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# ECONOMIC PERSPECTIVE

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## Scotland's Trade in Occupational Skills: A Summary Analysis for 1989

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### INTRODUCTION

Scotland's industries are actively engaged in a highly competitive and dynamic global trading environment. The openness of the Scottish economy allows large flows of goods and services, factors of production and finance to transfer in and out. This paper describes the initial stages of research which analyses Scotland's balance of trade with the Rest of the UK, (RUK) and the Rest of the World, (ROW) and investigates the related displacement effects on domestic output and occupational skills<sup>1</sup>. It should be made explicitly clear at this point that the purpose of the paper is primarily to report on the methodologies and theory being developed by this research work, it is not to suggest that any changes to Scotland's trading patterns could be considered which would affect the level of domestic employment.

The study is based on an input-output analysis of Scotland's commodity trade in 1989, with the commodity trade results subsequently translated into trade in embodied labour. Brief methodological details are given later in the paper. The main focus of the research was to estimate the occupational labour requirements of Scottish output (ie. the labour required to satisfy Domestic demand plus the labour required to produce Scottish exports) and the labour displaced by Scottish imports from the rest of the UK (RUK) and the rest of the world (ROW) (ie the labour which would have been required in order to produce the imported goods domestically). This economy wide skills audit of Scottish Industry by SOC, (Standard Occupational Classification) facilitates an impartial evaluation of Scotland's trade in labour skills in 1989. It therefore

measures Scottish skill requirements as evidenced by Scotland's actual trading and business activity, not by what is thought to be Scotland's needs. The analysis provides clear evidence to guide the examination of where the domestic availability of skills relative to requirements is 'strongest' and where it is 'weakest'.

The skills base of an economy is an essential component for sustaining and improving a nations competitive advantage<sup>2</sup>. For Scottish industries to compete effectively, they must respond to market signals, and provide labour with the appropriate human capital characteristics to satisfy the embodied labour requirements of market demands for goods and services. Thus, it is of no surprise that the importance of embodied skills content of trade is currently commanding the attention of academics, businessmen and governments alike.

### METHODOLOGY

The focus of our work has been in examining the estimated embodied skills content of Scottish Trade. This analysis uses the Scottish Input-Output Tables for 1989, which provide a detailed snapshot of the input-output linkages that existed within Scotland and between Scotland and her trading partners in 1989. The research follows work first conducted by Postner H.H: "Factor Content of Canadian International Trade; An Input-Output Analysis" Economic Council of Canada 1975. In the present paper Postner's basic methodology is tailored accordingly to our study remit and available data sources.

Essentially, the analysis is based on a comparison of actual Scottish employment in 1989 and estimates of what Scottish employment would have been in a hypothetical 'No Trade' scenario.

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<sup>1</sup> The 'Scotland's Trade in Skills' project is being undertaken under the auspices of the Scottish Input-Output Programme (SIOP). More refined and detailed analysis than that reported in the present paper have already been carried out, and results will be published in due course.

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<sup>2</sup> Indeed, 'new' economic thinking emphasises a nation's skill base as perhaps the major source of its comparative advantage or disadvantage. See, for example, Reich (1991), Wood (1994).

Differences between actual and scenario employment are attributed to net trade with the rest of the UK (RUK) and the rest of the world (ROW). It is important to note that the 'No Trade' employment profile is simply a 'benchmark': there is no suggestion that, in reality, such an employment structure would be either feasible or desirable for Scotland. An important assumption underlying the analysis is that all imports were **competitive** ie that they could have been produced in Scotland using existing Scottish techniques. This assumption is both conventional and convenient. However, it is recognised that it will be incorrect for a number of highly specific commodity imports from specific countries.

## ANALYSIS AND RESULTS

Using the basic accounting identity presented in equation (1) below, it is possible to derive an equation (2) which describes the total Scottish output, in a given year, in terms of 'No Trade' output plus increments/decrements to output attributable to net trade with RUK and ROW. The analysis presented in this paper is based on equations (1) and (2).

$$X^A = A.X^A + Y + BT^U + BT^W \quad (1)$$

$$X^A = X^N + X^U + X^W \quad (2)$$

where;  $X^A$  = Vector of actual Scottish domestic gross outputs.

A=Matrix of Scottish technical coefficients (including the of imports).

Y = Vector of total domestic final demands including imports but excluding exports.

$BT^U$  = Balance of trade with RUK

$BT^W$  = Balance of trade with ROW

$X^N$  = Vector of 'No Trade' gross output requirements to satisfy final demands in Scotland, calculated as  $[I-A]^{-1}Y$ .

$X^U$  = Net increment/decrement to domestic gross output attributable to total trade with RUK calculated as  $[I-A]^{-1}BT^U$ .

$X^W$  = Net increment/decrement to domestic gross output attributable to total trade with ROW, calculated as  $[I-A]^{-1}BT^W$ .

All of the above vectors and matrices were derived from the 1989 Scottish Input-Output Tables.

## Output and Employment Supported by Domestic and Trade Activity

Table 1 below provides a summary of the level of output and employment supported/displaced by actual activity, trade with RUK and trade with ROW. In 1989, Scotland consumed more goods and services than it produced domestically. From Table 1 it can be seen that the actual trade deficit in 1989 of £8.85bn resulted in £20.6bn of domestic output and 668,200 FTEs jobs being displaced. Put another way: Scotland was a net importer of goods and services, and this translated into her also being a net importer of **embodied labour**.<sup>3</sup>

Each £1 million of actual domestic output required 29.3 FTE jobs, while each £1 million of output displaced by net trade would have supported 32.4 FTE's ie on average, net trade was more labour-intensive than domestic output. This was particularly true of ROW net trade (70.3 FTE's per £1 million displaced output compared with 25.3 FTE's for RUK net trade).

## Embodied Labour-Content of Net Trade

The next stage of the analysis was to examine the embodied labour content of net trade by occupation by measuring the occupational labour requirements of Scottish production. To derive the occupational labour content of domestic gross output, the three constituent vectors of actual Scottish gross output (see equation (2)) were each multiplied by an occupational employment-by-industry matrix.

The occupation employment-by-industry matrix is indexed by industries (column) classified by SIC 80 groupings consistent with the 1989 Scottish Input-Output Tables, and occupations (rows) classified by standard occupational classification, SOC. Each entry shows the number of people

<sup>3</sup> It should be noted that it is beyond the scope of the 'Trade in Skills' project *per se* to analyse either the causes or consequences of these observed deficits in Scotland's external trade. On these issues see McGregor et al (1995).

employed in the relevant occupation category per million pounds of output of the relevant industry group. The data which were used to construct this 'SICSOC' matrix was obtained from the General Registrar of Scotland and was based on the findings of the 1991 Census of Population. In its most disaggregate form, the occupational employment matrix is of dimensions 77 (occupations) by 114 (industries).

Table 2 shows the actual and displaced employment by major Standard Occupational Classification (SOC) category for Scotland, 1989. Table 2A, in the Appendix, shows a more disaggregated breakdown by minor SOC category .

The results shown in Tables 2 and 2A allow us examine the embodied labour content of net trade. The largest employment displacements, in absolute terms were craft and related occupations and plant and machine operatives. These accounted for an aggregate displacement of 253,861 FTE jobs through trade with RUK and ROW.

Also from the table it can be seen that jobs were displaced from all major SOC groupings, and amounted to 35 per cent of the total number employed in Scotland in 1989. As noted earlier, this net displacement is an almost inevitable outcome of the Scottish balance of trade deficits in goods and services with RUK and ROW.

The occupational composition of actual Scottish employment differed significantly from that of embodied labour displaced by net trade. Table 3 displays these differences by expressing actual employment by occupation in Scotland in 1989 as a percentage of total employment, and displaced employment by occupation due to net trade with RUK and ROW in 1989 as a percentage of total displaced employment.

Closer inspection of Table 3 reveals that, compared with actual Scottish employment, displaced employment was less concentrated in the major SOC groupings of professionals, clerical and secretarial, personal and protective and sales personnel, but more concentrated in craft related skills and plant & machine operatives. Graph 1 displays these results more clearly.

### Relative Occupational Content Ratios

It is also important to assess the **relative** importance of displaced occupational employment compared with actual employment in that occupation. Following the methodology derived by Postner, we define;

### Occupational Employment Displaced by Net Trade Actual Occupational Employment

to be the relative occupational content ratio. These ratios, for the major SOC groupings, are given for Scotland in 1989 in Table 4. Each value in this table can be interpreted as follows: for every manager employed in Scotland, 0.36 management jobs were displaced as a result of Scotland's trade with RUK and ROW.

In many respects, the rankings of the content ratios are more interesting and potentially policy-relevant than the actual values. Firstly, they allow comparisons between different components of Scotland's net trade, analysis of changes in Scotland's trading performance over time and comparisons between Scotland's performance and those of other countries and regions.

Secondly, under strict theoretical assumptions, the rankings in Table 4 would exactly reflect Scotland's relative 'comparative advantage' in occupational skills vis-a-vis its trading partners. In reality, it is more accurate to regard the rankings as **indicative** of Scotland's strengths and weaknesses in terms of labour endowments in various occupational groups.

Whether looking at total RUK or ROW net trade, the highest relative displacements were consistently in craft and related occupations and plant and machine operatives. These were also the most displaced in terms of absolute job numbers (see Table 3).

The implication is clear; the actual pattern of Scotland's demand/supply for goods and services in 1989 required substantially more embodied labour in terms of craft skills and plant and machine operatives than it provided domestically. These shortfalls in domestic labour were supplemented by the net importation of goods and services which embodied the required skills relatively intensively. We might also infer that Scotland was weaker in terms of its endowment of workers with these skills relative to its trading partners. Conversely, in all net trade components, the consistently least relatively displaced occupational groups were professional and sales agents, etc. Scotland was most able to meet its requirements for these embodied skills from domestic sources (but note they were still net imported). In

comparative advantage terms, Scotland was 'relatively well-endowed' with workers with these skills<sup>4</sup>.

Table 4A in the appendix shows the more detailed relative occupational content ratios, with respective rankings, for each of the minor SOC groupings, for Scotland 1989. It can be seen from this table that in terms of embodied skills, Scotland was a net exporter of legal professionals, and food trade operatives. Ship and aircraft officers and food preparation staff were a net export to RUK, but not to ROW, whereas catering staff were net exported to ROW, but were net imported from RUK. All other occupations were net imported from both RUK and ROW.

### CONCLUDING REMARKS

The main purpose of this research is to consider the labour content of Scottish exports and imports in order to present a new analysis of Scottish Trade in terms of occupational skills. The initial results presented in this paper, consider the ex-post model where the 1989 Scottish Input-Output tables are used as the base year, with imports treated as exogenous. This simple analysis produces some interesting results which relate to 1989 only, but which pave the way for more complex ex ante analysis, where a model can be created recognising that imports are in fact determined endogenously.

The results of this initial analysis confirm that, as a result of Scotland's negative trade balance with the rest of the UK and the rest of the world, there is a net displacement of jobs in all of the aggregate occupational classifications. The relative displacement within occupations varies significantly. In terms of major SOCs, the figures suggest that Scotland was most able to meet her requirements for professional workers and for sales agents with which she is relatively 'well-endowed'. A weakness was identified in the craft and related skills and in plant and machine operatives where Scotland's demand for goods and services required substantially more of these embodied skills than were available domestically. When the more detailed occupations were examined, it was revealed that in 1989, Scotland

was a net exporter of legal professional skills, and of food related occupations.

### References

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<sup>4</sup> Note, however, that (as can be seen in Appendix Table 2A) the outcome for professional occupations is heavily influenced by Scotland's relative 'self-sufficiency' in teaching professionals, who accounted for over 40 per cent of actual SOC2 employment. Other professions, notably scientists and engineers, were relatively highly displaced.

**TABLE 1 : Output and employment supported/displaced by Domestic Activity and Trade Scotland, 1989**

	Actual values Scotland, 1989	'No-Trade' position	Displacement due to trade RUK	Displacement due to trade ROW	Total displacement due to trade
Balance of Trade (£bn)	-8.85	0	-6.85	-2.00	-8.85
Gross output (£bn)	64.69	85.29	-17.32	-3.27	-20.60
Employment( FTEs)	1892850	2561076	-438372	-229856	-668226

**TABLE 2 : Embodied Employment Supported/displaced by Domestic and Trade Activity Scotland, 1989**

Major SOC group	Actual Values	'No-trade' position	Displacement due to trade RUK	Displacement due to trade ROW	Displacement due to total trade
Managers & administrators	250371	340477	-61306	-28800	-90106
Professional occupations	162407	201634	-23663	-15564	-39227
Assoc of prof technical occup	174380	229786	-30271	-25135	-55406
Clerical & secretarial occup	290405	376351	-55177	-30768	-85946
Craft and related occupations	278415	407834	-81193	-48226	-129419
Personal & protective services	200475	253865	-33080	-20310	-53390
Sales occupations	123897	148906	-20426	-4583	-25009
Plant & machine operatives	204479	328921	-94312	-30130	-124442
Other occupations	208021	273302	-38341	-26940	-65281
Totals	1892850	2561076	-438372	-229856	-668226

**TABLE 3: Occupational Composition of Actual and Displaced employment**

Major SOC grouping	Actual Values	'No-trade' position	Displacement due to trade RUK	Displacement due to trade ROW	Displacement due to total trade
Managers & administrators	13.2	13.3	14.0	12.5	13.5
Professional occupations	8.6	7.9	5.4	6.8	5.9
Assoc of prof technical occup	9.2	9.0	6.9	10.9	8.3
Clerical & secretarial occup	15.3	14.7	12.6	13.4	12.9
Craft and related occupations	14.7	15.9	18.5	20.8	19.4
Personal & protective services	10.6	9.9	7.5	8.8	8.0
Sales occupations	6.5	5.8	4.7	2.0	3.7
Plant & machine operatives	10.8	12.8	21.5	13.1	18.6
Other occupations	11.0	10.7	8.7	11.7	9.7
Totals	100	100	100	100	100

**Graph 1 : Relative Concentration of Occupations in Actual and Displaced employment, Scotland 1989**



**TABLE 4: Relative Occupational Content Ratios Scotland, 1989**

SOC	Total Trade	Trade RUK	Trade ROW
Managers & administrators	-0.360 (3)	-0.245 (3)	-0.115 (5)
Professional occupations	-0.242 (8)	-0.146 (9)	-0.096 (8)
Assoc of prof technical occup	-0.318 (4)	-0.174 (6)	-0.144 (3)
Clerical & secretarial occup	-0.296 (6)	-0.190 (4)	-0.106 (6)
Craft and related occupations	-0.465 (2)	-0.292 (2)	-0.173 (1)
Personal & protective services	-0.266 (7)	-0.165 (7=)	-0.101 (7)
Sales occupations	-0.202 (9)	-0.165 (7=)	-0.037 (9)
Plant & machine operatives	-0.609 (1)	-0.461 (1)	-0.147 (2)
Other occupations	-0.314 (5)	-0.184 (5)	-0.130 (4)

Figures in brackets are rankings, 1 = most negative.

**TABLE2A : Embodied Employment Supported/Displaced by Domestic and Trade Activity, Scotland**

Occupation	Total jobs displaced by Trade	Jobs displaced		Number Employed in Scotland.
		Jobs displaced Due to Trade with RUK	Due to Trade with ROW	
General managers and administrators	-1970	-908	-1063	9562
Production managers	-24806	-17787	-7019	44219
Specialist managers	-18253	-13435	-4818	34097
Financial institution office managers	-5127	-3393	-1733	26868
Managers in transport and storing	-4153	-2583	-1571	10600
Protective service officers	-21	-15	-6	3386
Managers in farms hortic forest fish	-5158	-1852	-3306	11467
Managers proprietors in service ind.	-23517	-17064	-6454	93973
Managers and administrators nec	-7101	-4270	-2831	16198
Natural scientists	-6885	-3559	-3326	11867
Engineers and technologists	-20111	-13536	-6575	32914
Health professionals	-5186	-2587	-2599	15696
Teaching professionals	-1410	-709	-701	66872
Legal professionals	260	193	66	5405
Business and financial professionals	-3262	-2231	-1030	8946
Architects town planners surveyors	-1220	-563	-657	7133
Librarians and related professionals	-172	-63	-110	1918
Professional occupations nec	-1242	-609	-632	11655
Scientific technicians	-13313	-8352	-4961	28255
Draughtspersons quantity surveyors	-3534	-2147	-1388	9812
Computer analysts/programmers	-2341	-1724	-617	7079
Ship and aircraft officers etc.	-231	802	-1033	3700
Health associate professionals	-3965	-2041	-1924	57294
Legal associate professionals	-413	-194	-219	1215
Business Financial assoc profess.	-986	-175	-811	13476
Social welfare associate profess.	-3221	-1565	-1656	13423
Literary artistic sports professionals	-20794	-11209	-9585	26258
Assoc. profess. technical occup. nec	-6608	-3667	-2941	13867
Administrative/clerical officers	-4244	-2017	-2227	34703
Numerical clerks and cashiers	-20718	-13057	-7661	70566
Filing and records clerks	-4395	-2490	-1905	17449
Clerks (not otherwise specified)	-18087	-12028	-6059	53435
Stores&despatch clerks storekeepers	-10381	-7988	-2393	26385
Secretaries personal assistants etc.	-15501	-9700	-5801	51860
Receptionists telephonists etc	-8842	-5289	-3553	24935
Clerical & secretarial occupations nec	-3778	-2608	-1170	11072
Construction trades	-2209	-635	-1574	38012
Metal machining fitting etc	-41461	-26283	-15178	45782
Electrical/electronic trades	-17724	-14805	-2919	37516
Metal forming welding related trades	-17083	-12472	-4611	36148
Vehicle trades	-6853	-4996	-1857	16368
Textiles garments and related trades	-12674	-4684	-7990	28362
Printing and related trades	-5859	-5241	-618	10262
Woodworking trades	-4775	-1126	-3649	27703
Food preparation trades	733	1020	-288	11881
Other craft and related occup. nec	-21514	-11972	-9542	26380
NCOs and other ranks armed forces	0	0	0	11000
Security & protective service occup.	-8034	-5825	-2209	32557
Catering occupations	-3303	-6581	3279	49111
Travel attendants and related occup.	-1441	-815	-626	4189
Health and related occupations	-4775	-2295	-2479	39206
Childcare and related occupations	-593	-310	-283	14060
Hairdressers beauticians etc	-14208	-6901	-7307	15871
Domestic staff and related occup.	-8145	-4047	-4099	19293
Personal etc service occup. nec	-12891	-6305	-6587	15188
Buyers brokers and related agents	-2238	-1513	-725	3989
Sales representatives	-9919	-7070	-2849	25773
Sales assistants check-out operators	-11272	-10460	-812	85996
Mobile salespersons and agents	-471	-468	-3	3971
Sales occupations nec	-1109	-915	-194	4167
Food drink tobacco proc. operatives	758	268	489	15386
Textiles&tannery process operatives	-2577	-1538	-1039	6371
Chemicals paper etc proc. operatives	-11347	-9651	-1697	17296
Metal making treating proc. operative	-4056	-3121	-935	2630
Metal working process operatives	-19496	-14235	-5260	17147
Assemblers/lineworkers	-16808	-15056	-1752	10438
Other routine process operatives	-14783	-11690	-3093	26218
Road transport operatives	-17414	-12552	-4863	53709
Other trans and machinery operatives	-13123	-8416	-4707	22536
Plant and machine operatives nec	-25595	-18322	-7274	32748
Other occupations in agriculture etc	-5789	-1955	-3834	15273
Other occup. in mining and manu.	-14997	-11259	-3738	17545
Other occupations in construction	-1887	-899	-989	19360
Other occupations in transport	-1861	-1063	-799	6296
Other occupations in communication	-674	-313	-361	7279
Other occupations in sales&services	-31067	-18565	-12502	122474
Other occupations nec	-5364	-2632	-2732	10927
Occupations undefined	-3643	-2258	-1385	8865
<b>Total</b>	<b>-668226</b>	<b>-438372</b>	<b>-229856</b>	<b>1892850</b>

TABLE 4A : Relative Occupational Content Ratios , Scotland 1989

Occupation	Total Jobs displaced by trade as proportion of total Scottish jobs		Jobs displaced by RUK trade as proportion of total Scottish jobs		Jobs displaced by ROW trade as proportion of total Scottish jobs	
	rank	rank	rank	rank	rank	rank
General managers and administrators	-0.21	24	-0.09	20	-0.11	36
Production managers	-0.56	61	-0.40	64	-0.16	52
Specialist managers	-0.54	60	-0.39	62	-0.14	46
Financial institution office managers	-0.19	23	-0.13	24	-0.06	22
Managers in transport and storing	-0.39	46	-0.24	49	-0.15	49
Protective service officers	-0.01	5	0.00	6	0.00	6
Managers in farms hortie forest fish	-0.45	54	-0.16	30	-0.29	71
Managers proprietors in service ind.	-0.25	27	-0.18	35	-0.07	24
Managers and administrators nec	-0.44	52	-0.26	52	-0.17	56
Natural scientists	-0.58	65	-0.30	56	-0.28	69
Engineers and technologists	-0.61	67	-0.41	65	-0.20	60
Health professionals	-0.33	35	-0.16	31	-0.17	54
Teaching professionals	-0.02	6	-0.01	7	-0.01	8
Legal professionals	0.05	3	0.04	3	0.01	3
Business and financial professionals	-0.36	43	-0.25	50	-0.12	40
Architects town planners surveyors	-0.17	21	-0.08	19	-0.09	29
Librarians and related professionals	-0.09	13	-0.03	11	-0.06	17
Professional occupations nec	-0.11	16	-0.05	16	-0.05	16
Scientific technicians	-0.47	55	-0.30	55	-0.18	57
Draughtspersons quantity surveyors	-0.36	42	-0.22	41	-0.14	47
Computer analysts/programmers	-0.33	36	-0.24	48	-0.09	26
Ship and aircraft officers etc.	-0.06	9	0.22	1	-0.28	68
Health associate professionals	-0.07	11	-0.04	12	-0.03	11
Legal associate professionals	-0.34	38	-0.16	29	-0.18	58
Business Financial assoc profess.	-0.07	12	-0.01	8	-0.06	18
Social welfare associate profess.	-0.24	25	-0.12	21	-0.12	42
Literary artistic sports professionals	-0.79	70	-0.43	67	-0.37	76
Assoc. profess. technical occup. nec	-0.48	58	-0.26	53	-0.21	62
Administrative/clerical officers	-0.12	19	-0.06	17	-0.06	21
Numerical clerks and cashiers	-0.29	31	-0.19	36	-0.11	33
Filing and records clerks	-0.25	28	-0.14	27	-0.11	34
Clerks (not otherwise specified)	-0.34	37	-0.23	43	-0.11	38
Stores&despatch clerks storekeepers	-0.39	47	-0.30	57	-0.09	28
Secretaries personal assistants etc.	-0.30	33	-0.19	37	-0.11	37
Receptionists telephonists etc	-0.35	41	-0.21	40	-0.14	48
Clerical & secretarial occupations nec	-0.34	39	-0.24	45	-0.11	32
Construction trades	-0.06	8	-0.02	9	-0.04	12
Metal machining fitting etc	-0.91	75	-0.57	74	-0.33	73
Electrical/electronic trades	-0.47	56	-0.39	63	-0.08	25
Metal forming welding related trades	-0.47	57	-0.35	59	-0.13	44
Vehicle trades	-0.42	50	-0.31	58	-0.11	39
Textiles garments and related trades	-0.45	53	-0.17	32	-0.28	70
Printing and related trades	-0.57	64	-0.51	71	-0.06	19
Woodworking trades	-0.17	22	-0.04	13	-0.13	45
Food preparation trades	0.06	1	0.09	2	-0.02	10
Other craft and related occup. nec	-0.82	71	-0.45	70	-0.36	75
NCOs and other ranks armed forces	0.00	4	0.00	5	0.00	4
Security & protective service occup.	-0.25	26	-0.18	34	-0.07	23
Catering occupations	-0.07	10	-0.13	26	0.07	1
Travel attendants and related occup.	-0.34	40	-0.19	38	-0.15	50
Health and related occupations	-0.12	18	-0.06	18	-0.06	20
Childcare and related occupations	-0.04	7	-0.02	10	-0.02	9
Hairdressers beauticians etc	-0.90	74	-0.43	68	-0.46	78
Domestic staff and related occup.	-0.42	51	-0.21	39	-0.21	63
Personal etc service occup. nec	-0.85	72	-0.42	66	-0.43	77
Buyers brokers and related agents	-0.56	62	-0.38	61	-0.18	59
Sales representatives	-0.38	45	-0.27	54	-0.11	35
Sales assistants check-out operators	-0.13	20	-0.12	23	-0.01	7
Mobile salespersons and agents	-0.12	17	-0.12	22	0.00	5
Sales occupations nec	-0.27	30	-0.22	42	-0.05	13
Food drink tobacco proc. operatives	0.05	2	0.02	4	0.03	2
Textiles& tannery process operatives	-0.40	48	-0.24	47	-0.16	53
Chemicals paper etc proc. operatives	-0.66	68	-0.56	72	-0.10	30
Metal making treating proc. operative	-1.54	77	-1.19	77	-0.36	74
Metal working process operatives	-1.14	76	-0.83	76	-0.31	72
Assemblers/lineworkers	-1.61	78	-1.44	78	-0.17	55
Other routine process operatives	-0.56	63	-0.45	69	-0.12	41
Road transport operatives	-0.32	34	-0.23	44	-0.09	27
Other trans and machinery operatives	-0.58	66	-0.37	60	-0.21	61
Plant and machine operatives nec	-0.78	69	-0.56	73	-0.22	65
Other occupations in agriculture etc	-0.38	44	-0.13	25	-0.25	67
Other occup. in mining and manu.	-0.85	73	-0.64	75	-0.21	64
Other occupations in construction	-0.10	15	-0.05	15	-0.05	15
Other occupations in transport	-0.30	32	-0.17	33	-0.13	43
Other occupations in communication	-0.09	14	-0.04	14	-0.05	14
Other occupations in sales&services	-0.25	29	-0.15	28	-0.10	31
Other occupations nec	-0.49	59	-0.24	46	-0.25	66
Occupations undefined	-0.41	49	-0.25	51	-0.16	51
Total	-0.35		-0.23		-0.12	