lunq Box Q	Q(12)	4.2683	0.640
Misspecification	Ramsey Reset	LR(2)	0.113348	0.893176
Parameter stability	Recursive estimate	Indicative of stability		



(v) Textiles

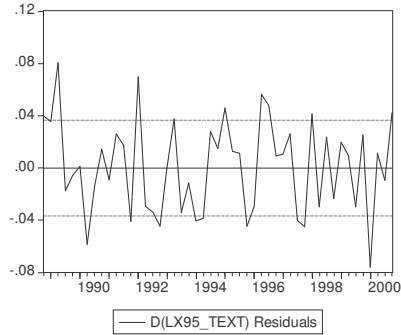
Dependent Variable: LX95_TEXT
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPU_TEXT	-0.032 **(-3.149)
LGDP OECD	0.158 **(-94.642)
R-squared	0.331
Adjusted R-squared	0.317
Engle-Grainger	-3.302089
Lag Length: 0	(0.0199)

Dependent Variable: D(LX95_TEXT)
 Sample(adjusted): 1988:4 2000:4
 Included observations: 49 after adj endpoints

Variable	Estimate (t-stat)
RRXU04TEXT(-1)	-0.199 **(-2.730)
D(LXPU_TEXT)	0.245 **(-6.601)
D(LGDP OECD)	2.770 **(-3.516)
D(CAP_TEXT(-2))	-0.005 (-1.784)
R-squared	0.583
Adjusted R-squared	0.555
Engle-Grainger	-7.139919
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	0.989061	0.609857
Homoscedasticity	ARCH LM	nR ² (1)	0.373736	0.540975
Heteroskedasticity	White	nR ² (10)	3.263825	0.916727
Serial correlation	Breusch-Godfrey	nR ² (2)	0.192636	0.908175
Serial correlation	Lunq Box Q	Q(12)	4.8517	0.563
Misspecification	Ramsey Reset	LR(2)	2.302252	0.112238
Parameter stability	Recursive estimate	Indicative of stability		



(vi) Clothing

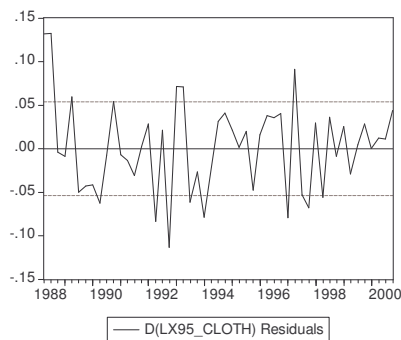
Dependent Variable: LX95_CLOTH
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPU_CLOTH	-0.204 **(-5.867)
LGDP OECD	0.152 **(40.497)
R-squared	0.457
Adjusted R-squared	0.446
Engle-Grainger	-3.577737
Lag Length: 0	(0.0097)

Dependent Variable: D(LX95_CLOTH)
 Sample(adjusted): 1988:2 2000:4
 Included observations: 51 after adj endpoints

Variable	Estimate (t-stat)
RRXU05CLOTH(-1)	-0.121 *(-2.356)
D(LXPU_CLOTH)	0.294 **(9.726)
CUUDEM_CLOTH	0.002 (1.772)
D_SANC	0.033 (1.991)
R-squared	0.758
Adjusted R-squared	0.742
Engle-Grainger	-7.525147
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	2.636828	0.267559
Homoscedasticity	ARCH LM	nR ² (1)	0.004627	0.945768
Heteroskedasticity	White	nR ² (10)	7.297484	0.294210
Serial correlation	Breusch-Godfrey	nR ² (2)	2.520711	0.283553
Serial correlation	Lunq Box Q	Q(12)	5.5304	0.478
Misspecification	Ramsey Reset	LR(2)	1.531794	0.227205
Parameter stability	Recursive estimate	Indicative of stability		



(vii) Leather

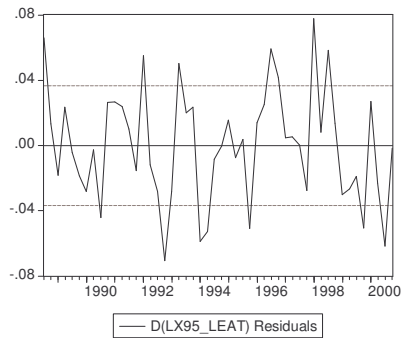
Dependent Variable: LX95_LEAT
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPI_LEAT	0.374 **(49.227)
LGDP OECD	0.043 **(26.640)
R-squared	0.981
Adjusted R-squared	0.981
Engle-Grainger	-3.371910
Lag Length: 0	(0.0167)

Dependent Variable: D(LX95_LEAT)
 Sample(adjusted): 1988:3 2000:4
 Included observations: 50 after adj endpoints

Variable	Estimate (t-stat)
RRXU06LEAT(-1)	-0.590 **(-4.803)
D(LX95_LEAT(-1))	-0.131 *(-2.143)
D(LXPU_LEAT)	0.358 **(15.176)
D(LGDP OECD)	1.717 (1.951)
D_SANC	0.062 **(6.046)
D(LGEIS_LEAT)	-0.005 *(-2.529)
R-squared	0.875
Adjusted R-squared	0.861
Engle-Grainger	-5.935508
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	0.463489	0.793149
Homoscedasticity	ARCH LM	nR ² (1)	1.401387	0.236491
Heteroskedasticity	White	nR ² (10)	9.392657	0.669077
Serial correlation	Breusch-Godfrey	nR ² (2)	2.757340	0.251913
Serial correlation	Lunq Box Q	Q(12)	7.7257	0.259
Misspecification	Ramsey Reset	LR(2)	2.429182	0.100393
Parameter stability	Recursive estimate	Indicative of stability		



(viii) Footwear

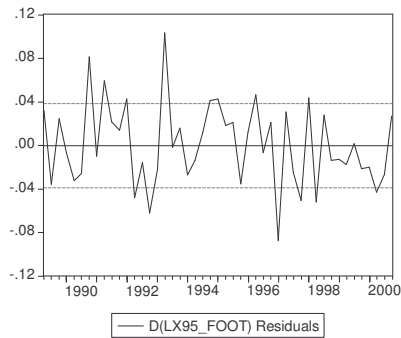
Dependent Variable: LX95_FOOT
 Sample: 1989:1 2000:4
 Included observations: 48

Variable	Estimate (t-stat)
C	-61.085 **(-30.406)
LXPU_FOOT	0.540 **(22.008)
LGDP OECD	3.777 **(31.079)
D_GEIS	0.027 **(3.061)
R-squared	0.968
Adjusted R-squared	0.966
Engle-Grainger	-4.813851
Lag Length: 0	(0.0003)

Dependent Variable: D(LX95_FOOT)
 Sample(adjusted): 1989:2 2000:4
 Included observations: 47 after adj endpoints

Variable	Estimate (t-stat)
C	0.026 **(4.625)
RRXU07FOOT(-1)	-0.347 **(-3.543)
D(LXPU_FOOT)	0.468 **(17.341)
R-squared	0.880
Adjusted R-squared	0.875
Engle-Grainger	-7.759432
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	0.646046	0.723957
Homoscedasticity	ARCH LM	$nR^2(1)$	1.588024	0.207609
Heteroskedasticity	White	$nR^2(10)$	4.555424	0.336026
Serial correlation	Breusch-Godfrey	$nR^2(2)$	1.815279	0.403475
Serial correlation	Lunq Box Q	Q(12)	9.1239	0.167
Misspecification	Ramsey Reset	LR(2)	1.766819	0.183339
Parameter stability	Recursive estimate	Indicative of stability		



(ix) Wood

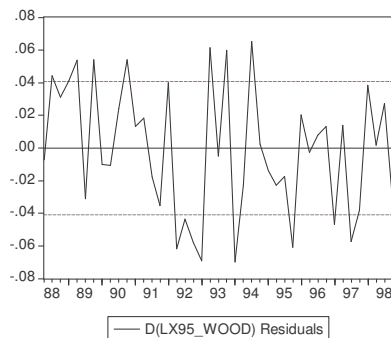
Dependent Variable: LX95_WOOD
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPU_WOOD	-0.100 **(-4.883)
LGDP OECD	0.128 **(78.881)
R-squared	0.406
Adjusted R-squared	0.394
Engle-Grainger	-3.888307
Lag Length: 0	(0.0041)

Dependent Variable: D(LX95_WOOD)
 Sample(adjusted): 1988:2 1998:4
 Included observations: 43 after adj endpoints

Variable	Estimate (t-stat)
RRXU08WOOD(-1)	-0.176 *(-2.323)
D(LXPU_WOOD)	0.266 **(7.317)
D(LGDP OECD)	2.389 *(2.303)
D(ERP_WOOD)	-90.599 *(-2.634)
R-squared	0.739
Adjusted R-squared	0.719
Engle-Grainger	-6.469075
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	1.974587	0.372584
Homoscedasticity	ARCH LM	$nR^2(1)$	0.257291	0.611988
Heteroskedasticity	White	$nR^2(10)$	12.05874	0.148602
Serial correlation	Breusch-Godfrey	$nR^2(2)$	0.472215	0.789696
Serial correlation	Lunq Box Q	Q(12)	5.9417	0.430
Misspecification	Ramsey Reset	LR(2)	0.844401	0.437930
Parameter stability	Recursive estimate	Indicative of stability		



(x) Paper

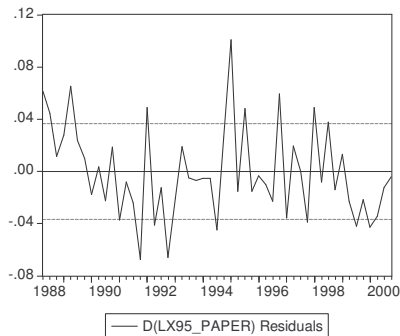
Dependent Variable: LX95_PAPER
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
C	-26.905 **(-9.786)
LXPU_PAPER	0.100 **(5.803)
LGDP OECD	1.776 **(10.906)
D_WOOD	0.126 **(6.251)
R-squared	0.814
Adjusted R-squared	0.803
Engle-Grainger	-5.776865
Lag Length: 0	(0.0000)

Dependent Variable: D(LX95_PAPER)
 Sample(adjusted): 1988:2 2000:4
 Included observations: 51 after adj endpoints

Variable	Estimate (t-stat)
RRXU09PAPER(-1)	-0.598 **(-5.949)
D(LXPU_PAPER)	0.248 **(10.201)
D(LGDP OECD)	2.212 *(2.593)
D_SANC	0.024 *(2.294)
D(LGEIS_PAPER)	-0.004 *(-2.273)
R-squared	0.802
Adjusted R-squared	0.785
Engle-Grainger	-7.077366
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)		
Homoscedasticity	ARCH LM	nR ² (1)		
Heteroskedasticity	White	nR ² (10)		
Serial correlation	Breusch-Godfrey	nR ² (2)		
Serial correlation	Lunq Box Q	Q(12)		
Misspecification	Ramsey Reset	LR(2)		
Parameter stability	Recursive estimate	Indicative of stability		



(xi) Printing

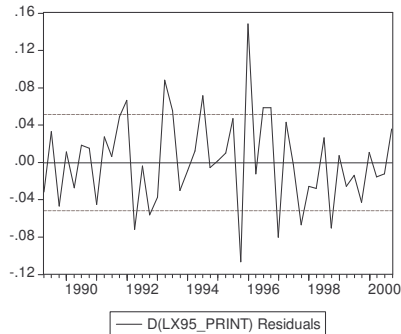
Dependent Variable: LX95_PRINT
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPU_PRINT	-0.090 (-1.157)
LGDP OECD	0.084 **(25.679)
R-squared	0.057
Adjusted R-squared	0.038
Engle-Grainger	-3.089488
Lag Length: 0	(0.0336)

Dependent Variable: D(LX95_PRINT)
 Sample(adjusted): 1989:2 2000:4
 Included observations: 47 after adj endpoints

Variable	Estimate (t-stat)
C	0.067 **(4.045)
RRXU10PRINT(-1)	-0.151 **(-3.076)
D(LX95_PRINT(-4))	-0.078 *(-2.552)
D(LXPU_PRINT)	0.358 **(18.383)
D_SANC	-0.065 *(-2.143)
D(LFR)	0.414 (1.653)
R-squared	0.949
Adjusted R-squared	0.942
Engle-Grainger	-8.968151
Lag Length: 0	(0.0000)

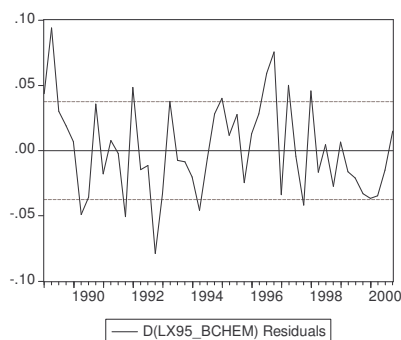
Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	1.762135	0.414340
Homoscedasticity	ARCH LM	nR ² (1)	2.792249	0.094721
Heteroskedasticity	White	nR ² (10)	8.564745	0.573847
Serial correlation	Breusch-Godfrey	nR ² (2)	4.394176	0.111126
Serial correlation	Lunq Box Q	Q(12)	7.8837	0.247
Misspecification	Ramsey Reset	LR(2)	2.865154	0.069028
Parameter stability	Recursive estimate	Indicative of stability		



(xii) Basic chemicals

Dependent Variable: LX95_BCHEM Sample: 1988:1 2000:4 Included observations: 52		Dependent Variable: D(LX95_BCHEM) Sample: 1989:1 2000:4 Included observations: 48	
Variable	Estimate (t-stat)	Variable	Estimate (t-stat)
LXPI_BCHEM	0.335 **(36.642)	RRXU11BCHEM(-1)	-0.777 **(-4.977)
LGDP OECD	0.064 **(19.247)	D(LXPU_BCHEM)	0.398 **(10.259)
R-squared	0.969	D(LGDP OECD)	2.380 **(2.715)
Adjusted R-squared	0.969	D_SANC	0.033 **(3.155)
Engle-Grainger	-5.803580	R-squared	0.755
Lag Length: 0	(0.0000)	Adjusted R-squared	0.738
		Engle-Grainger	-5.660615
		Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	1.077193	0.583567
Homoscedasticity	ARCH LM	nR ² (1)	0.351284	0.553387
Heteroskedasticity	White	nR ² (10)	4.120363	0.846104
Serial correlation	Breusch-Godfrey	nR ² (2)	9.296130	0.009580
Serial correlation	Lunq Box Q	Q(12)	6.1630	0.405
Misspecification	Ramsey Reset	LR(2)	2.766365	0.074368
Parameter stability	Recursive estimate	Indicative of stability		



(xiii) Other Chemicals

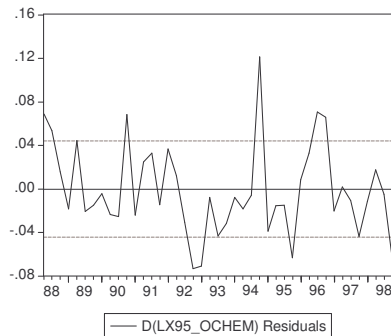
Dependent Variable: LX95_OCHEM
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
C	11.353 *(2.536)
LXPI_OCHEM	0.358 **(13.944)
LGDP OECD	-0.633 *(-2.287)
R-squared	0.980
Adjusted R-squared	0.979
Engle-Grainger	-4.141784
Lag Length: 0	(0.0019)

Dependent Variable: D(LX95_OCHEM)
 Sample(adjusted): 1988:2 1998:4
 Included observations: 43 after adj endpoints

Variable	Estimate (t-stat)
RRXU12OCHEM(-1)	-0.759 **(-4.676)
D(LXPU_OCHEM)	0.306 **(8.973)
D(LGDP OECD)	3.017 *(2.386)
D_SANC	0.030 *(2.306)
D(ERP_OCHEM)	-20.522 (-1.633)
R-squared	0.698
Adjusted R-squared	0.666
Engle-Grainger	-5.303067
Lag Length: 0	(0.0001)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	3.605945	0.164808
Homoscedasticity	ARCH LM	nR ² (1)	0.000900	0.976064
Heteroskedasticity	White	nR ² (10)	25.66865	0.004212
Serial correlation	Breusch-Godfrey	nR ² (2)	3.278458	0.194130
Serial correlation	Lunq Box Q	Q(12)	5.7152	0.456
Misspecification	Ramsey Reset	LR(2)	7.992894	0.001341
Parameter stability	Recursive estimate	Indicative of stability		

**(xiv) Petro**

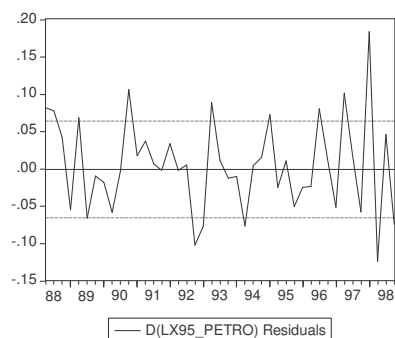
Dependent Variable: LX95_PETRO
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPU_PETRO	-0.001 (-0.047)
LGDP OECD	0.170 **(27.378)
R-squared	0.085
Adjusted R-squared	0.067
Engle-Grainger	-4.765483
Lag Length: 0	(0.0003)

Dependent Variable: D(LX95_PETRO)
 Sample(adjusted): 1988:2 1998:4
 Included observations: 43 after adj endpoints

Variable	Estimate (t-stat)
RRXU13PETRO(-1)	-0.181 **(-2.721)
D(LXPU_PETRO)	0.382 **(15.409)
D(LGDP OECD)	4.825 *(3.235)
D(ERP_PETRO)	-87.653 *(-2.175)
R-squared	0.916
Adjusted R-squared	0.910
Engle-Grainger	-8.385355
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	1.159934	0.559917
Homoscedasticity	ARCH LM	nR ² (1)	2.158823	0.141753
Heteroskedasticity	White	nR ² (10)	6.163292	0.628946
Serial correlation	Breusch-Godfrey	nR ² (2)	3.974019	0.137105
Serial correlation	Lunq Box Q	Q(12)	5.7786	0.448
Misspecification	Ramsey Reset	LR(2)	0.113580	0.892943
Parameter stability	Recursive estimate	Indicative of stability		



(xv) Rubber

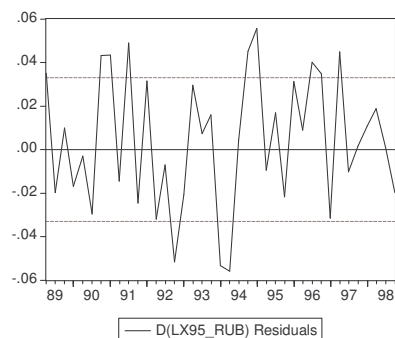
Dependent Variable: LX95_RUB
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
C	12.090 *(2.145)
LXPI_RUB	0.417 **(11.146)
LGDP OECD	-0.698 *(-2.011)
R-squared	0.980
Adjusted R-squared	0.979
Engle-Grainger	-3.807646 (0.0051)
Lag Length: 0	

Dependent Variable: D(LX95_RUB)
 Sample(adjusted): 1989:2 1998:4
 Included observations: 39 after ad endpoints

Variable	Estimate (t-stat)
RRXU14RUB(-1)	-0.548 **(-3.544)
D(LX95_RUB(-4))	-0.175 (-1.935)
D(LXPU_RUB)	0.287 **(7.953)
D(LGDP OECD)	3.482 **(3.173)
D_SANC	0.029 *(2.681)
D(ERP_RUB)	106.439 *(2.200)
R-squared	0.670
Adjusted R-squared	0.620
Engle-Grainger	-6.335936 (0.0000)
Lag Length: 0	

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	1.474262	0.478485
Homoscedasticity	ARCH LM	nR ² (1)	0.068674	0.793277
Heteroskedasticity	White	nR ² (10)	6.848873	0.867437
Serial correlation	Breusch-Godfrey	nR ² (2)	0.000000	1.000000
Serial correlation	Lunq Box Q	Q(12)	7.0537	0.316
Misspecification	Ramsey Reset	LR(2)	1.874093	0.170474
Parameter stability	Recursive estimate	Indicative of stability		



(xvi) Plastic

Dependent Variable: LX95_PLAS

Sample: 1988:1 2000:4

Included observations: 52

Variable	Estimate (t-stat)
LXPL_PLAS	0.421 **(67.167)
LGDP OECD	0.029 **(24.035)
R-squared	0.990
Adjusted R-squared	0.989
Engle-Grainger	-5.120823 (0.0001)
Lag Length: 0	

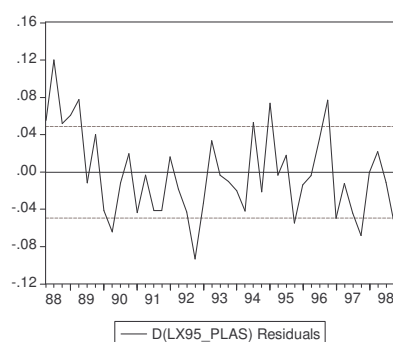
Dependent Variable: D(LX95_PLAS)

Sample(adjusted): 1988:2 1998:4

Included observations: 43 after adj endpoints

Variable	Estimate (t-stat)
RRXU15PLAS(-1)	-0.701 **(-3.123)
D(LXPU_PLAS)	0.330 **(10.654)
D(LGDP OECD)	3.520 *(2.229)
D_SANC	0.032 *(2.150)
D(ERP_PLAS)	-16.404 (-1.850)
R-squared	0.759
Adjusted R-squared	0.734
Engle-Grainger	-4.646370 (0.0005)
Lag Length: 0	

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	1.953679	0.376499
Homoscedasticity	ARCH LM	nR ² (1)	0.080492	0.776632
Heteroskedasticity	White	nR ² (10)	8.272024	0.602285
Serial correlation	Breusch-Godfrey	nR ² (2)	8.745974	0.012614
Serial correlation	Lunq Box Q	Q(12)	6.8275	0.337
Misspecification	Ramsey Reset	LR(2)	1.507325	0.235151
Parameter stability	Recursive estimate	Indicative of stability		

**(xvii) Glass**

Dependent Variable: LX95_GLASS

Sample: 1988:1 2000:4

Included observations: 52

Variable	Estimate (t-stat)
LXPU_GLASS	-0.088 **(-6.626)
LGDP OECD	0.110 **(108.158)
R-squared	0.529
Adjusted R-squared	0.519
Engle-Grainger	-3.351031 (0.0176)
Lag Length: 0	

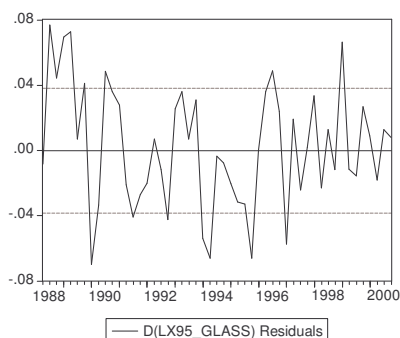
Dependent Variable: D(LX95_GLASS)

Sample(adjusted): 1988:2 2000:4

Included observations: 51 after adj endpoints

Variable	Estimate (t-stat)
RRXU16GLASS(-1)	-0.161 **(-2.864)
D(LXPU_GLASS)	0.180 **(6.688)
D(LGDP OECD)	3.142 **(3.879)
D(CAP_GLASS)	-0.003 (-1.676)
R-squared	0.599
Adjusted R-squared	0.573
Engle-Grainger	-5.334533 (0.0000)
Lag Length: 0	

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	0.812051	0.666293
Homoscedasticity	ARCH LM	nR ² (1)	0.224968	0.635280
Heteroskedasticity	White	nR ² (10)	13.44800	0.097337
Serial correlation	Breusch-Godfrey	nR ² (2)	3.865963	0.144716
Serial correlation	Lunq Box Q	Q(12)	7.4589	0.280
Misspecification	Ramsey Reset	LR(2)	1.712132	0.192027
Parameter stability	Recursive estimate	Indicative of stability		



(xviii) Non-metallic

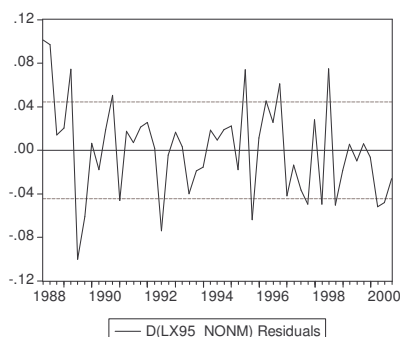
Dependent Variable: LX95_NONM
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPU_NONM	-0.428 **(-10.897)
LGDP OECD	0.152 **(48.374)
R-squared	0.725
Adjusted R-squared	0.719
Engle-Grainger	-3.724309 (0.0065)
Lag Length: 0	

Dependent Variable: D(LX95_NONM)
 Sample(adjusted): 1988:2 2000:4
 Included observations: 51 after adj endpoints

Variable	Estimate (t-stat)
C	0.026 **(4.018)
RRXU17NONM(-1)	-0.173 **(-3.644)
D(LXPU_NONM)	0.157 **(4.503)
R-squared	0.508
Adjusted R-squared	0.488
Engle-Grainger	-7.158998 (0.0000)
Lag Length: 0	

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	0.350763	0.839137
Homoscedasticity	ARCH LM	nR ² (1)	7.936774	0.004844
Heteroskedasticity	White	nR ² (10)	18.14548	0.001156
Serial correlation	Breusch-Godfrey	nR ² (2)	0.145911	0.929642
Serial correlation	Lunq Box Q	Q(12)	2.6530	0.851
Misspecification	Ramsey Reset	LR(2)	3.328454	0.044664
Parameter stability	Recursive estimate	Indicative of stability		



(xix) Iron

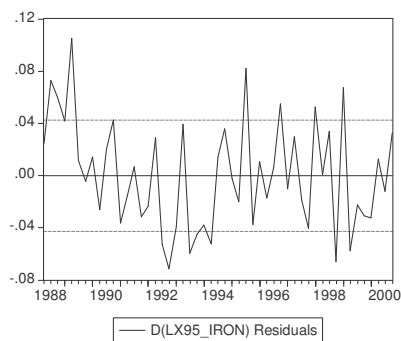
Dependent Variable: LX95_IRON
Sample: 1988:1 2000:4
Included observations: 52

Variable	Estimate (t-stat)
LXPU_IRON	-0.051 **(-5.601)
LGDP OECD	0.220 **(86.491)
R-squared	0.567
Adjusted R-squared	0.558
Engle-Grainger	-4.462149 (0.0007)
Lag Length: 0	

Dependent Variable: D(LX95_IRON)
Sample(adjusted): 1988:2 2000:4
Included observations: 51 after adj endpoints

Variable	Estimate (t-stat)
RRXU18IRON(-1)	-0.437 **(-4.267)
D(LXPU_IRON)	0.145 **(4.425)
D(LGDP OECD)	2.459 **(2.784)
R-squared	0.510
Adjusted R-squared	0.490
Engle-Grainger	-6.612120 (0.0000)
Lag Length: 0	

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	1.734799	0.420043
Homoscedasticity	ARCH LM	nR ² (1)	0.245599	0.620191
Heteroskedasticity	White	nR ² (10)	1.706245	0.944638
Serial correlation	Breusch-Godfrey	nR ² (2)	3.258220	0.196104
Serial correlation	Ljung Box Q	Q(12)	5.3633	0.498
Misspecification	Ramsey Reset	LR(2)	0.461258	0.633374
Parameter stability	Recursive estimate	Indicative of stability		

**(xx) Non-ferrous**

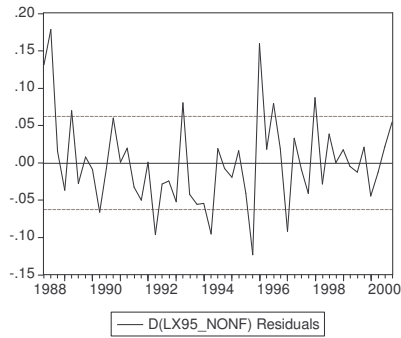
Dependent Variable: LX95_NONF
Sample: 1988:1 2000:4
Included observations: 52

Variable	Estimate (t-stat)
LXPU_NONF	-0.027 (-1.655)
LGDP OECD	0.190 **(50.996)
R-squared	0.199
Adjusted R-squared	0.183
Engle-Grainger	-3.128355 (0.0306)
Lag Length: 0	

Dependent Variable: D(LX95_NONF)
Sample(adjusted): 1988:2 2000:4
Included observations: 51 after adj endpoints

Variable	Estimate (t-stat)
RRXU19NONF(-1)	-0.138 (-1.667)
D(LXPU_NONF)	0.308 **(7.050)
D(LGDP OECD)	2.730 (1.839)
D_SANC	0.031 (1.600)
R-squared	0.614
Adjusted R-squared	0.590
Engle-Grainger	-6.952513 (0.0000)
Lag Length: 0	

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	7.376027	0.025022
Homoscedasticity	ARCH LM	nR ² (1)	3.571195	0.058790
Heteroskedasticity	White	nR ² (10)	14.54576	0.068603
Serial correlation	Breusch-Godfrey	nR ² (2)	0.157077	0.924466
Serial correlation	Ljung Box Q	Q(12)	7.1388	0.308
Misspecification	Ramsey Reset	LR(2)	1.452603	0.244721
Parameter stability	Recursive estimate	Indicative of stability		



(xxi) Metal products

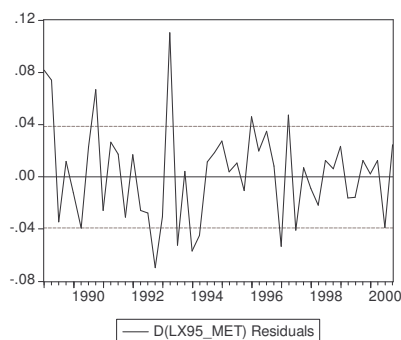
Dependent Variable: LX95_MET
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPU_MET	-0.281 **(-7.805)
LGDP OECD	0.208 ** (34.000)
R-squared	0.602
Adjusted R-squared	0.594
Engle-Grainger	-3.317538
Lag Length: 0	(0.0191)

Dependent Variable: D(LX95_MET)
 Sample(adjusted): 1989:1 2000:4
 Included observations: 48 after adj endpoints

Variable	Estimate (t-stat)
RRXU20MET(-1)	-0.091 *(-2.210)
D(LX95_MET(-3))	0.184 (1.926)
D(LXPU_MET)	0.234 ** (5.382)
D(LGDP OECD)	2.634 ** (3.226)
R-squared	0.507
Adjusted R-squared	0.474
Engle-Grainger	-7.815873
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	2.271435	0.321192
Homoscedasticity	ARCH LM	nR ² (1)	1.718675	0.189864
Heteroskedasticity	White	nR ² (10)	16.53067	0.035385
Serial correlation	Breusch-Godfrey	nR ² (2)	0.553048	0.758415
Serial correlation	Lunq Box Q	Q(12)	4.5874	0.598
Misspecification	Ramsey Reset	LR(2)	0.651119	0.526645
Parameter stability	Recursive estimate	Indicative of stability		



(xxii) Machinery

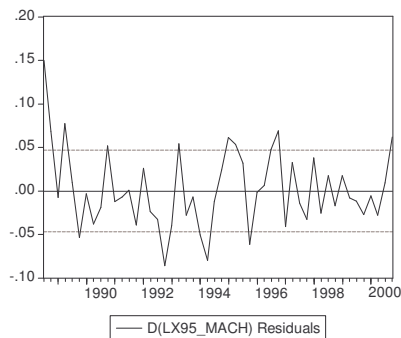
Dependent Variable: LX95_MACH
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPI_MACH	0.374 **(52.306)
LGDP OECD	0.048 **(19.828)
R-squared	0.984
Adjusted R-squared	0.983
Engle-Grainger	-4.163716
Lag Length: 0	(0.0018)

Dependent Variable: D(LX95_MACH)
 Sample(adjusted): 1988:3 2000:4
 Included observations: 50 after adj endpoints

Variable	Estimate (t-stat)
RRXU21MACH(-1)	-0.310 (-1.696)
D(LX95_MACH(-1))	-0.205 *(-2.061)
D(LXPU_MACH)	0.340 **(8.173)
D(LGDP OECD)	3.310 **(2.960)
D_SANC	0.033 *(2.577)
R-squared	0.657
Adjusted R-squared	0.626
Engle-Grainger	-6.372212
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	6.050718	0.048540
Homoscedasticity	ARCH LM	nR ² (1)	1.295232	0.255086
Heteroskedasticity	White	nR ² (10)	8.529976	0.577213
Serial correlation	Breusch-Godfrey	nR ² (2)	4.666463	0.096982
Serial correlation	Lunq Box Q	Q(12)	7.2541	0.298
Misspecification	Ramsey Reset	LR(2)	2.900690	0.065808
Parameter stability	Recursive estimate	Indicative of stability		



(xxiii) Electric machinery

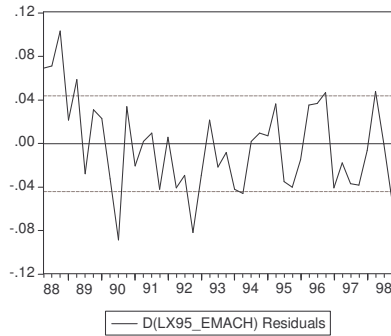
Dependent Variable: LX95_EMACH
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPI_EMACH	0.378 **(65.687)
LGDP OECD	0.042 **(28.666)
R-squared	0.989
Adjusted R-squared	0.989
Engle-Grainger	-4.676161
Lag Length: 0	(0.0004)

Dependent Variable: D(LX95_EMACH)
 Sample(adjusted): 1988:2 1998:4
 Included observations: 43 after adj endpoints

Variable	Estimate (t-stat)
RRXU22EMACH(-1)	-0.548 *(-2.457)
D(LXPU_EMACH)	0.332 **(10.590)
D(LGDP OECD)	2.811 (1.993)
D_SANC	0.030 *(2.273)
D(ERP_EMACH)	-91.982 **(-3.903)
R-squared	0.761
Adjusted R-squared	0.736
Engle-Grainger	-4.613314
Lag Length: 0	(0.0006)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	0.820033	0.663639
Homoscedasticity	ARCH LM	nR ² (1)	0.521914	0.470026
Heteroskedasticity	White	nR ² (10)	12.00207	0.284918
Serial correlation	Breusch-Godfrey	nR ² (2)	8.045087	0.017907
Serial correlation	Lunq Box Q	Q(12)	7.8131	0.252
Misspecification	Ramsey Reset	LR(2)	6.424267	0.004113
Parameter stability	Recursive estimate	Indicative of stability		



(xxiv) Motor vehicles

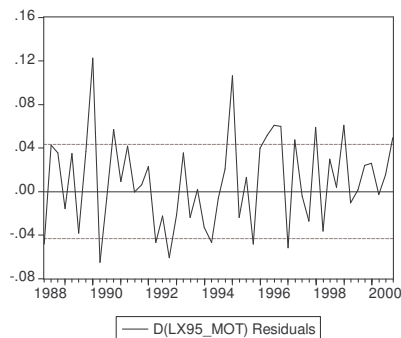
Dependent Variable: LX95_MOT
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPU_MOT	0.543 **(33.347)
LGDP OECD	0.045 **(12.072)
R-squared	0.961
Adjusted R-squared	0.960
Engle-Grainger	-3.193525 (0.0261)
Lag Length: 0	

Dependent Variable: D(LX95_MOT)
 Sample(adjusted): 1988:2 2000:4
 Included observations: 51 after adj endpoints

Variable	Estimate (t-stat)
RRXU23MOT(-1)	-0.186 (-1.864)
D(LXPU_MOT)	0.365 **(9.767)
R-squared	0.634
Adjusted R-squared	0.626
Engle-Grainger	-8.097901 (0.0000)
Lag Length: 0	

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	0.928176	0.628708
Homoscedasticity	ARCH LM	nR ² (1)	0.074864	0.784383
Heteroskedasticity	White	nR ² (10)	7.543457	0.109808
Serial correlation	Breusch-Godfrey	nR ² (2)	0.000000	1.000000
Serial correlation	Lunq Box Q	Q(12)	8.4003	0.210
Misspecification	Ramsey Reset	LR(2)	5.677306	0.006188
Parameter stability	Recursive estimate	Indicative of stability		



(xxv) Transport equipment

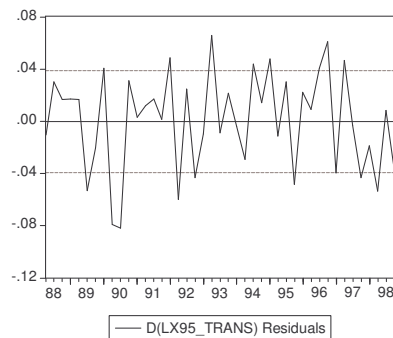
Dependent Variable: LX95_TRANS
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
C	-75.663 **(-19.958)
LXPU_TRANS	0.254 **(5.727)
LGDP OECD	4.670 **(20.649)
R-squared	0.901
Adjusted R-squared	0.897
Engle-Grainger	-4.260754
Lag Length: 0	(0.0014)

Dependent Variable: D(LX95_TRANS)
 Sample(adjusted): 1988:2 1998:4
 Included observations: 43 after adj endpoints

Variable	Estimate (t-stat)
C	0.050 **(7.844)
RRXU24TRANS(-1)	-0.346 **(-5.780)
D(LXPU_TRANS)	0.395 **(32.722)
D(ERP_TRANS)	-73.135 *(-2.331)
R-squared	0.973
Adjusted R-squared	0.970
Engle-Grainger	-7.269321
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	1.833513	0.399814
Homoscedasticity	ARCH LM	nR ² (1)	0.999376	0.317462
Heteroskedasticity	White	nR ² (10)	4.475702	0.612583
Serial correlation	Breusch-Godfrey	nR ² (2)	1.122107	0.570608
Serial correlation	Lunq Box Q	Q(12)	7.2315	0.300
Misspecification	Ramsey Reset	LR(2)	0.577183	0.566453
Parameter stability	Recursive estimate	Indicative of stability		

**(xxvi) Furniture**

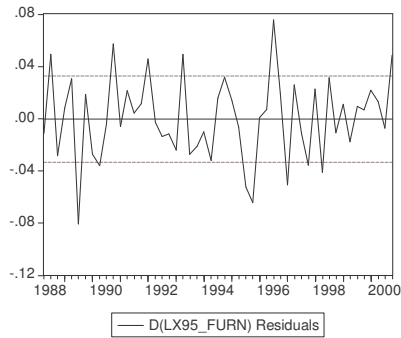
Dependent Variable: LX95_FURN
 Sample: 1988:1 2000:4
 Included observations: 52

Variable	Estimate (t-stat)
LXPU_FURN	0.270 *(2.207)
LGDP OECD	0.105 **(7.499)
R-squared	0.134
Adjusted R-squared	0.117
Engle-Grainger	-4.197818
Lag Length: 0	(0.0016)

Dependent Variable: D(LX95_FURN)
 Sample(adjusted): 1988:2 2000:4
 Included observations: 51 after adj endpoints

Variable	Estimate (t-stat)
C	0.101 **(8.197)
RRXU25FURN(-1)	-0.233 **(-7.783)
D(LXPU_FURN)	0.313 **(14.216)
D_SANC	-0.159 **(-6.117)
R-squared	0.821
Adjusted R-squared	0.810
Engle-Grainger	-7.728066
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	0.096905	0.952703
Homoscedasticity	ARCH LM	nR ² (1)	0.713257	0.398365
Heteroskedasticity	White	nR ² (10)	3.635913	0.725808
Serial correlation	Breusch-Godfrey	nR ² (2)	0.983986	0.611407
Serial correlation	Lunq Box Q	Q(12)	9.5587	0.145
Misspecification	Ramsey Reset	LR(2)	2.014632	0.145223
Parameter stability	Recursive estimate	Indicative of stability		



Other manufactured products

(xxvii)

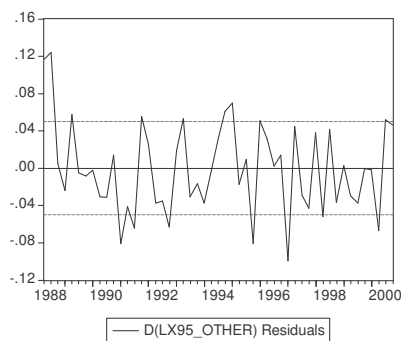
Dependent Variable: LX95_OTHER
Method: Least Squares
Included observations: 52

Variable	Estimate (t-stat)
LXPU_OTHER	-0.014 (-1.044)
LGDP OECD	0.159 **(73.267)
R-squared	0.123
Adjusted R-squared	0.105
Engle-Grainger	-5.785904
Lag Length: 0	(0.0000)

Dependent Variable: D(LX95_OTHER)
Sample(adjusted): 1988:2 2000:4
Included observations: 51 after adj endpoints

Variable	Estimate (t-stat)
RRXU26OTHER(-1)	-0.310 **(-3.298)
D(LXPU_OTHER)	0.294 **(9.939)
D(LGDP OECD)	2.699 *(2.315)
D_SANC	0.026 (1.823)
R-squared	0.813
Adjusted R-squared	0.801
Engle-Grainger	-6.892393
Lag Length: 0	(0.0000)

Purpose of the test	Test	d.f.	Test statistic	Probability
Normality	Jarque-Bera	JB(2)	1.050695	0.591350
Homoscedasticity	ARCH LM	nR ² (1)	3.811907	0.050889
Heteroskedasticity	White	nR ² (10)	17.14982	0.028586
Serial correlation	Breusch-Godfrey	nR ² (2)	0.277623	0.870392
Serial correlation	Lunq Box Q	Q(12)	4.9317	0.553
Misspecification	Ramsey Reset	LR(2)	1.770024	0.181981
Parameter stability	Recursive estimate	Indicative of stability		



Appendix 16 List of countries used in the gravity model

Table A.21 List of countries used in the gravity model

Country Name	
Angola	Korea Republic
Congo Dem Republic	Malaysia
Ghana	Pakistan
Kenya	Saudi Arabia
Malawi	Singapore
Mauritius	Taiwan
Mozambique	Thailand
Nigeria	Turkey
Tanzania	United Arab Emirates
Uganda	Austria
Zambia	Belgium-Luxemburg
Zimbabwe	France
Canada	Germany
USA	Greece
Argentina	Ireland
Brazil	Italy
Chile	Netherlands
Mexico	Norway
China	Portugal
Hong Kong	Spain
India	Sweden
Indonesia	Switzerland
Iran	UK
Israel	Russia
Japan	Australia

Appendix 17 Random effects for each country

Table A.22 Total export estimation for the 50 largest export destination countries

Country	Country specific randomness	Common Factors across all countries						
		C	Exchange Rate	Per Capita Income	Productive Land	Infrastructure	Distance	Effective rate of Protection
Ang	0.779	3.070199***	-0.018	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
CDR	0.879	3.070199***	0.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Gha	-0.836	3.070199***	1.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Ken	-0.510	3.070199***	2.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Mal	0.172	3.070199***	3.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Mau	-0.705	3.070199***	4.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Moz	0.380	3.070199***	5.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Nig	-1.551	3.070199***	6.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Tan	-1.156	3.070199***	7.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Uga	-1.559	3.070199***	8.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Zam	1.097	3.070199***	9.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Zim	0.795	3.070199***	10.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Can	1.151	3.070199***	11.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
USA	1.517	3.070199***	12.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Arg	0.569	3.070199***	13.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Bra	0.743	3.070199***	14.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Chil	0.135	3.070199***	15.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Mex	-0.690	3.070199***	16.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Chi	-0.355	3.070199***	17.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
HK	-0.646	3.070199***	18.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Ind	-0.953	3.070199***	19.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Indo	-0.808	3.070199***	20.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Ira	-0.677	3.070199***	21.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Isr	0.238	3.070199***	22.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Jap	0.972	3.070199***	23.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Kor	-0.380	3.070199***	24.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Mals	-1.250	3.070199***	25.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Pak	-1.640	3.070199***	26.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
SauA	0.353	3.070199***	27.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Sing	-1.385	3.070199***	28.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Tai	0.226	3.070199***	29.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Thai	-0.331	3.070199***	30.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Tur	0.402	3.070199***	31.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
UAE	-0.374	3.070199***	32.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Aus	-0.029	3.070199***	33.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
BelLux	0.363	3.070199***	34.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Fra	0.707	3.070199***	35.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Ger	0.787	3.070199***	36.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Gre	-0.194	3.070199***	37.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Ire	-0.337	3.070199***	38.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Ita	0.844	3.070199***	39.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Net	-0.015	3.070199***	40.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Nor	0.462	3.070199***	41.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Por	-0.034	3.070199***	42.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Spa	0.591	3.070199***	43.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Swe	-0.138	3.070199***	44.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Swi	0.025	3.070199***	45.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
UK	0.858	3.070199***	46.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Russia	0.378	3.070199***	47.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**
Australia	1.133	3.070199***	48.982	0.641282**	0.620315**	0.80468**	-0.723985***	-0.958931**

Notes

** means coefficient significant at 1% level of significance

* means coefficient significant at 5% level of significance
*** means coefficient significant at 10% level of significance
Adjusted R-squared 0.79

Source: Data from TIPS and ITPC database