

EUROPEAN INNOVATION MONITORING SYSTEM (EIMS)

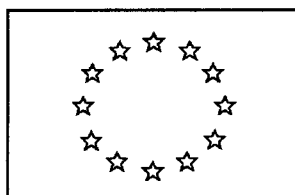
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INNOVATION OUTPUTS IN EUROPEAN INDUSTRY:

ANALYSIS FROM THE C.I.S.

BY

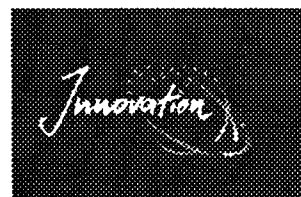
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EUROPEAN COMMISSION

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The Innovation Programme



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1 INTRODUCTION: AIMS, BACKGROUND AND ANALYTICAL PERSPECTIVES

Overall Objectives

The main objective of the study is to map the structure and pattern of innovation outputs, in the form of the newly gathered data from the Community Innovation Surveys (CIS) on the introduction of new products, across European countries and industries. At a descriptive level the analysis focuses on examining differences and similarities in the sectoral distribution of innovative output across countries. At a more analytical level it examines how variations in innovative output relate to variations in firm size and export performance.

Analytical Approach

There are two basic elements in the approach that we take in considering the measurement and analysis of innovative activities.¹ The first is that such activities are best characterised by complexity and variety. The inputs to innovation can comprise a wide variety of functional activities - from basic research to incremental improvements in production. The knowledge requirements for innovation also vary widely amongst sectors - from the relatively focused and science-based product development in pharmaceutical firms, to the broad development of a range of product, process and component technologies in automobile firms. And the output of innovative activities can also vary greatly along a number of dimensions - for example, product-process-service, size, complexity, performance.

This means that no single measure is able to capture all the dimensions of the innovation process. Each of the traditional measures, such as R&D expenditures and patenting data, have their own advantages and disadvantages that must be spelt out when using them in any analysis. Table 1 summarises the nature and the main advantages and disadvantages of the various measures, other than those from CIS, developed and used over the last 20 years.

The second element of our approach is that descriptive facts and comparisons are important:

- in throwing fresh light on theoretical problems (eg, the role of business R&D in both innovation and imitation; the role of time lags between innovation and imitation in determining patterns of international trade);
- in clarifying important practical and policy problems (eg, through international and inter-firm comparisons of innovative activities and innovative outputs).

¹ A fuller discussion of our approach to measurement of innovative activities is contained in Patel, P and Pavitt, K (1995): "Patterns of Technological Activity: their Measurement and Interpretation", in Stoneman, P (ed) *Handbook of Economics of Innovation and Technical Change*, Oxford, Blackwell.

Table 1 Strengths And Weaknesses Of Measures Of Innovative Activities

MEASURE	STRENGTHS	WEAKNESSES	POSSIBLE LEVELS OF COMPARISON			
			Country	Industry	Tech Field	Firm
RESEARCH AND DEVELOPMENT	<ul style="list-style-type: none"> •regular and recognised data on main source of technology 	<ul style="list-style-type: none"> •lacks detail (technical fields and specific firms) •strongly underestimates small firms, design, production engineering, and software 	√	√	X	√
PATENTS	<ul style="list-style-type: none"> •regular detailed and long-term data •compensates weaknesses of R & D statistics 	<ul style="list-style-type: none"> •uneven propensity to patent •misses software 	√	√	√	√
SIGNIFICANT INNOVATIONS	<ul style="list-style-type: none"> •direct measure of output 	<ul style="list-style-type: none"> •measure of significance •cost of collection •misses incremental improvements 	X	√	X	√

√ = Yes X = No ? = Maybe

Table 1 Strengths And Weaknesses Of Measures Of Innovative Activities

MEASURE	STRENGTHS	WEAKNESSES	POSSIBLE LEVELS OF COMPARISON			
			Country	Industry	Tech Field	Firm
EXPERT JUDGEMENTS	•direct use of expertise	•finding independent experts •judgements beyond expertise	?	√	√	X
PRODUCT ANNOUNCEMENTS	•close to commercialisation	•misses in-house process innovations, and incremental product improvements •possible manipulation by marketing and public relations	?	√	X	√
TECHNICAL EMPLOYEES	•measures tacit knowledge	•lack of homogeneity of qualifications	X	√	√	√
ACTUAL VS PREDICTED MARKET VALUE	•tries to measure firms' efficiency in asset exploitation	•cannot distinguish innovation from other intangible assets, or from monopoly •difficult to make international comparisons	?	√	X	√

√ = Yes X = No ? = Maybe

Thus in this report it is important to present the new data from the CIS in the context of what is known about the innovation process from past analyses using different measures and methods. For example, in terms of country analysis, Archibugi and Pianta (1992) and Patel and Pavitt (1995), as well as the European S&T Indicators Report (1994) contain analyses of the strengths and weaknesses in technology for European countries. In terms of analysis by size we know that large firms are important sources of innovation in R&D intensive sectors and small firms in machinery (see Pavitt *et al* (1987) and Patel and Pavitt (1991)). It is in the context of these types of analyses that we interpret the results from CIS.

2 CIS DATA AND METHODOLOGY

This section is concerned with outlining the main elements of the measures of innovation output used in the report along a number of dimensions: main variables used, their main advantages and disadvantages, and sectoral and country coverage. It is not concerned with evaluating the way in which CIS was implemented as this has already been the subject of the study reported in the 'Evaluation of the Community Innovation Surveys (CIS) - Phase 1' (1994).

Data and Measures

This report is based mainly on data from section 8 of the CIS Questionnaire: Impact of Innovation Activities. In particular it uses the answers to question 15 on sales and exports due to unchanged products, those due to products incorporating incremental changes, and those due to products incorporating radical changes. It also uses information from the answers to question 16 which disaggregates sales due to new products into those that are new to the enterprise and those new to the industry.

Thus we are able to construct the following eight measures:

- Proportion of sales from new products (sometimes referred to as SNP below). In terms of the results of the questionnaire this is defined as $Total\ Sales*(1-V15A_1)$
- Proportion of sales from products incorporating incremental change (SNPInc): $Total\ Sales*V15A_2$.
- Proportion of sales from products incorporating radical change (SNPRad): $Total\ Sales*V15A_3$.
- Proportion of export sales from new products (ENP): $Total\ Exports*(1-V15B_1)$.
- Proportion of export sales from products incorporating incremental change (ENPInc): $Total\ Exports*V15B_2$.
- Proportion of export sales from products incorporating radical change (ENPRad): $Total\ Exports*V15B_3$.
- Proportion of sales from innovative products new to the firm (SNPFir): $Total\ Sales*(1-V15A_1)*V16_1$.
- Proportion of sales from innovative products new to industry (SNPInd): $Total\ Sales*(1-V15A_1)*V16_2$.

Each of these is an indicator of product innovation at different levels of significance and in particular measures the rate at which firms renew their product range with innovations and the degree to which these innovations contribute to sales.

Advantages and Disadvantages

As Table 1 shows all measures of innovation have their advantages and disadvantages. When compared with these other measures, the main advantages for the sales and exports in new products are:

- They are a direct measure of output of the whole innovation process, ie., they measure directly the economic impact of innovation within firms.
- They include information on firms which generate innovation as well as those that use innovation, which is very important for the service sector.
- They are comparable across countries, industries and firms of different size classes.
- They can be directly related to other industrial and firm level data, such as production, value-added and employment.

The main drawbacks are:

- They miss out process innovations which may be just as important as product innovations in some industries (such as industrial chemicals).
- There are real difficulties in measuring incremental and radical changes in complex products such as automobiles and aircraft.
- They rely on subjective assessments by firms, which presents problem of interpretation as shown by the French and Spanish results below.
- At present they lack any time series comparisons.
- Also at present they lack comparison with other regions at the world technological frontier: US and Japan.

Sectors, Countries and Size Classes

In principle data are available for 13 European countries, who conducted surveys based on CIS methodology, and 65 sectors (at 2 digit NACE classes). Annex Table A1 shows the number of firms by country and by NACE class that contained any information on the 8 measures outlined above.

In terms of countries, we made the following decisions, affecting the analysis in this report, based on the information in this table:

- Greece is ignored altogether as it does not report any sales in new products
- UK has been included in some of the aggregate comparisons below but has too few observations to make reliable comparisons
- Luxembourg has been included in some of the aggregate comparisons, but is combined with Belgium for some of the more detailed analysis

It is also worth noting that only 6 out of the 13 countries have information on all 8 measures: France only has information for 2; Netherlands and Portugal on 5, and Spain and Ireland on 6.

In terms of sectors we have made the following aggregations of the NACE classes:

- Other category which includes all the NACE classes from 37 onwards as well as classes 10-14 and 23.
- Food, Drink and Tobacco which combines classes 15 and 16
- Textiles, Clothing and Leather which combines classes 17, 18 and 19
- Paper, Pulp and Wood Products which combines classes 20 and 21
- Electrical which combines classes 30 (Office Machinery and Computers) and 31 (Electrical machinery), although they appear separately for the aggregate analysis.

Thus the analysis below is concerned with a total of 17 sectors (as listed in Annex Table A3).

In the analysis of size distributions below we distinguish between the following categories:

Small Firms: those with less than 100 employees

Medium-sized firms with more than 100 but less than 500 employees

Large-sized firms with more than 500 employees

Construction of Sectoral Means

In constructing the above measures at the sectoral level, the denominator used is the total sales (or exports) for only those firms reporting sales (or exports) in new products for a particular country or sector. The implications of this for the interpretation of the results are that: greater weight is given to large firms and that comparisons are only being made for those firms that report some 'innovation output' and not for the whole industry.

3 MAIN RESULTS

In this section we analyse the data from CIS to address the following questions:

- What are the differences and similarities in the distribution of innovation outputs across industries and countries?
- How much of the variation in innovation outputs can be explained by industry and by country specific factors?
- How do variations in innovation outputs relate to variations in R&D intensity, firm size, and export performance?

We present the results in the context of what is known about the innovation process from past analyses using different measures and methods.

3.1 *Consistency of the eight measures across industry*

We begin this section by examining the similarities (or otherwise) of the patterns shown by the eight measures of innovation for each country across industry. Table 2 (based on the correlation matrices reported in Annex Table A2) shows the number of correlations that are statistically significant at the 5% level for each country in terms of the proportion of innovation output by industry and in terms of industry rankings. Thus for all countries combined, all 8 measures show a remarkably similar pattern across industries: 27 of the possible 28 unique correlations are significant in terms of levels and all 28 in terms of rankings. Similarly, for Italy, Norway, Germany and Benelux the pattern shown by each measure is highly consistent. On the other hand for Portugal, Spain and Denmark the degree of consistency is much lower.

Table 2 Similarities in Innovation Output by Country: Correlations for 8 indicators across 17 sectors

Correlation coefficients that are significantly different from zero

	Shares	Rank	Out of
Germany	19	21	28
Spain	7	7	15
Netherlands	6	6	10
Denmark	15	15	28
Belgium & Luxembourg	19	19	28
Portugal	3	3	10
Ireland	13	14	15
Italy	24	27	28
France	1	1	1
Norway	24	25	28
UK	na	na	na
All countries combined	27	28	28

3.2 *Inter-Country and Inter-Industry Distributions of Innovation Output*

In innovation studies there has been a debate concerning the relative role of industry-specific and country-specific factors in shaping the rate and direction of innovative activities of firms. Some argue that country specific factors in the form of the degree of rivalry, financial and educational institutions and the various inducement mechanisms are the dominant influence (Porter (1990) and Patel and Pavitt (1994)). Others suggest that sector-specific factors such as technological and market opportunities are more important (Malerba and Orsenigo, 1995). In the light of these debates we address the following questions in this section:

- What are the differences and similarities in the distribution of innovation outputs across countries and sectors?
- Are ranking of industries similar across countries in the proportion output from new products?
- How are these distributions related to R&D intensity and to other measures of innovation intensity?

3.2.1 *Aggregate level by Industry*

Figure 1 shows the results for innovation outputs by industry for all 12 countries combined. The main points to note are:

1 There is a high proportion of sales and of exports in new products for the sample as a whole: 42% and 48%. This ranges from more than 60% (Exports and Sales) in Motor vehicles to 20% or under in Paper and Wood. In general the figure shows that there is a higher share of new products in exports than in sales.

2 The industries with the highest proportions of output in new products are generally the ones we would expect:

- Office Machinery
- Motor Vehicles
- Other Transport
- Electrical Equipment
- Radio, TV and Communications Equipment
- Instruments

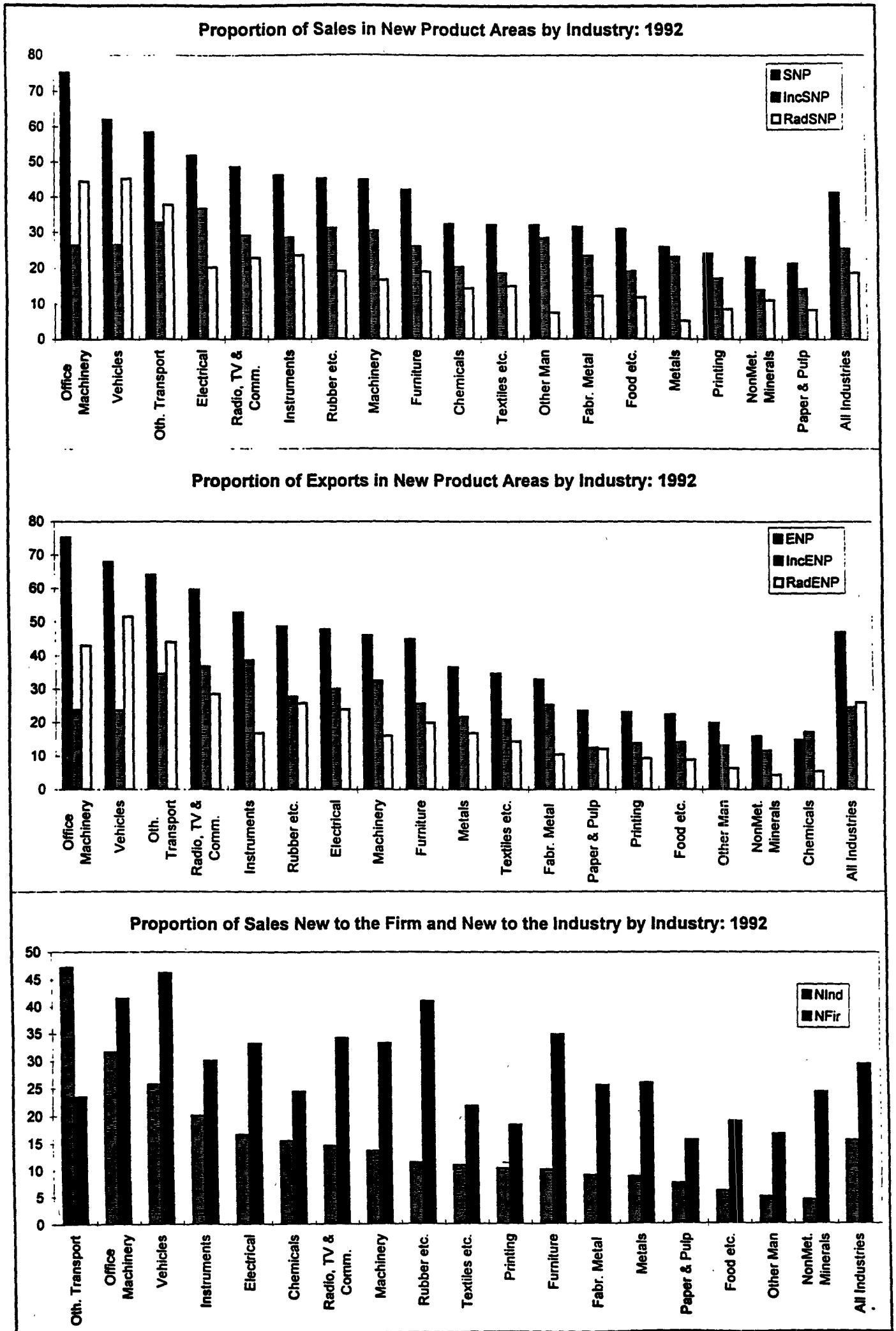
Indeed these are precisely the industries that have higher than average R&D intensities and are generally regarded as being at the forefront of innovation. The only anomaly is that chemicals appears as below average in terms of innovation output but is above average in terms of R&D intensity. One explanation for this could be the fact that in this industry (especially in industrial chemicals) process innovation is much more important than product innovation.

The lowest proportions of output in new products are in :

- Fabricated Metal Products
- Food, Drink and Tobacco
- Basic Metals
- Printing and Publishing
- Non-metallic Mineral Product
- Paper, Pulp and Wood Products

However even in these industries more than 20% of sales and exports are in new products.

Figure 1. Innovation Output by Industry for all Countries Combined



3.2.2 *Aggregate level by Country*

Figure 2 compares the output in new products for each of the 12 countries. It shows wide variation in innovation performance amongst countries, ranging from around 60% of sales in new product for Germany to less than 30% for Norway. In general there is a great deal of consistency in what the different measures show, especially SNP and ENP. The main points to note are:

- Germany has consistently more output in new products than all the other countries
- France and Norway have less output in new products than all the other countries

The main anomalies that emerge when these results are compared to those from other analysis of country differences (such as those based on R&D and Patenting, see Archibugi and Pianta (1992) and Patel and Pavitt (1995)) are that:

- the French position is too low and
- the Spanish and possibly the Portuguese position is too high.

Indeed there is a very low correlation between industry financed R&D as a proportion of GDP as reported in the OECD data and the proportion of sales in new products. This implies that there are some country specific biases in the way in which some firms responded to the CIS questionnaire, and care will need be needed in interpreting the results of country comparisons.

3.2.3 *Comparisons across sectors and across countries*

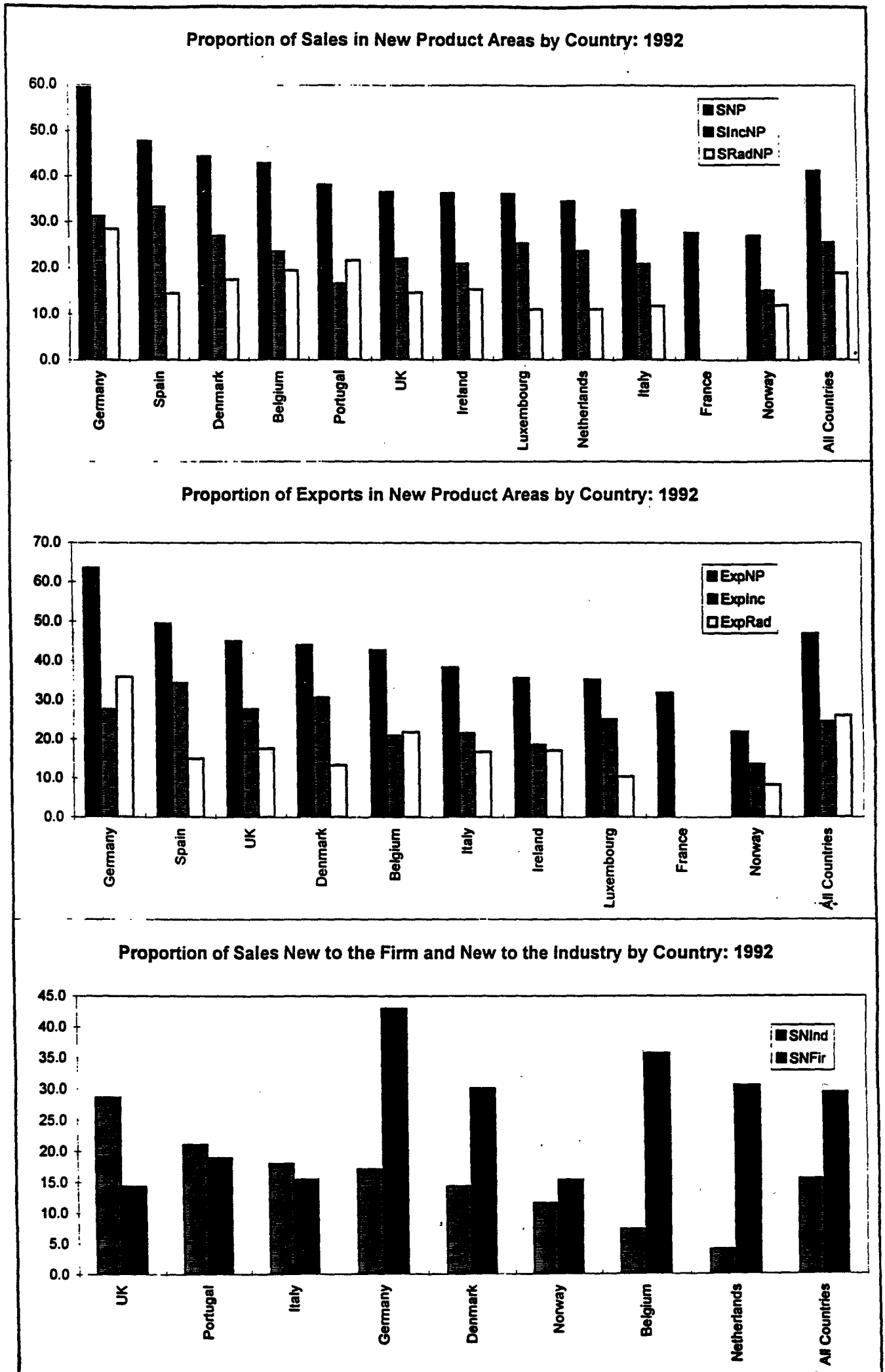
This analysis is based on comparing the 17 industry means for each of the 8 output measures, for each of the 10 countries. The basic data appear in the Annex Table A3. We address 3 related sets of questions:

- At a descriptive level, which are the sectors in which country A is more innovative than all other countries?
- What are the similarities between countries: how similar is country A to country B in terms of innovation output across industry?
- How much of the variation in the innovation outputs can be ascribed to industry and how much to country?

3.2.4 *Sectoral strengths in Innovation Outputs*

Given that sectors differ greatly in the sources, rates and directions of their innovative activities the aim here is to examine, for each measure of innovation output, a particular country's performance within an industry in relation to all other European countries active in that industry. This we do by comparing, for example, the mean for sales in new products for country A in industry B with the mean of all countries combined for industry B. The main drawbacks of using this as a measure of strength and weakness are: (a) country-specific biases, for example, France, Norway and Italy have consistently lower output in new products

Figure 2. Innovation Output by Country



for most industries; and (b) lack of comparison between Europe and the US and Japan, especially in industries where these two regions are ahead in terms of innovation.

The results of this analysis, for sales and exports in new products are presented in Figures 3 and 4.² For the other 6 measures, see Annex Table A4. The following product groups emerge as areas of strength for each country from these comparisons:

Germany	Rubber and Plastics; Instruments, Motor Vehicles, and Other Transport
Netherlands	Printing , Electrical and Radio, TV and Communications
Belgium & Luxembourg (combined)	Printing, Chemicals, Non-metallic minerals, Fabricated Metal products, Non-electrical Machinery and Radio, TV and Communications
Denmark	Textiles, Paper and Wood, Chemicals, Basic Metals, Non-electrical Machinery and Other Transport
Ireland	Chemicals, Metals and Non-electrical Machinery
Norway	Food, Drink and Tobacco, Fabricated Metal products and Furniture
Portugal	Food, Drink and Tobacco, Fabricated Metal products
Spain	Food, Drink and Tobacco, Paper and Wood, Non-metallic minerals, Fabricated Metal products, Radio, TV and Communications, and Furniture
Italy	Non-metallic minerals and Electrical (especially for exports),
France (possibly)	Electrical
UK (possibly)	Non-electrical and Electrical equipment

Some of these confirm previous results: for example, Germany's strength in Rubber and Plastics and Motor Vehicles, Netherlands' in Electrical and Radio, TV and Communications and Denmark's in Chemicals. However there are certain areas of strength for countries that do not appear in these data: Germany in chemicals, Italy in Machinery, Textiles and Furniture, and France in Communications.

3.2.5 *Similarities between countries*

The above analysis suggests that there are major differences between countries in the patterns of innovation output across sectors. In Annex Table A5 we examine systematic similarities and differences amongst the 10 countries by means of correlation matrices for each of the 8 measures. Table 3 uses this information to see the extent to which countries are related to each other. In particular, it shows that France and Italy have the most similarities with the

²In these figures we have eliminated all industries with less than 10 observations.

Figure 3. Sectoral Strengths in Innovation Output: Share of Sales in New Products Compared to the Industry Average

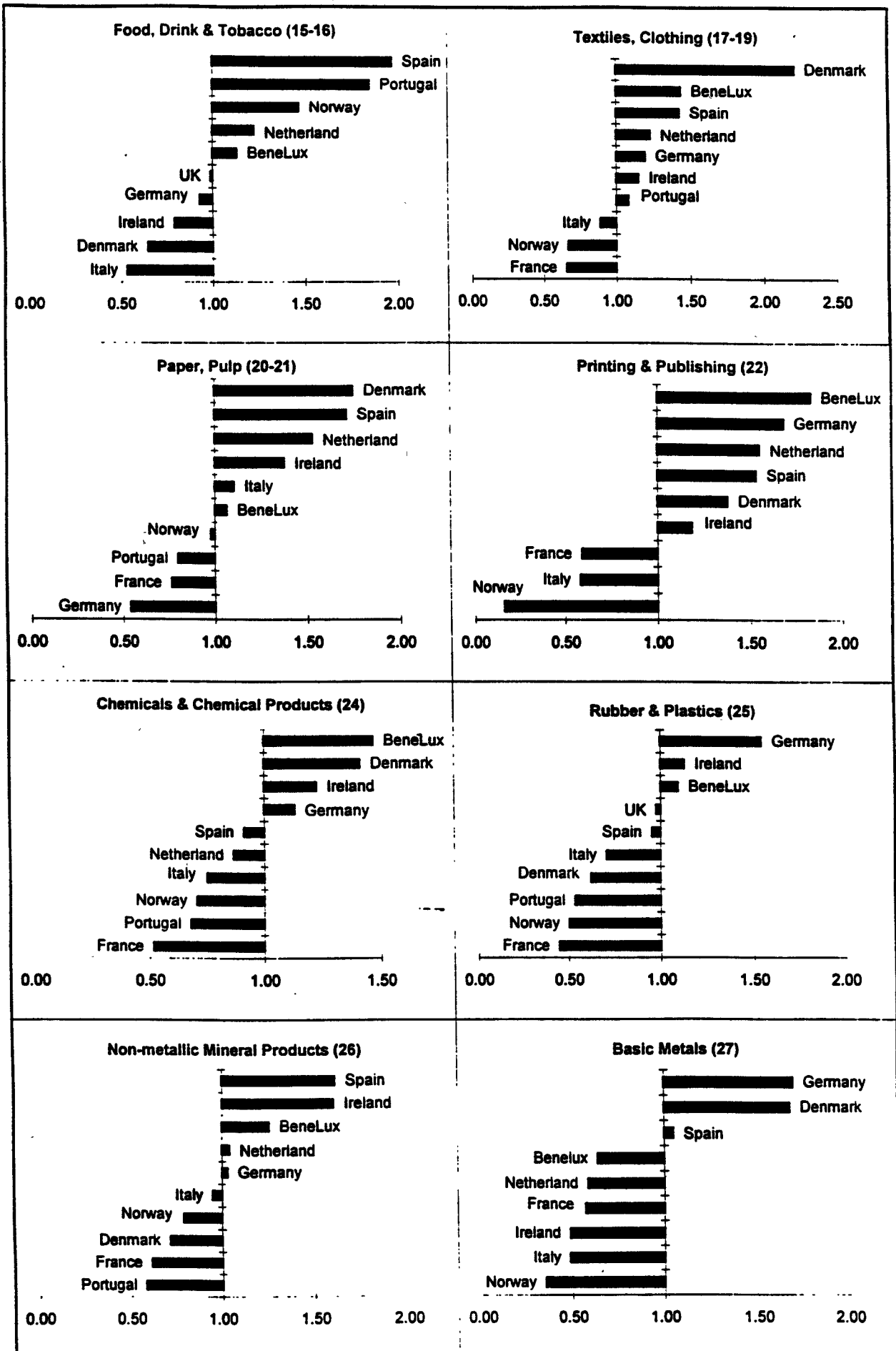


Figure 3. Sectoral Strengths in Innovation Output: Share of Sales in New Products Compared to the Industry Average

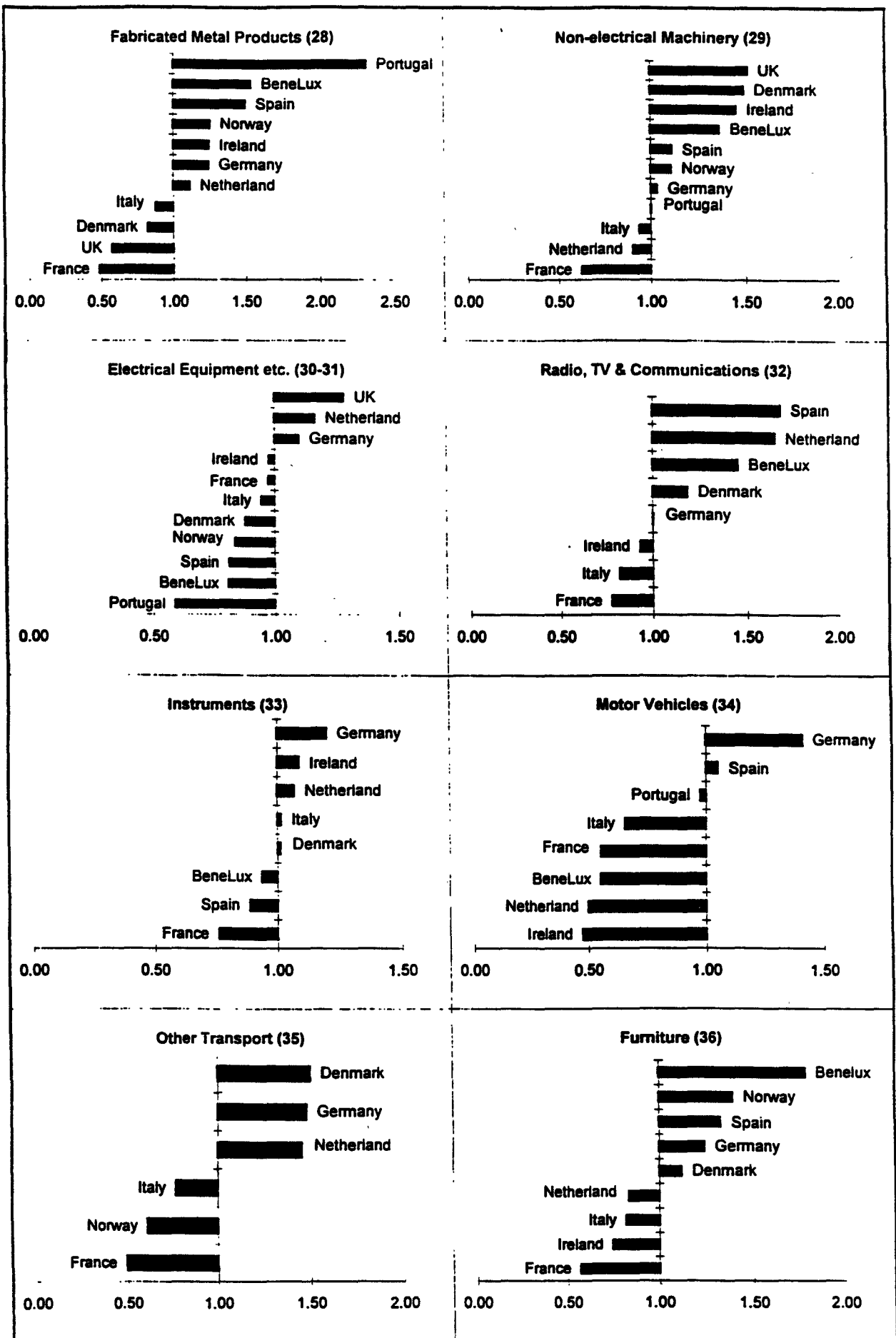


Figure 4. Sectoral Strengths in Innovation Output: Share of Exports in New Products Compared to the Industry Average

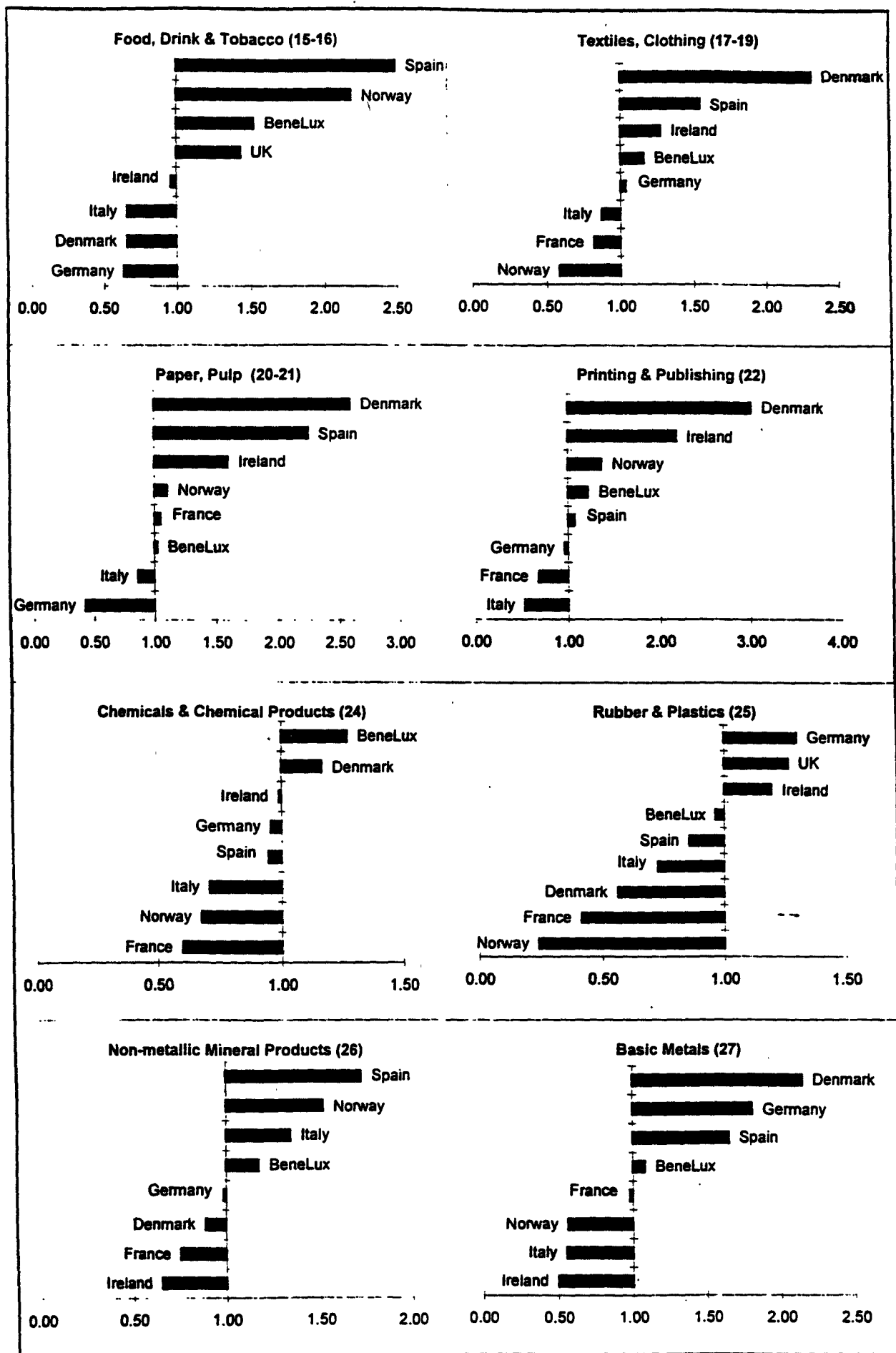
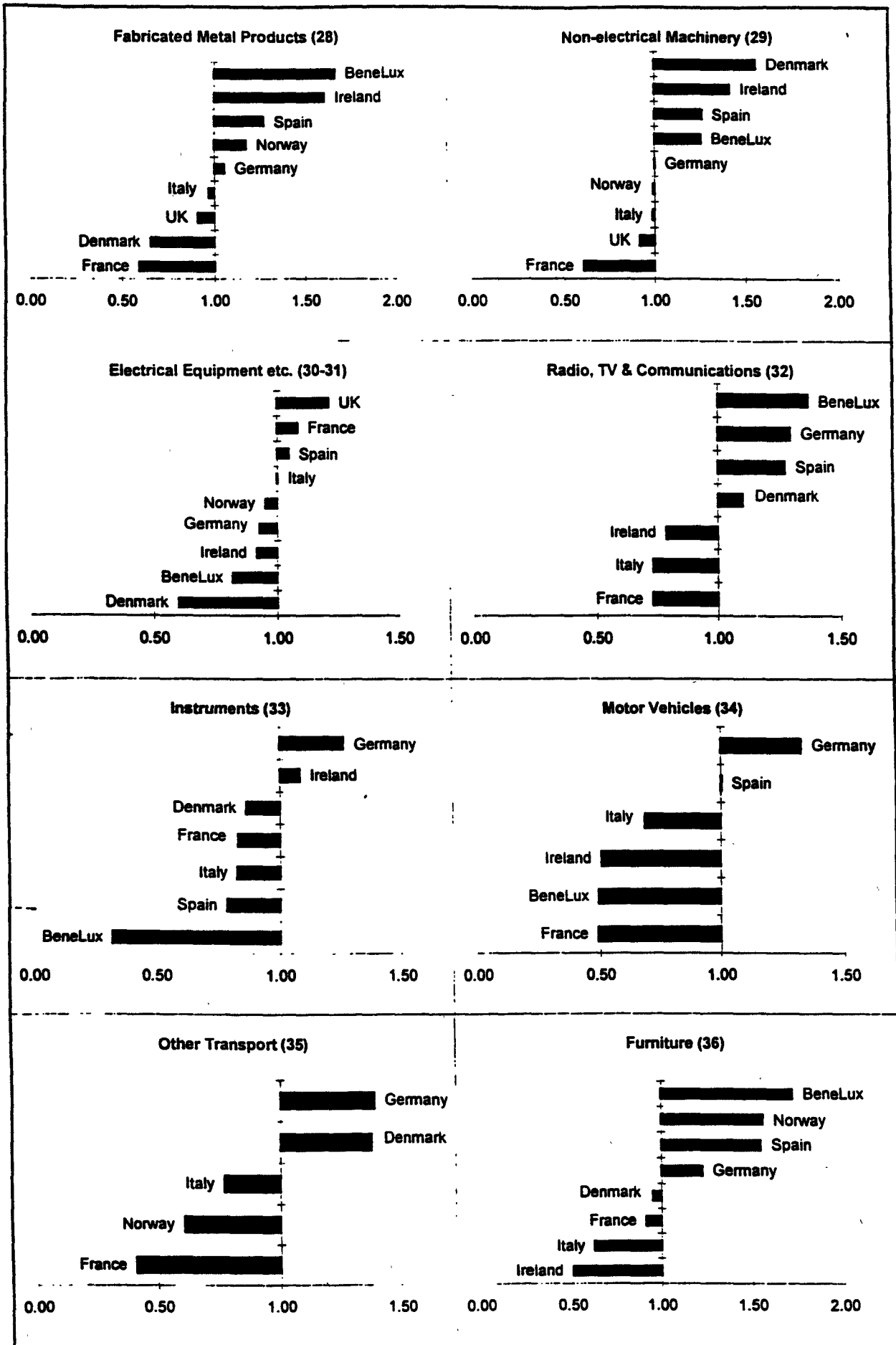


Figure 4. Sectoral Strengths in Innovation Output: Share of Exports in New Products Compared to the Industry Average



other European countries, ie, their pattern of innovation outputs across the 17 sectors is similar to most other countries. Also the pattern for Portugal is different from that of all other countries. In general, there are more similarities among countries for sales and exports in new products than the other measures.

3.2.6 Analysis of Country and Industry Effects

In this section we analyse the relative importance of country and sector effects in explaining the variance in innovation outputs at two levels: at the level of industry and at the level of company.

1 At the Industry level

The following table summarises the results of the analysis of variance of industry/country means for sales in new products. It shows that around 60% of the total variance in the proportion of sales in new products is explained by industry and country factors. It indicates that industry effects are more important than country effects as although both are statistically significant, industry accounts for more of the variance than country.

Table 4 Sales in New Products Analysis of Variance of at the Industry Level

Source	DF	Seq SS	Adj MS	F
Industry	16	22607.4	1413.1	8.53*
Country	10	9422.2	942.2	5.69*
Error	134	22194.2	165.6	
Total	160	54223.8		

* Denotes Significance at the 5% level

2 At the Company level

However, as shown in Table 5, at the company level the results of the analysis of variance are somewhat different. Firstly only around 11% of the total variance in sales in new products is due to industry and country effects. Secondly the relative importance of the industry and company effects changes: country now accounts for more of the variance in sales in new products than industry. This shows that there is considerable intra-industry variation which needs to be taken into account when comparing industry means as in the analysis above.

Table 5 Sales in New Products Analysis of Variance at the Company level

Source	DF	SS	MS	F
Industry	16	19.78	1.24	15.78*
Country	10	83.21	8.32	106.22*
Interaction (Ind+Cou)	160	37.52	0.23	2.99*
Error	16748	1311.98	0.08	
Total	16934	1560.13		

* Denotes Significance at the 5% level

3.2.7 Comparisons of Innovation Outputs and Innovation Inputs

In this section we analyse the relationship between innovation output on the one hand and R&D intensity and innovation intensity (total innovation costs as a proportion of sales) on the other. As the following table, based on industry means, shows there is a significant relationship between the two sets of variables. In other words, industries with higher proportions of output in new products are also those with higher R&D and innovation intensity.

Table 6 Correlations between Innovation Output, R&D Intensity and Innovation Intensity at the Industry level

N = 145

	SNP	SNPInc	SNPRad	RDInt
SNPInc	0.85*			
SNPRad	0.78*	0.40*		
RDInt	0.40*	0.24*	0.43*	
InnInt	0.24*	0.12	0.28*	0.52*

* Denotes that the coefficient is different from zero at the 5% level

3.3 Firm Size and Innovation Outputs

The past fifteen years has shown that empirical results on the relationship between firm size and innovation intensity are sensitive to the sample of firms, and to the measure used for innovative activities. In the 1960s, an r-shaped relationship was established between innovation intensity and size in large US firms, when using patenting as the indicator of technological activities (Scherer, 1965). In the 1970s, systematic data on large US firms' R&D expenditures showed a linear relationship between innovation intensity and size (Soete, 1979). In the 1980's, a U-shaped relationship was found, in UK firms covering all size

categories, between size and innovation intensity measured as numbers of significant innovations divided by employment (Pavitt *et al*, 1987), thereby revealing the inadequacy of R&D as a measure of innovative activities in firms with fewer than 1,000 employees (Kleinknecht, 1987). Our more recent work using R&D and patent statistics for large firms showed a linear relation between firm size and the volume of innovative activity (Patel and Pavitt 1992).

Thus in this section, we examine the distribution of innovation intensity (proportion of total output that is in innovative products), according to firm size broken down by sector and country. In particular we address the following questions:

- Are small firms more innovative than large firms?
- Are there any variations by country and by industry?

The size categories we consider are based on employment and the assumption we have made is that firms have been consistently defined in the survey.³ Thus small firms are defined as those with less than 100 employees, medium size firms with between 100 and 500 employees and large firms with more than 500 employees.

Two caveats need to be borne in mind when interpreting the results below:

(a) small firms are often new firms which come into being to sell new products and hence by definition a greater share of their output would be innovative.

(b) Results by size will only be reliable if the surveys were conducted by means of a stratified random sample.

3.3.1 *Aggregate comparisons by industry*

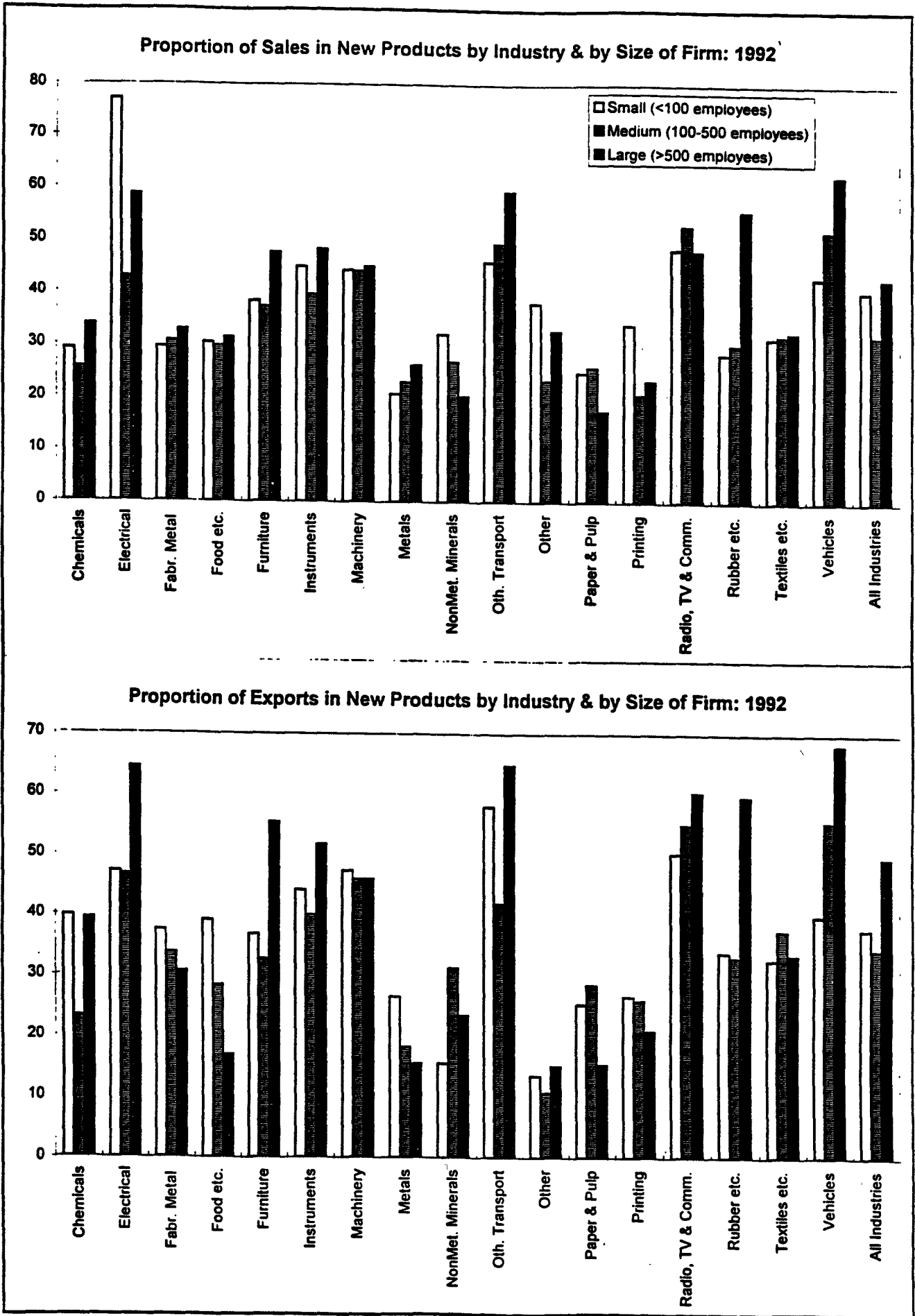
Figure 5 shows the results for innovation outputs (Sales and Exports in new products⁴) by industry for all 12 countries combined. The main points to note are:

- For the sample as a whole large and small firms have a higher share of innovation outputs than medium-sized firms. There is one major difference between exports and sales in new products: large firms have a much higher intensity than small firms in exports.
- The same U-shaped relationship is also found in Chemicals and Instruments
- Large Firms have a much higher intensity in Rubber & Plastics; Motor Vehicles; Other Transport; Furniture and Metals (but not in terms of exports).
- Small Firms have a much higher intensity in Paper & Wood; Printing; Non-Metallic Minerals; Electrical (not in terms of export in the last two sectors).

³The CIS 'Evaluation' report seems to indicate that in the case for Belgium, Germany and the Netherlands establishments as well as enterprises might be included. Thus the results by firm size may be biased in the case of these countries.

⁴See Annex Table A6 for details of the other measures.

Figure 5. Innovation Output by Industry and by Size of Firm for all Countries Combined



3.3.2 *Aggregate comparisons by Country*

Figure 6 shows the results for innovation outputs (Sales and Exports in new products) for each of the 12 countries. Given the different industrial mix in the different countries the picture at the country level is mixed:

- Both small and large firms are much more innovative than medium-sized firms in Germany and Belgium and Luxembourg combined.
- Small firms are much more innovative than large or medium-sized firms in Portugal and Norway.
- For France, Italy and Netherlands large firms are more innovative;
- Lastly in Spain, Denmark and Ireland there is very little difference between the size classes.

3.3.3 *Comparisons by industry and country*

Figures 7 and 8 show the proportion of sales and exports in new products by size classes within each industry by country.⁵ They are based on data reported in Annex Table A6. The main point to emerge from these comparisons is that there is no clear pattern in terms of the greater or lesser innovation intensity of different size classes: in the same industry some countries have large firms with significantly higher intensity than average and others have small firms with significantly higher intensity. This is confirmed statistically in Annex Table A7 where we regress the means of the size classes for each country and each industry on 3 dummy variables: one for each size class. In these regressions there are only 5 cases (out of a possible 153) where the data can distinguish between the size classes. Thus large firms have a higher intensity in Rubber and Plastics (SNPInc) and small firms in Textiles and in Instruments (both SNPRad).

In Annex Table A8, we use the same technique to examine differences amongst countries in innovation intensity of different size classes, ie., we regress all the industry/size means for a country on the 3 size class dummies. In the main there very few cases in which the data are able to distinguish between the innovation intensities of the different size classes. These results show that large firms are more innovative in France (SNP), Denmark, Italy and the Netherlands (SNPInc), and small firms in Belgium and Luxembourg combined.

3.3.4 *Firm Size and Innovation Outputs at the Company level*

In this section we test the relationship between firm size and innovative performance at the company level in the form:

$$\log(\text{innovative activity}) = a + b \log(\text{size}), \text{ where}$$

innovative activity	= company's Sales in New Products
size	= company's Total Sales;

⁵In these figures we have eliminated all industries with less than 20 observations, and size classes where there are less than four observations.

Figure 6. Innovation Output by Country and by Size of Firm for all Industries Combined

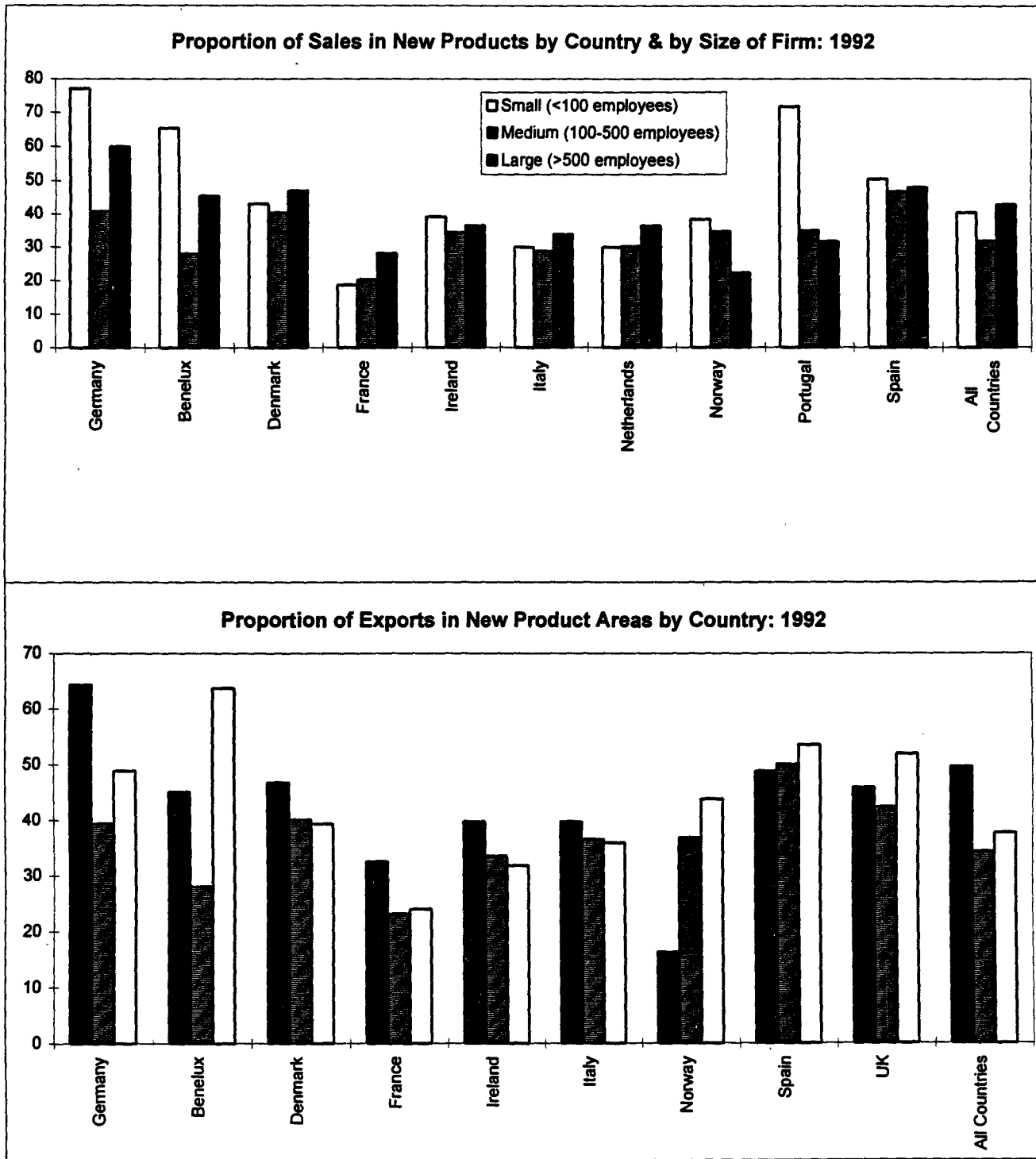


Figure 7. Proportion of Sales in New Products within Industry by Country and by Size of Firm

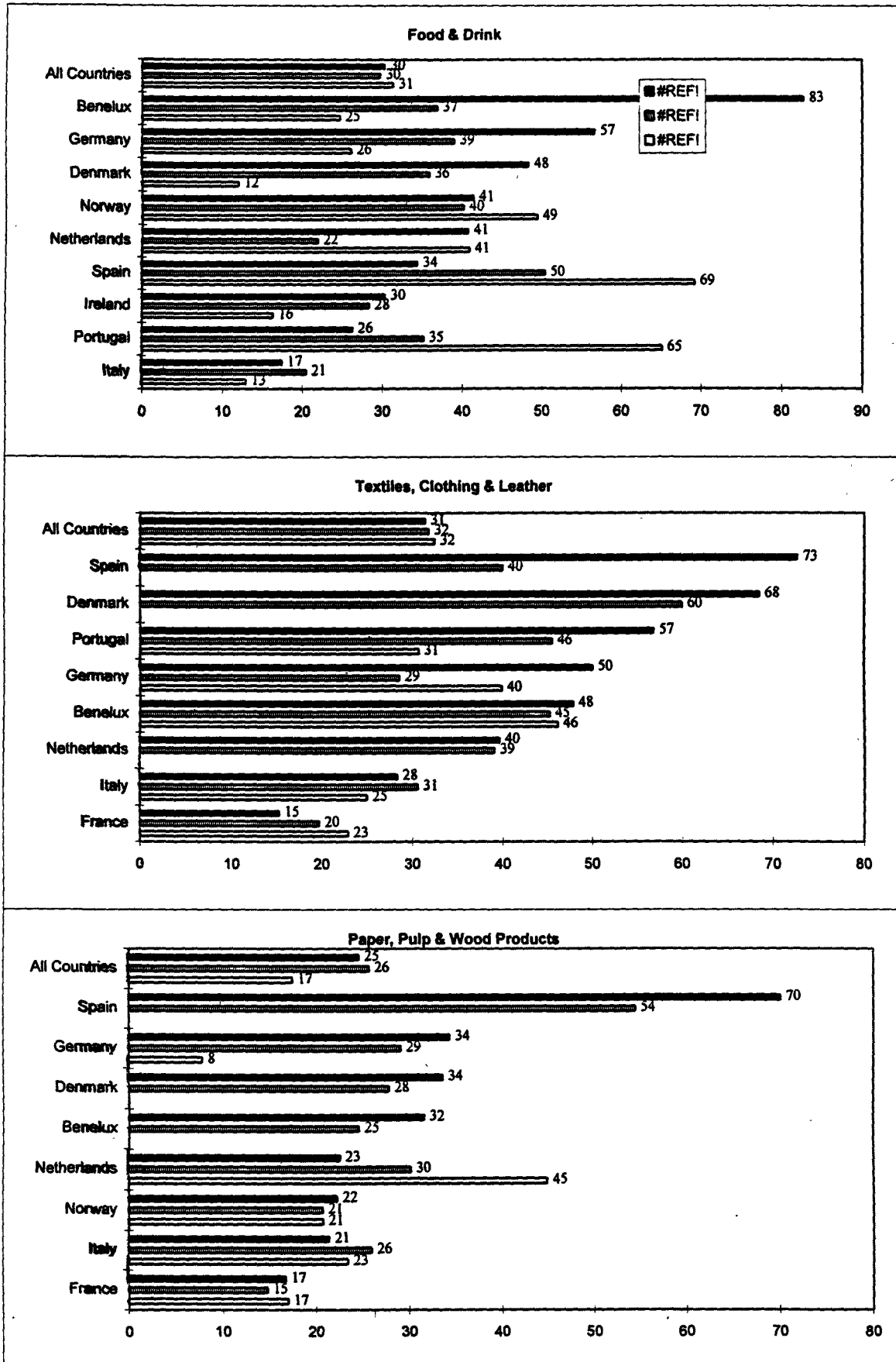


Figure 7. Proportion of Sales in New Products within Industry by Country and by Size of Firm

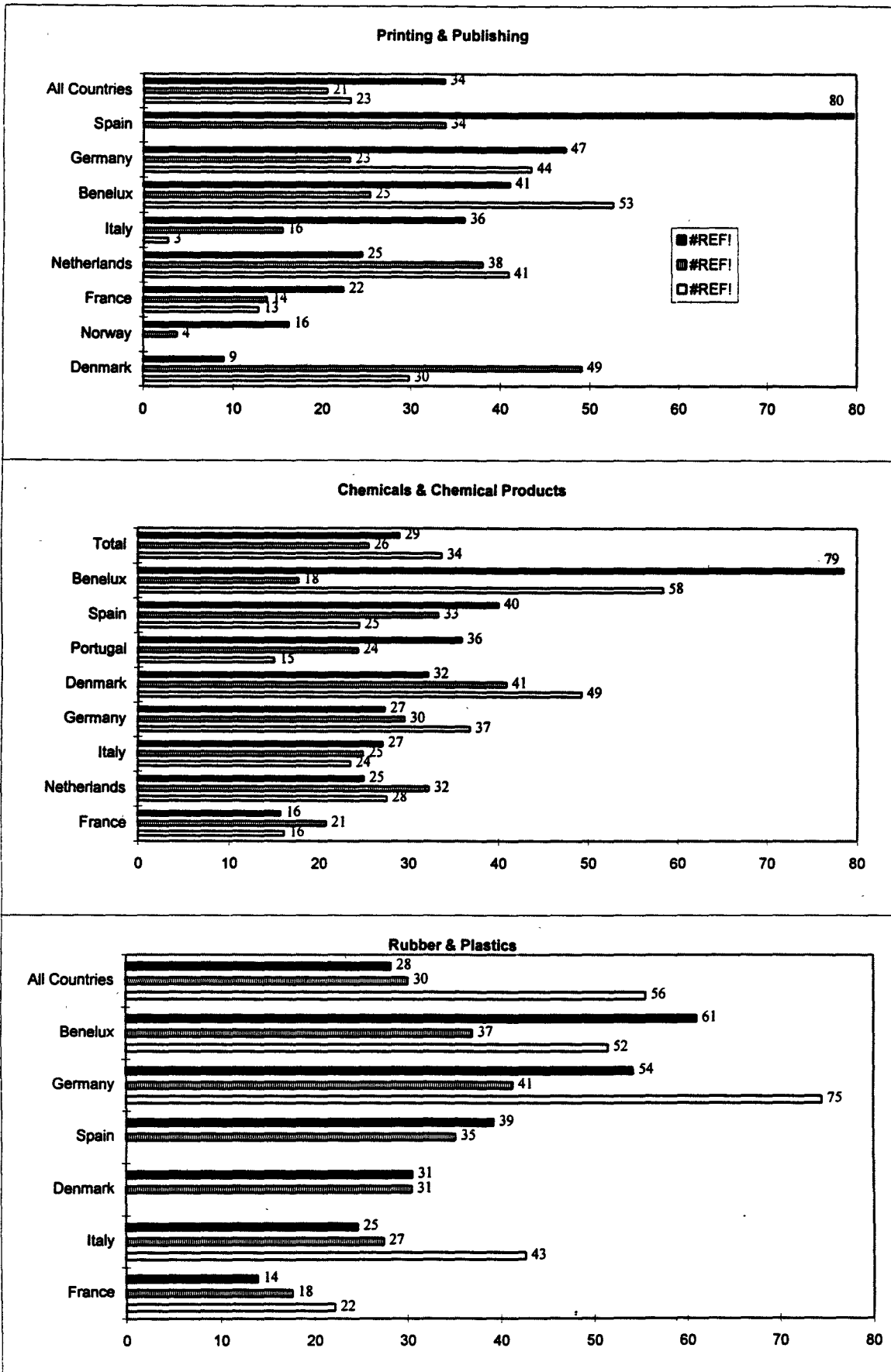


Figure 7. Proportion of Sales in New Products within Industry by Country and by Size of Firm

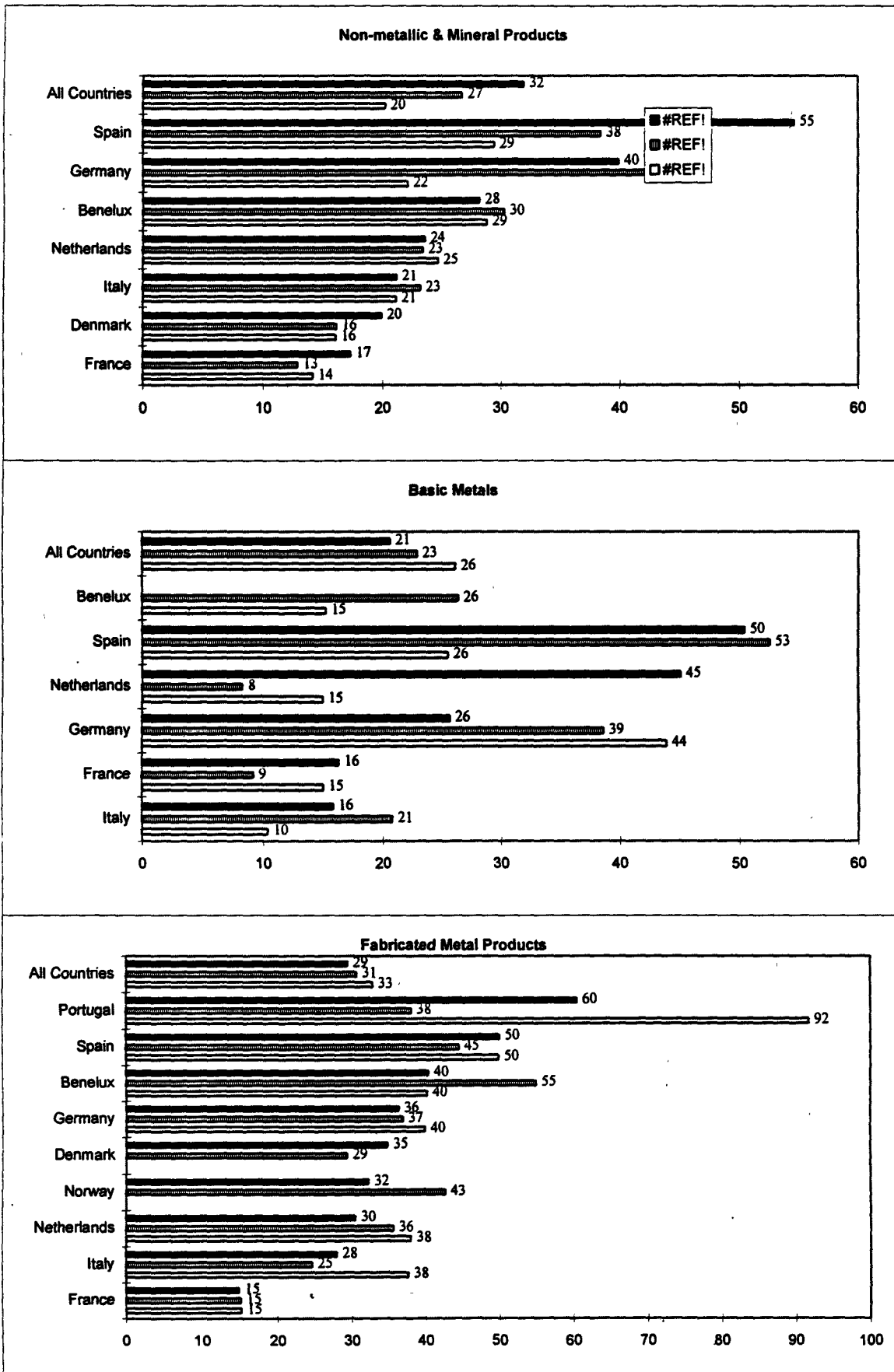


Figure 7. Proportion of Sales in New Products within Industry by Country and by Size of Firm

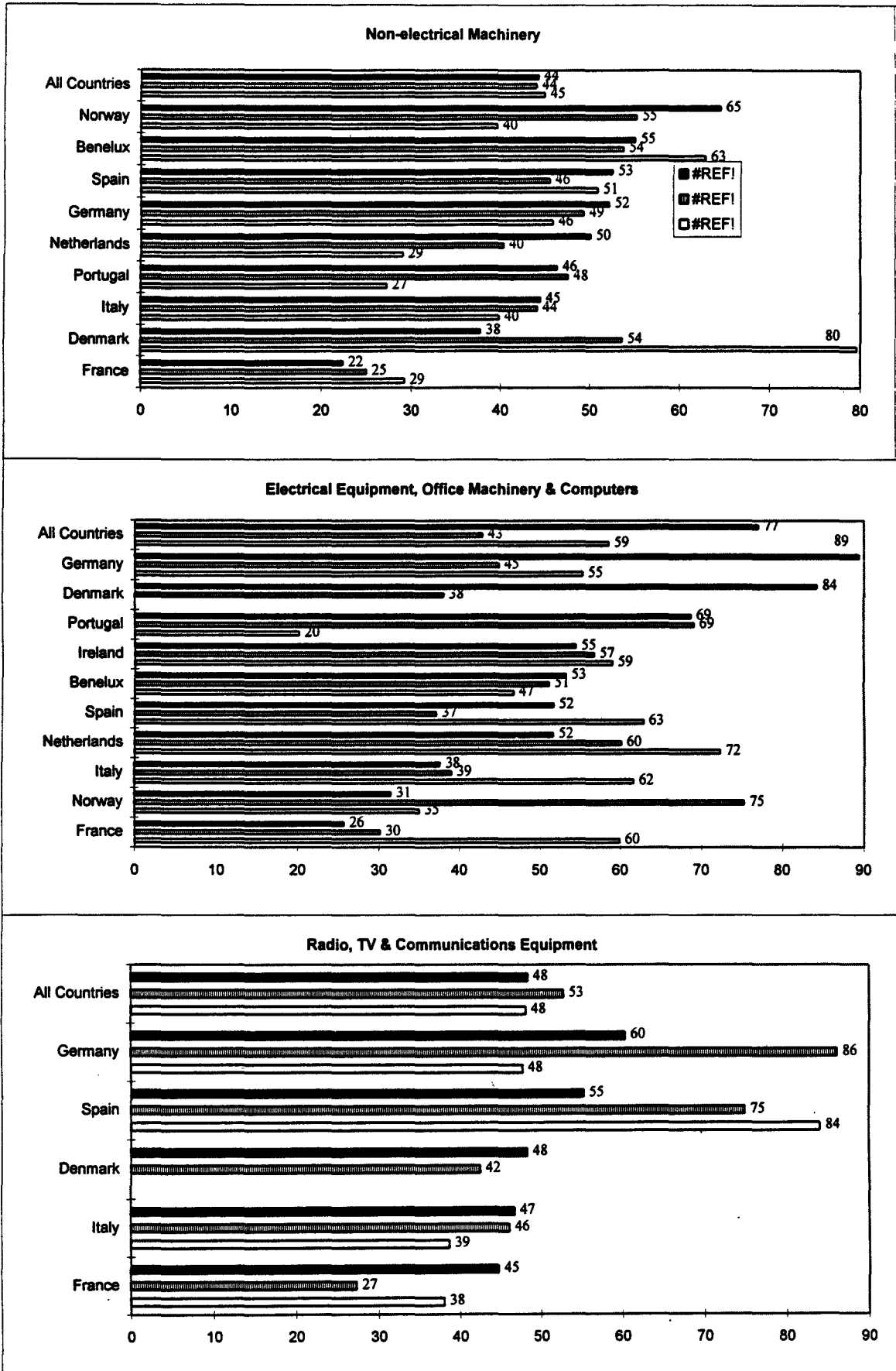


Figure 7. Proportion of Sales in New Products within Industry by Country and by Size of Firm

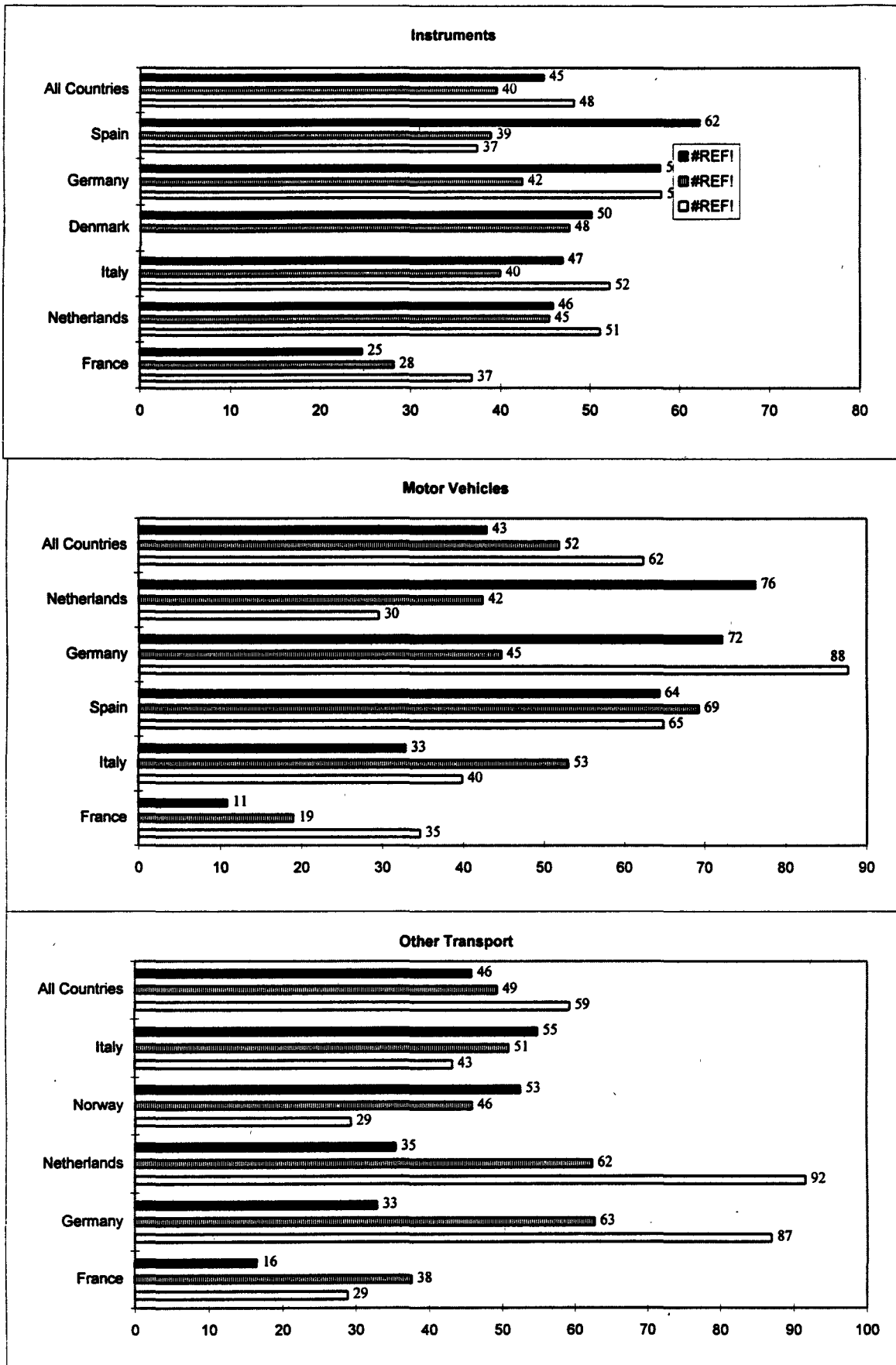


Figure 7. Proportion of Sales in New Products within Industry by Country and by Size of Firm

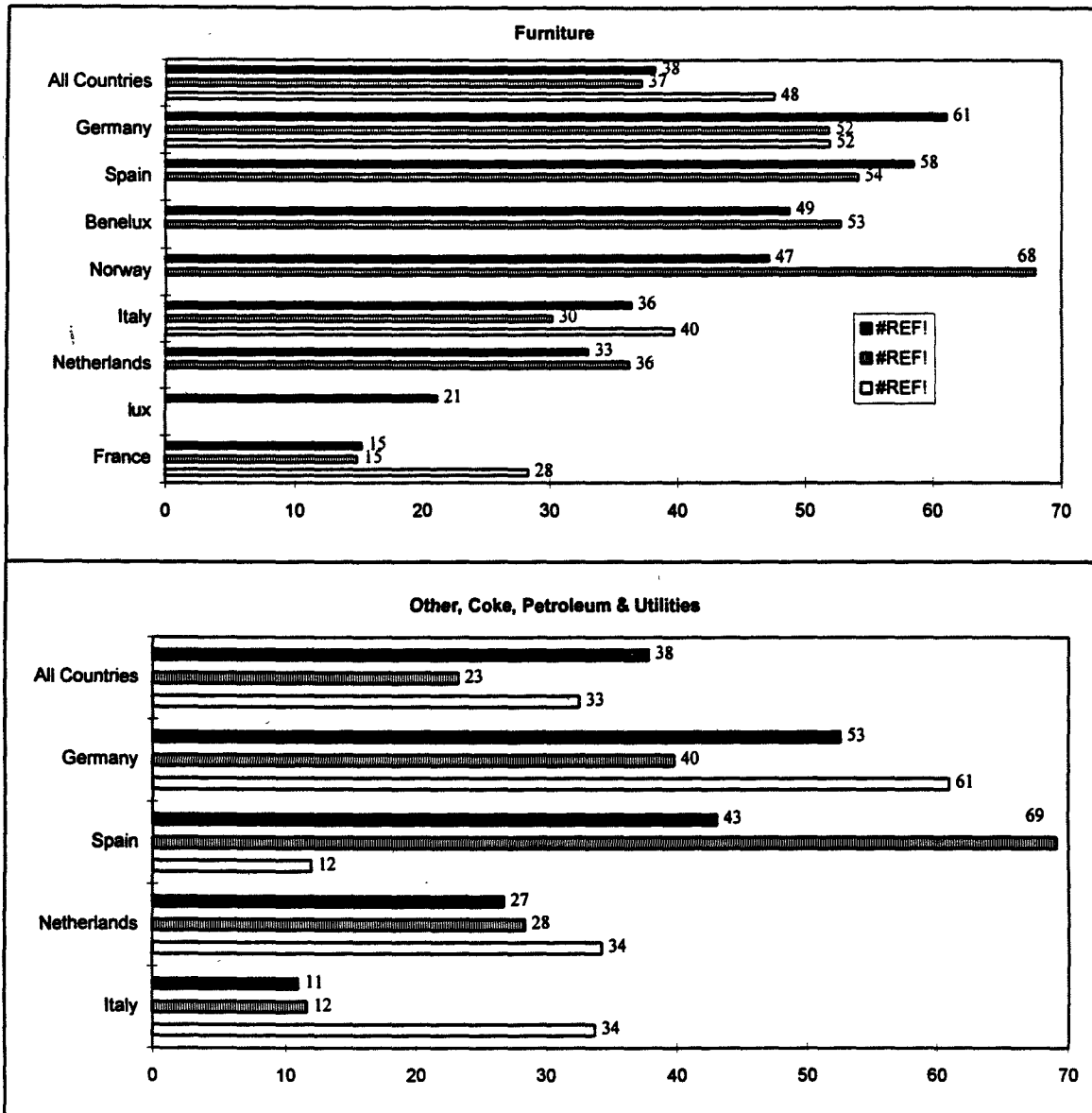


Figure 8. Proportion of Exports in New Products within Industry by Country and by Size of Firm

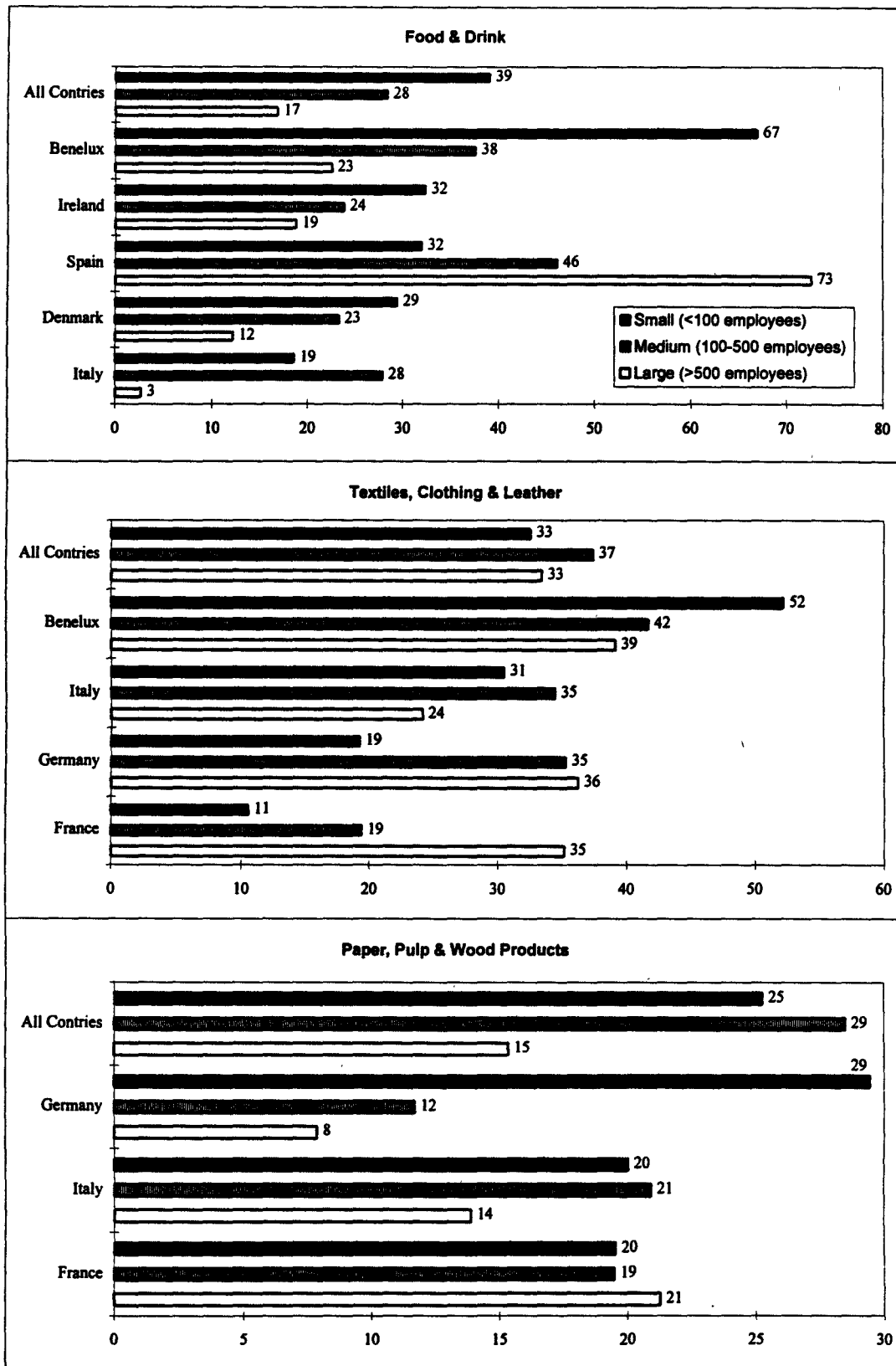


Figure 8. Proportion of Exports in New Products within Industry by Country and by Size of Firm

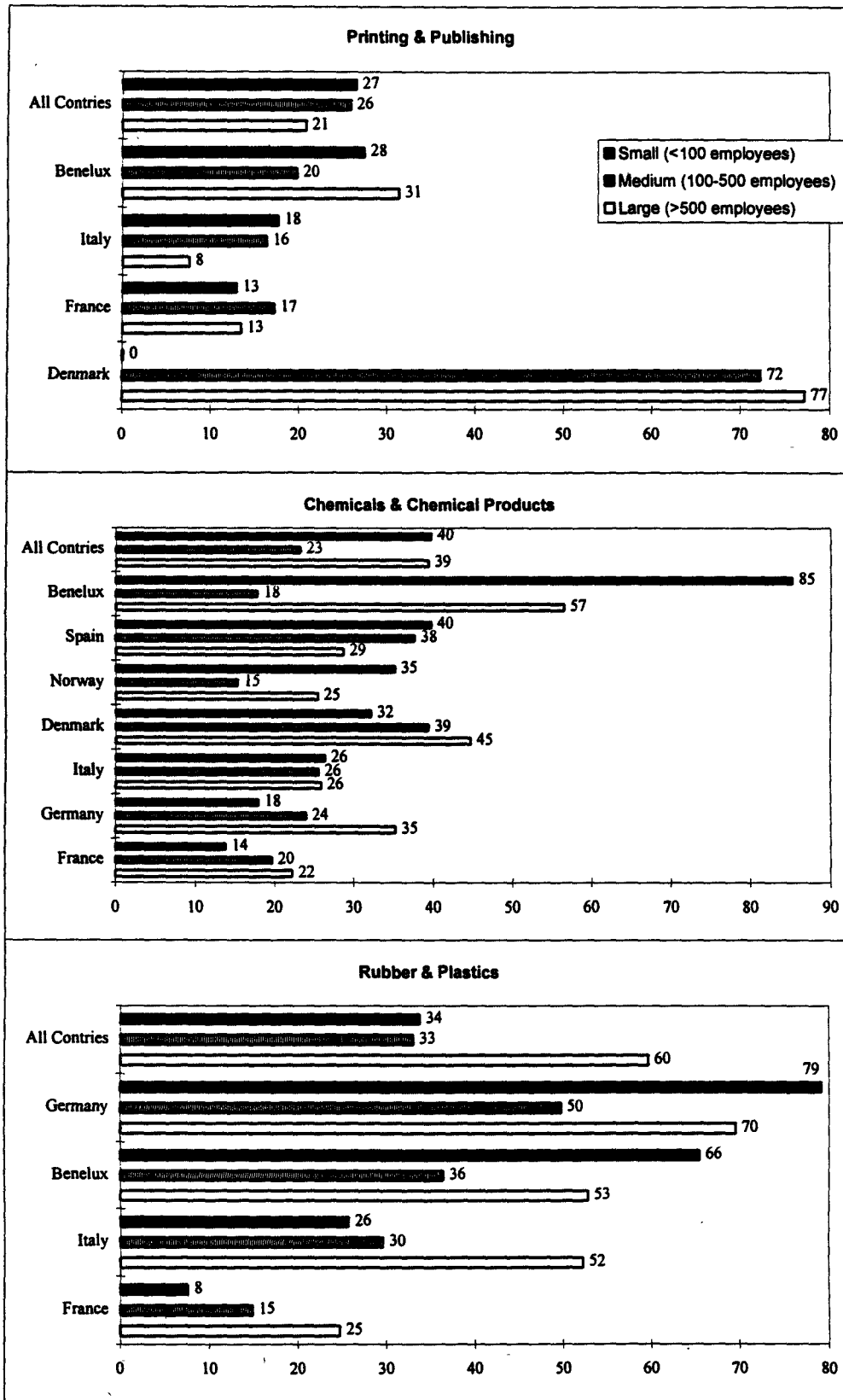


Figure 8. Proportion of Exports in New Products within Industry by Country and by Size of Firm

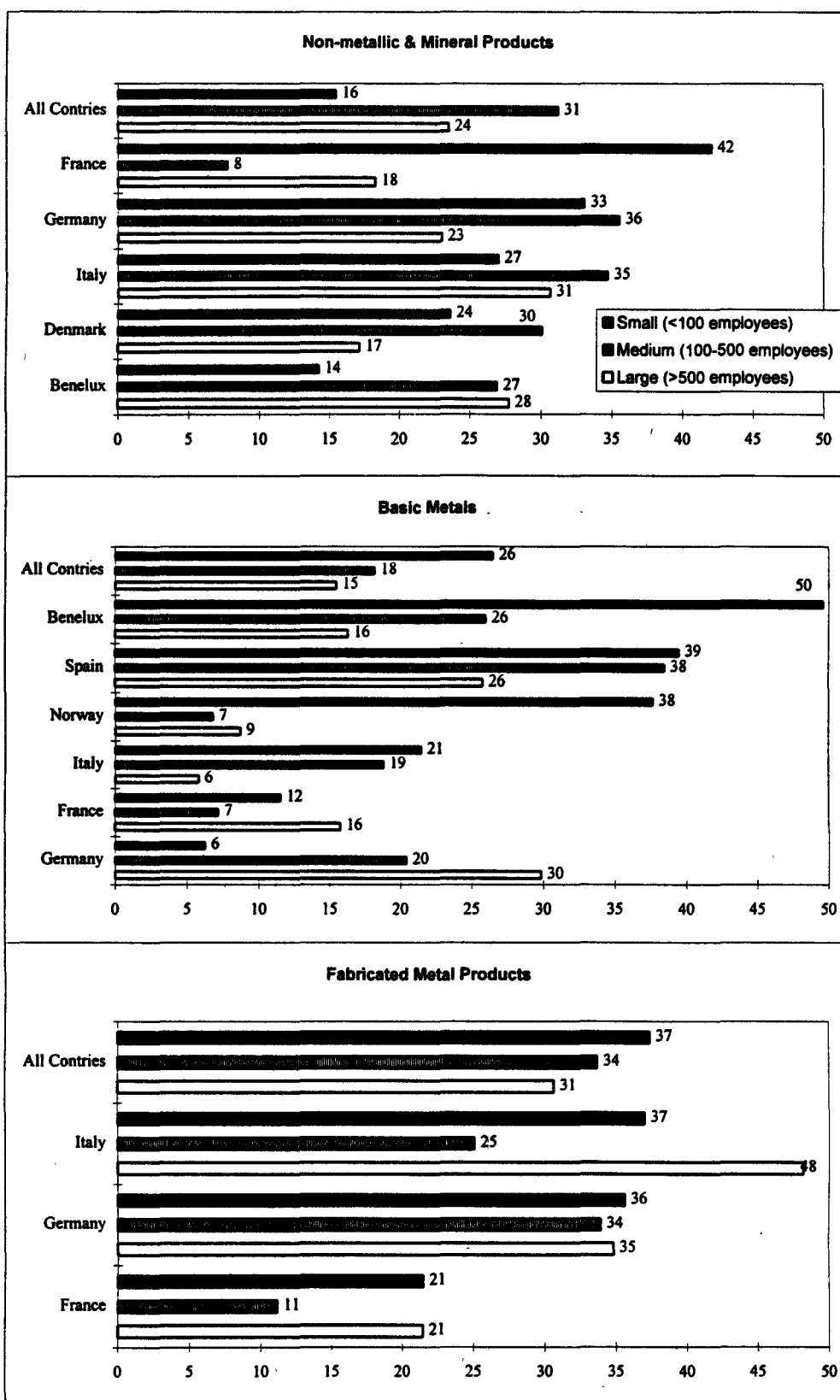


Figure 8. Proportion of Exports in New Products within Industry by Country and by Size of Firm

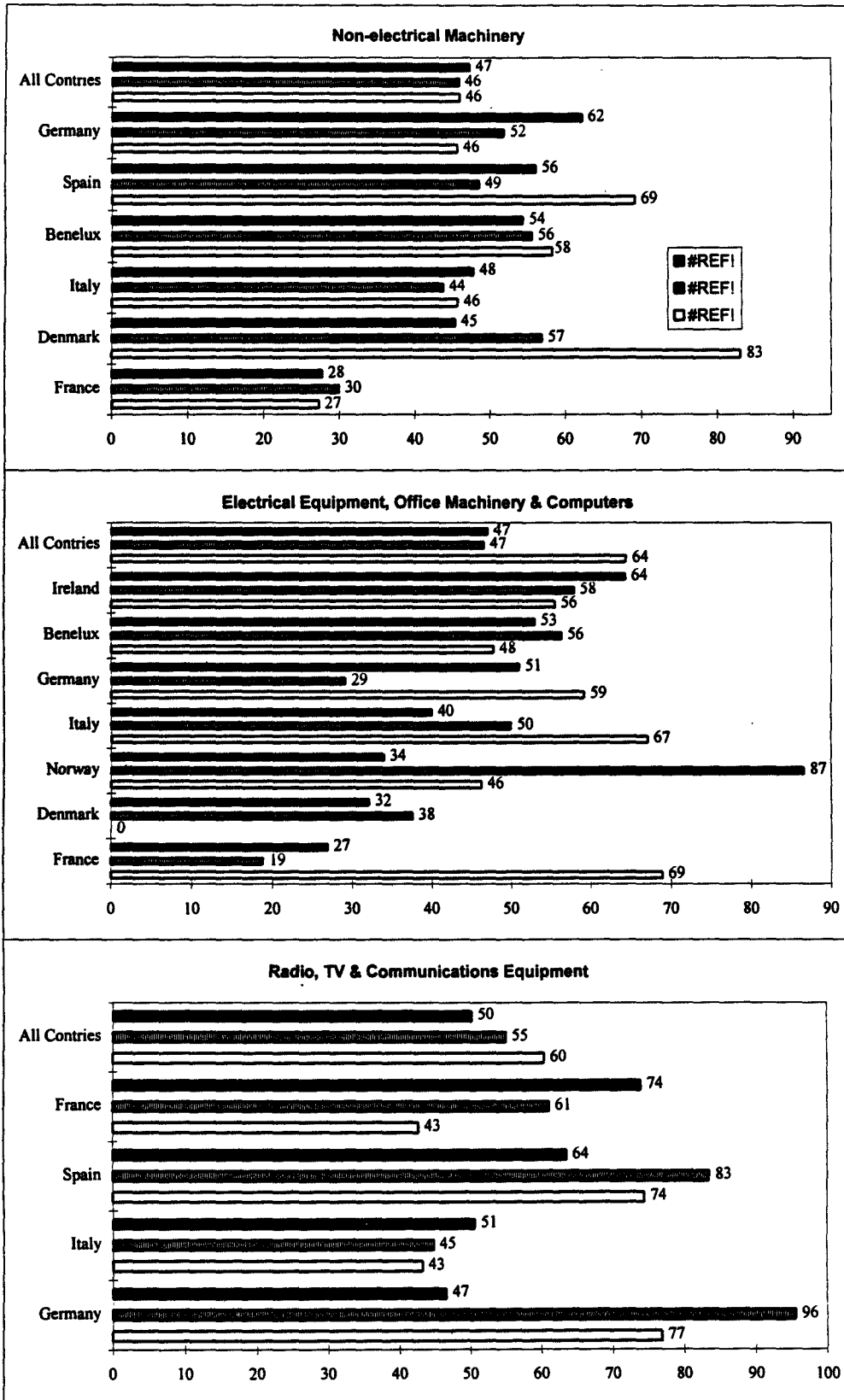


Figure 8. Proportion of Exports in New Products within Industry by Country and by Size of Firm

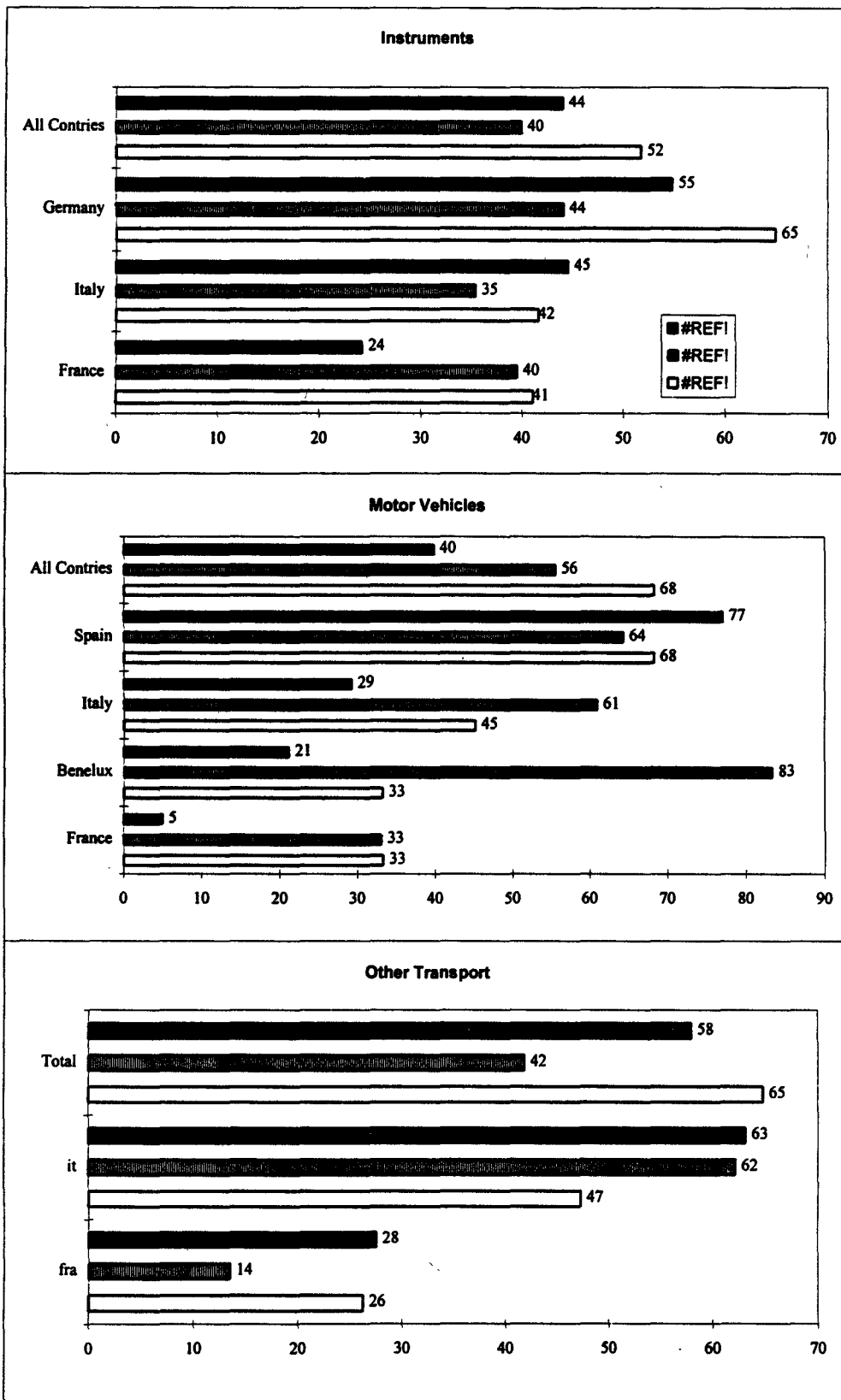
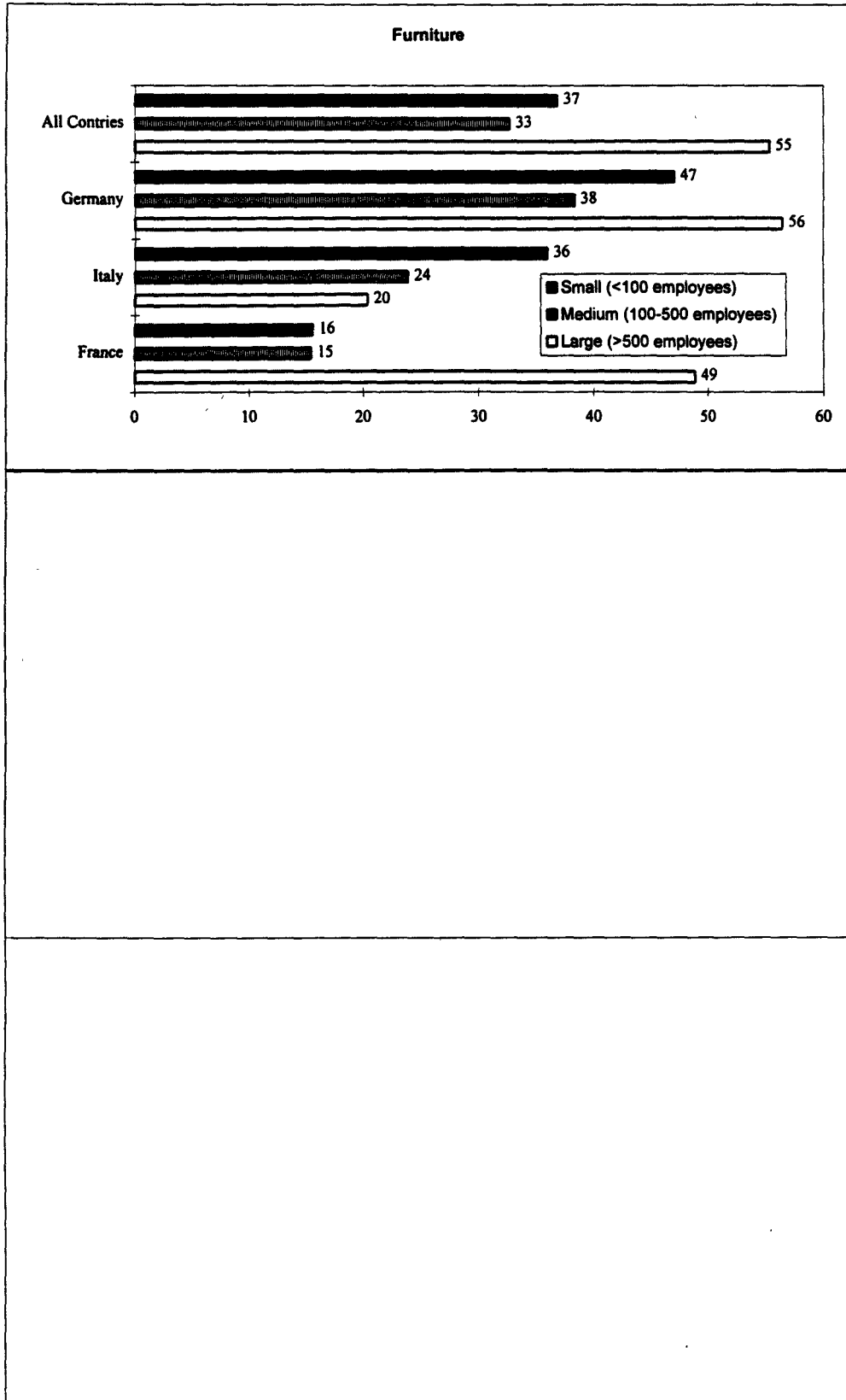


Figure 8. Proportion of Exports in New Products within Industry by Country and by Size of Firm



and a value of "b" significantly greater/lesser than unity shows increasing/decreasing innovative performance with firm size.

Table 7 shows the results of the above regression for all the companies in the sample answering the question on Sales in New products. Increases in innovation outputs with total sales are not significantly different from proportionate in 7 out of the 17 sectors: Rubber and Plastic, Fabricated Metal Products, Machinery, Instruments, Vehicles, Other Transport and Furniture. In only one sector innovation intensity increases with size: Radio, TV and Communications. In 9 other sectors and in aggregate, innovation intensity decreases with firm size, ie., small firms are more innovative than large firms. This is especially the case in Paper, Pulp and Wood products and in Non-Metallic Minerals.

Table 7 Relationship between Firm Size and Innovation Output.

Dependent Variable: Log (Sales in New Products)

Sector	Coefficient Log Sales	Std Error	R-Sq (Adj)
Food Drink and Tobacco	0.923*	0.020	0.69
Textiles, etc	0.958*	0.020	0.65
Paper & Pulp	0.888*	0.028	0.63
Printing & Publishing	0.933*	0.032	0.65
Chemicals	0.953*	0.015	0.79
Rubber and Plastic	0.964	0.025	0.66
Non-Metallic Minerals	0.895*	0.024	0.67
Metals	0.923*	0.029	0.74
Fabricated Metal Products	1.000	0.019	0.64
Machinery	0.995	0.011	0.76
Electrical	0.962*	0.017	0.79
Radio, TV & Communications	1.059*	0.022	0.86
Instruments	0.960	0.023	0.73
Vehicles	1.030	0.022	0.83
Other Transport	1.006	0.031	0.80
Furniture	0.996	0.027	0.66
Other	0.917*	0.015	0.78
All Sectors	0.963*	0.005	0.74

* Coefficient significantly different from 1 at the 5% level

4 Exports and Innovation Outputs

The importance of innovation for export performance in the OECD countries has already been confirmed statistically (Soete, 1981; Fagerberg, 1988) using industry and country level data over time. The CIS data allow us to explore the relationship at the firm level. Thus we examine the extent to which firms' export shares vary, not only as a function of their

innovativeness, but also as a function of their country (eg, we know that size of country is inversely related to export shares) and their sector (eg, transport costs influence the propensity to export). In Table 8 we therefore regress variations in export shares as a function of country and sector, as well as of indicators of innovative activities.

Table 8 Relationship between Export Shares and Innovation Output at the Firm Level

Dependent Variable: Export Share

Sector	Coefficient <i>% Sales in New Products</i>	Std Error	R-Sq (Adj)
All Sectors Combined	0.051*	0.008	0.16
Food Drink and Tobacco	-0.020	0.027	0.23
Textiles, etc	0.057*	0.024	0.11
Paper & Pulp	-0.034	0.032	0.21
Printing & Publishing	0.020	0.025	0.08
Chemicals	0.121*	0.043	0.21
Rubber and Plastic	0.126*	0.033	0.23
Non-Metallic Minerals	0.065*	0.033	0.08
Metals	-0.003	0.070	0.37
Fabricated Metal Products	0.019	0.021	0.08
Machinery	0.091*	0.019	0.07
Electrical	0.043	0.031	0.19
Radio, TV & Communications	0.068	0.052	0.29
Instruments	0.039	0.036	0.29
Vehicles	-0.002	0.042	0.16
Other Transport	0.131*	0.053	0.09
Furniture	0.019	0.037	0.06
Other	0.016	0.024	0.02

Regression for each sector includes country dummies;

The regression for All Sectors includes industry and country dummies

* Denotes significance at the 5% level

The results show that for the sample as a whole there is a positive relationship between export shares and innovation intensity (after controlling for country and industry effects), ie., higher proportion of innovation outputs leads to higher export share at the company level.⁶ This is particularly the case for firms in the following sectors: Textiles, Rubber & Plastics,

⁶This is also confirmed at the industry level. The correlations between the industry means for export shares and innovation output are: 0.24 for share of sales in new products, 0.20 for those incorporating incremental change, and 0.22 for those incorporating radical change. Each is significantly different from 0 at the 5% level.

Chemicals, Non-Metallic Minerals, Machinery and Other Transport. However, there appears to be no relationship between innovation and export shares in the so called high-tech product groups: Electrical (which includes Computers) Telecommunications and Instruments.

5 MAIN FINDINGS AND CONCLUSIONS

The main results of analysing innovation outputs in European industry from the Community Innovation Surveys (CIS) are:

- There is a great deal of consistency amongst the 8 innovation output indicators. The most robust, in measuring consistent inter-industry differences, is the proportion of sales that are due to new product introduction.
- Aggregate inter-industry differences in innovativeness as revealed by the output indicators are in general similar to those shown by R&D intensities. The main exception is chemicals where process innovations, which are not measured in the CIS, are important.
- The analysis of inter-country differences, both at the aggregate level and in sectors of relative strength and weakness, gives results that are not consistent with those from other analyses based on different measures of innovativeness. The main reason is probably inter-country differences in subjective assessments of product innovation.
- Both industry-specific and country-specific factors significantly influence firms' rate of product innovation, but nearly 90% of inter-firm variance remains unexplained. This indicates that firm-specific variables have a considerable influence.
- The analysis by firm size shows that there are very few signs of increasing returns to size in product innovation, and more of decreasing returns. The inclusion of process innovations might affect these results.
- There is a positive and significant relationship between innovation outputs and the share of exports.

The last two findings show that the data from CIS are capable of generating unique results. For example this is the first time that we are able to analyse the relationship between firm size and innovation across a whole range of size classes and also for Europe as whole. These data will also enable us to analyse a range of policy-related relationships between innovation outputs and other innovative activities in the future: for example, that between the relative importance of internal sources of innovation (compared to sources external to the firm) and the various measures of innovative output.

However there remain a number of (as yet) unresolved problems in undertaking inter-country comparisons. Some of these have also been highlighted in *'Evaluation of the Community Innovation Surveys (CIS) - Phase 1' (1994)*. In our view the value of the data from CIS will

be greatly enhanced when: (a) results are available for surveys undertaken in the US and Japan; and (b) time series comparisons are possible.

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Table A.1. Number of Companies reporting on each of the 8 measures by Country and NACE

Obs	UK								Totals							
	SNP	SNPinc	SNPREG	ENP	ENPinc	ENPREG	SNPFF	SNPind	SNP	SNPinc	SNPREG	ENP	ENPinc	ENPREG	SNPFF	SNPind
10									2	2						
11									1	1						
12									1	1						
13									2	2						
14									2	2						
15	6	6	6	4	4	4	6	6	1132	1132	1132	614	614	614	614	905
16									24	24	24	12	12	12	16	16
17	6	6	6	5	5	5	6	6	906	906	906	627	627	627	733	733
18									365	365	365	238	238	238	286	286
19									378	378	378	295	295	295	314	314
20	3	3	3	2	2	2	3	3	341	341	341	170	170	170	270	270
21	6	6	6	3	3	3	6	6	441	441	441	290	290	290	330	330
22	7	7	7	3	3	3	7	7	693	693	693	291	291	291	515	515
23	1	1	1	1	1	1	1	1	86	86	86	51	51	51	61	61
24	8	8	8	8	8	8	8	8	1240	1240	1240	861	861	861	852	852
25	11	11	11	10	10	10	11	11	817	817	817	639	639	639	523	523
26	4	4	4	2	2	2	4	4	871	871	871	500	500	500	662	662
27	2	2	2	1	1	1	2	2	497	497	497	370	370	370	390	390
28	18	18	18	13	13	13	18	18	1884	1884	1884	1138	1138	1138	1419	1419
29	26	26	26	26	26	26	26	26	2712	2712	2712	2119	2119	2119	2154	2154
30	1	1	1	1	1	1	1	1	134	134	134	88	88	88	75	75
31	18	18	18	16	16	16	18	18	806	806	806	586	586	586	603	603
32	4	4	4	4	4	4	4	4	390	390	390	307	307	307	262	262
33	1	1	1	1	1	1	1	1	662	662	662	467	467	467	426	426
34	3	3	3	3	3	3	3	3	502	502	502	352	352	352	343	343
35	4	4	4	2	2	2	4	4	297	297	297	195	195	195	231	231
36	3	3	3	2	2	2	3	3	781	781	781	565	565	565	596	596
37									9	9	9	8	8	8	8	8
40	1	1	1	1	1	1	1	1	98	98	98	9	9	9	39	39
41									20	20	20	1	1	1	12	12
45	8	8	8	2	2	2	4	4	147	147	147	4	4	4	118	118
50	1	1	1	1	1	1	1	1	25	25	25	0	0	0	23	23
51	5	5	5	3	3	3	3	3	131	131	131	3	3	3	129	129
52	1	1	1	1	1	1	1	1	22	22	22	1	1	1	20	20
55									16	16	16	0	0	0	16	16
60									24	24	24	0	0	0	23	23
61									10	10	10	1	1	1	10	10
62									2	2	2	0	0	0	2	2
63									35	35	35	0	0	0	35	35
64	1	1	1	1	1	1	1	1	8	8	8	0	0	0	7	7
65	1	1	1	1	1	1	1	1	20	20	20	1	1	1	19	19
66									27	27	27	0	0	0	27	27
67									15	15	15	0	0	0	15	15
70	1	1	1	1	1	1	1	1	69	69	69	0	0	0	69	69
71									21	21	21	0	0	0	21	21
72	1	1	1	1	1	1	1	1	78	78	78	1	1	1	47	47
73	2	2	2	1	1	1	1	1	39	39	39	1	1	1	30	30
74	3	3	3	1	1	1	3	3	151	151	151	2	2	2	128	128
75									6	6	6	0	0	0	5	5
80	1	1	1	1	1	1	1	1	19	19	19	0	0	0	19	19
85									19	19	19	10	10	10	19	19
90									16	16	16	0	0	0	14	14
91									6	6	6	0	0	0	6	6
92	1	1	1	1	1	1	1	1	11	11	11	0	0	0	11	11
93									8	8	8	0	0	0	8	8
95									1	1	1	0	0	0	1	1
Totals	159	159	159	117	117	117	148	148	17026	17026	17026	10823	10823	10823	12848	12848

Table A2. Correlation Matrices across 8 Measures by Countries

Aggregate: Proportion of output across 17 industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.84*	1.00						
SNPRad	0.91*	0.57*	1.00					
ENP	0.95*	0.72*	0.91*	1.00				
ENPInc	0.75*	0.80*	0.59*	0.83*	1.00			
ENPRad	0.91*	0.56*	0.99*	0.91*	0.57*	1.00		
SNPFir	0.79*	0.66*	0.70*	0.77*	0.60*	0.69*	1.00	
SNPInd	0.78*	0.64*	0.81*	0.72*	0.60*	0.79*	0.30	1.00

* Coefficient significantly different from zero at 5% level

Aggregate: Rankings of Industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.84*	1.00						
SNPRad	0.93*	0.69*	1.00					
ENP	0.92*	0.70*	0.98*	1.00				
ENPInc	0.81*	0.84*	0.79*	0.80*	1.00			
ENPRad	0.91*	0.64*	0.98*	0.98*	0.75*	1.00		
SNPFir	0.84*	0.68*	0.75*	0.74*	0.68*	0.74*	1.00	
SNPInd	0.88*	0.82*	0.81*	0.79*	0.76*	0.76*	0.54*	1.00

Table A2. Correlation Matrices across 8 Measures by Countries

Germany: Proportion of output across 17 industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.66*	1.00						
SNPRad	0.82*	0.11	1.00					
ENP	0.92*	0.52*	0.81*	1.00				
ENPInc	0.67*	0.82*	0.25	0.75*	1.00			
ENPRad	0.80*	0.10	0.97*	0.85*	0.29	1.00		
SNPFir	0.64*	0.75*	0.28	0.53	0.60*	0.29	1.00	
SNPInd	0.71*	0.19	0.79*	0.72*	0.38	0.74*	-0.06	1.00

* Coefficient significantly different from zero at 5% level

Germany: Rankings of Industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.73*	1.00						
SNPRad	0.69*	0.15	1.00					
ENP	0.90*	0.49*	0.78*	1.00				
ENPInc	0.82*	0.75*	0.45	0.83*	1.00			
ENPRad	0.69*	0.15	0.95*	0.84*	0.51*	1.00		
SNPFir	0.71*	0.70*	0.29	0.53*	0.57*	0.30	1.00	
SNPInd	0.49*	0.08	0.74*	0.68*	0.45	0.69*	-0.03	1.00

* Coefficient significantly different from zero at 5% level

Table A2. Correlation Matrices across 8 Measures by Countries

Italy: Proportion of output across 17 industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.87*	1.00						
SNPRad	0.89*	0.55*	1.00					
ENP	0.93*	0.77*	0.86*	1.00				
ENPInc	0.71*	0.78*	0.47	0.81*	1.00			
ENPRad	0.87*	0.57*	0.95*	0.89*	0.46	1.00		
SNPFir	0.69*	0.69*	0.53*	0.59*	0.59*	0.44	1.00	
SNPInd	0.73*	0.59*	0.70*	0.72*	0.42	0.76*	0.01	1.00

* Coefficient significantly different from zero at 5% level

Italy: Rankings of Industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.89*	1.00						
SNPRad	0.93*	0.72*	1.00					
ENP	0.89*	0.76*	0.90*	1.00				
ENPInc	0.74*	0.78*	0.69*	0.86*	1.00			
ENPRad	0.89*	0.72*	0.92*	0.93*	0.68*	1.00		
SNPFir	0.68*	0.63*	0.68*	0.59*	0.57*	0.60*	1.00	
SNPInd	0.84*	0.74*	0.72*	0.72*	0.62*	0.66*	0.27	1.00

* Coefficient significantly different from zero at 5% level

Table A2. Correlation Matrices across 8 Measures by Countries

Netherlands: Proportion of output across 17 industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.90*	1.00						
SNPRad	0.62*	0.22	1.00					
ENP				1.00				
ENPInc					1.00			
ENPRad						1.00		
SNPFir	0.98*	0.94*	0.50*				1.00	
SNPInd	0.28	-0.06	0.75*				0.11	1.00

* Coefficient significantly different from zero at 5% level

Netherlands: Rankings of industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.89*	1.00						
SNPRad	0.65*	0.38	1.00					
ENP				1.00				
ENPInc					1.00			
ENPRad						1.00		
SNPFir	0.92*	0.89*	0.54*				1.00	
SNPInd	0.21	0.05	0.61				-0.01	1.00

* Coefficient significantly different from zero at 5% level

Table A2. Correlation Matrices across 8 Measures by Countries

Benelux: Proportion of output across 17 Industries

	SNP	SNP/Inc	SNPRad	ENP	ENP/Inc	ENPRad	SNPFir	SNP/Ind
SNP	1.00							
SNP/Inc	0.90*	1.00						
SNPRad	0.81*	0.48*	1.00					
ENP	0.91*	0.79*	0.77*	1.00				
ENP/Inc	0.77*	0.83*	0.42	0.88*	1.00			
ENPRad	0.68*	0.35	0.91*	0.70*	0.27	1.00		
SNPFir	0.70*	0.49*	0.77*	0.70*	0.40	0.81*	1.00	
SNP/Ind	0.49*	0.62*	0.15	0.37	0.54*	-0.07	-0.27	1.00

* Coefficient significantly different from zero at 5% level

Benelux: Rankings of Industries

	SNP	SNP/Inc	SNPRad	ENP	ENP/Inc	ENPRad	SNPFir	SNP/Ind
SNP	1.00							
SNP/Inc	0.94*	1.00						
SNPRad	0.76*	0.58*	1.00					
ENP	0.93*	0.81*	0.76*	1.00				
ENP/Inc	0.82*	0.76*	0.46	0.88*	1.00			
ENPRad	0.66*	0.52*	0.89*	0.67*	0.28	1.00		
SNPFir	0.62*	0.57*	0.68*	0.60*	0.37	0.73*	1.00	
SNP/Ind	0.25	0.28	-0.06	0.12	0.36	-0.34	-0.47	1.00

* Coefficient significantly different from zero at 5% level

Table A2. Correlation Matrices across 8 Measures by Countries

Denmark: Proportion of output across 17 industries

	SNP	SNP/Inc	SNPRad	ENP	ENP/Inc	ENPRad	SNPFir	SNP/Ind
SNP	1.00							
SNP/Inc	0.82*	1.00						
SNPRad	0.72*	0.19	1.00					
ENP	0.87*	0.89*	0.41	1.00				
ENP/Inc	0.85*	0.87*	0.40	0.95*	1.00			
ENPRad	-0.01	0.00	-0.01	0.08	-0.24	1.00		
SNPFir	0.71*	0.75*	0.31	0.64*	0.57*	0.16	1.00	
SNP/Ind	0.75*	0.47	0.72*	0.63*	0.67*	-0.17	0.07	1.00

* Coefficient significantly different from zero at 5% level

Denmark: Rankings of Industries

	SNP	SNP/Inc	SNPRad	ENP	ENP/Inc	ENPRad	SNPFir	SNP/Ind
SNP	1.00							
SNP/Inc	0.82*	1.00						
SNPRad	0.78*	0.34	1.00					
ENP	0.84*	0.88*	0.45	1.00				
ENP/Inc	0.83*	0.90*	0.40	0.98*	1.00			
ENPRad	0.14	0.09	0.34	0.16	0.05	1.00		
SNPFir	0.79*	0.78*	0.56*	0.67*	0.65*	0.29	1.00	
SNP/Ind	0.62*	0.37	0.58*	0.49*	0.47	0.13	0.08	1.00

* Coefficient significantly different from zero at 5% level

Table A2. Correlation Matrices across 8 Measures by Countries

Ireland: Proportion of output across 17 industries

	SNP	SNP/Inc	SNPRad	ENP	ENP/Inc	ENPRad
SNP	1.00					
SNP/Inc	0.88*	1.00				
SNPRad	0.91*	0.60*	1.00			
ENP	0.88*	0.84*	0.73*	1.00		
ENP/Inc	0.67*	0.84*	0.40	0.86*	1.00	
ENPRad	0.82*	0.58*	0.87*	0.84*	0.45	1.00

* Coefficient significantly different from zero at 5% level

Ireland: Rankings of Industries

	SNP	SNP/Inc	SNPRad	ENP	ENP/Inc	ENPRad
SNP	1.00					
SNP/Inc	0.82*	1.00				
SNPRad	0.93*	0.58*	1.00			
ENP	0.85*	0.82*	0.76*	1.00		
ENP/Inc	0.65*	0.83*	0.45*	0.89*	1.00	
ENPRad	0.77*	0.55*	0.86*	0.82*	0.54*	1.00

* Coefficient significantly different from zero at 5% level

Table A2. Correlation Matrices across 8 Measures by Countries

Norway: Proportion of output across 17 industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.93*	1.00						
SNPRad	0.90*	0.68*	1.00					
ENP	0.92*	0.83*	0.86*	1.00				
ENPInc	0.85*	0.90*	0.62*	0.85*	1.00			
ENPRad	0.54*	0.29	0.74*	0.69*	0.19	1.00		
SNPFir	0.93*	0.96*	0.72*	0.84*	0.83*	0.41	1.00	
SNPInd	0.72*	0.48*	0.87*	0.69*	0.52*	0.56*	0.41	1.00

* Coefficient significantly different from zero at 5% level

Norway: Rankings of Industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.91*	1.00						
SNPRad	0.91*	0.75*	1.00					
ENP	0.90*	0.84*	0.88*	1.00				
ENPInc	0.84*	0.90*	0.71*	0.85*	1.00			
ENPRad	0.54*	0.36	0.69*	0.71*	0.29	1.00		
SNPFir	0.93*	0.96*	0.80*	0.85*	0.83*	0.50*	1.00	
SNPInd	0.79*	0.62*	0.87*	0.73*	0.64*	0.46*	0.62*	1.00

* Coefficient significantly different from zero at 5% level

Table A2. Correlation Matrices across 8 Measures by Countries

Portugal: Proportion of output across 17 industries

	SNP	SNP/Inc	SNP/Rad	ENP	ENP/Inc	ENP/Rad	SNPF/ir	SNP/Ind
SNP	1.00							
SNP/Inc	0.89*	1.00						
SNP/Rad	0.21	-0.25	1.00					
ENP				1.00				
ENP/Inc					1.00			
ENP/Rad						1.00		
SNPF/ir	0.79*	0.77*	0.01				1.00	
SNP/Ind	0.37	0.22	0.33				-0.28	1.00

* Coefficient significantly different from zero at 5% level

Portugal: Rankings of Industries

	SNP	SNP/Inc	SNP/Rad	ENP	ENP/Inc	ENP/Rad	SNPF/ir	SNP/Ind
SNP	1.00							
SNP/Inc	0.94*	1.00						
SNP/Rad	0.23	0.03	1.00					
ENP				1.00				
ENP/Inc					1.00			
ENP/Rad						1.00		
SNPF/ir	0.76*	0.77*	0.18				1.00	
SNP/Ind	0.30	0.20	0.39				-0.24	1.00

* Coefficient significantly different from zero at 5% level

Table A2. Correlation Matrices across 8 Measures by Countries

Spain: Proportion of output across 17 industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.86*	1.00						
SNPRad	0.25	-0.29	1.00					
ENP	0.94*	0.76*	0.32*	1.00				
ENPInc	0.89*	0.94*	-0.10	0.83*	1.00			
ENPRad	0.04	-0.36	0.73*	0.24	-0.33	1.00		
SNPFir							1.00	
SNPInd								1.00

* Coefficient significantly different from zero at 5% level

Spain: Rankings of Industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.79*	1.00						
SNPRad	0.27	-0.22	1.00					
ENP	0.93*	0.62*	0.42	1.00				
ENPInc	0.83*	0.89*	-0.04	0.73	1.00			
ENPRad	0.22	-0.23	0.88*	0.41	-0.17	1.00		
SNPFir							1.00	
SNPInd								1.00

* Coefficient significantly different from zero at 5% level

Table A2. Correlation Matrices across 8 Measures by Countries

UK: Proportion of output across 17 industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.88*	1.00						
SNPRad	0.79*	0.41	1.00					
ENP	0.80*	0.78*	0.53*	1.00				
ENPInc	0.71*	0.91*	0.19	0.81*	1.00			
ENPRad	0.37	0.06	0.64*	0.57*	-0.01	1.00		
SNPFir	0.62*	0.60*	0.42	0.61*	0.66*	0.12	1.00	
SNPInd	0.75*	0.62*	0.64*	0.50*	0.36	0.35	-0.06	1.00

* Coefficient significantly different from zero at 5% level

UK: Rankings of industries

	SNP	SNPInc	SNPRad	ENP	ENPInc	ENPRad	SNPFir	SNPInd
SNP	1.00							
SNPInc	0.77*	1.00						
SNPRad	0.83*	0.42	1.00					
ENP	0.78*	0.75*	0.52*	1.00				
ENPInc	0.51	0.86*	0.19	0.74*	1.00			
ENPRad	0.47	0.17	0.50*	0.67*	0.07	1.00		
SNPFir	0.33	0.46	0.28	0.49*	0.62*	0.13	1.00	
SNPInd	0.82*	0.61*	0.59*	0.53*	0.25	0.31	-0.13	1.00

* Coefficient significantly different from zero at 5% level

Table A3a. Innovation Outputs by Country and Industry: Sales in New Products

Sector	NACE	France			Germany			Italy			Netherlands			Benelux			Denmark			Ireland		
		Cases	SNP	Rk	Cases	SNP	Rk	Cases	SNP	Rk	Cases	SNP	Rk	Cases	SNP	Rk	Cases	SNP	Rk	Cases	SNP	Rk
Food, Drink	15,16	1	20.0	10	90	28.6	15	468	16.3	15	152	37.7	8	74	34.9	12	51	19.9	16	102	24.4	14
Textiles, Clof	17, 18,	142	21.1	8	95	38.2	13	1069	28.5	10	63	39.4	7	61	46.0	9	14	70.8	3	71	36.8	9
Paper, Pulp	20,21	88	16.3	13	56	11.5	17	369	23.6	13	92	32.7	12	26	22.8	15	22	37.3	12	35	29.4	12
Printing and I	22	83	14.2	17	52	40.5	11	280	14.0	16	101	37.3	9	39	44.0	10	19	33.2	13	38	28.6	13
Chemicals ar	24	147	16.6	12	161	36.4	14	380	24.2	12	180	28.0	15	66	47.3	8	35	45.5	10	80	39.5	6
Rubber and f	25	116	20.2	9	131	69.8	3	362	32.0	8	2	55.5	4	30	49.5	5	28	28.2	14	57	51.0	3
Non-metallic	26	83	14.2	17	87	23.8	16	441	21.9	14	73	24.1	16	28	29.0	14	23	16.5	17	36	37.0	8
Basic Metals	27	51	14.8	15	75	43.6	10	244	12.5	17	29	15.1	17	25	16.5	17	12	43.1	11	13	12.6	16
Fabricated M	28	228	15.2	14	194	39.2	12	960	27.5	11	177	35.1	11	54	48.2	7	41	25.8	15	61	39.2	7
Non-electrice	29	258	28.2	6	478	46.3	9	1328	42.2	4	218	40.6	6	57	61.2	4	83	67.0	4	56	65.1	1
Electrical eqt	30,31	112	57.8	1	127	65.3	4	414	56.2	1	52	69.2	3	37	48.2	7	21	52.3	7	56	58.0	2
Radio, TV an	32	48	37.9	2	57	48.6	8	149	39.9	6	10	80.0	2	20	70.4	2	26	57.4	6	32	45.3	5
Instruments	33	109	35.2	3	160	55.5	6	219	46.9	2	56	49.5	5	14	43.3	11	21	46.8	9	43	50.3	4
Motor Vehicl	34	55	34.5	4	94	87.5	1	199	41.0	5	25	31.1	14	19	34.5	13	7	74.4	2	12	29.5	11
Other Transf	35	43	28.9	5	39	86.5	2	110	44.7	3	43	85.0	1	8	62.7	3	11	87.7	1	7	18.4	15
Furniture	36	67	23.9	7	70	52.1	7	430	34.5	7	39	35.1	10	30	74.9	1	16	46.9	8	31	31.5	10
Other, Coke,	23,40,4	20	17.8	11	247	59.5	5	86	31.8	9	686	32.0	13	9	20.2	16	3	57.8	5	2	7.3	17
Total		1651	27.6		2213	59.5		7508	32.5		1998	34.5		597	42.6		433	44.4		732	36.3	

Table A3a. Innovation Outputs by Country and Industry: Sales in New Products

Sector	NACE	Norway		Portugal		Spain		UK		Aggregate						
		Cases	SNP Rk	Cases	SNP Rk	Cases	SNP Rk	Cases	SNP Rk	Cases	SNP Rk					
Food, Drink	15,16	66	45.1	6	45	56.8	5	101	60.6	4	6	30.5	11	1156	30.8	13
Textiles, Cloi	17, 18,	14	21.5	12	38	34.7	10	76	45.7	9	6	80.3	3	1649	32.0	10
Paper, Pulp	20,21	32	20.9	13	18	17.1	15	35	36.6	14	9	43.9	7	782	21.3	17
Printing and I	22	43	3.9	16	8	71.6	3	23	36.9	13	7	17.9	16	693	24.1	15
Chemicals a	24	17	22.7	11	48	21.9	14	118	29.4	15	8	22.5	13	1240	32.2	9
Rubber and f	25	10	22.8	10	15	24.2	13	55	43.1	10	11	44.2	6	817	45.2	6
Non-metallic	26	16	18.2	14	21	13.4	16	59	37.2	12	4	26.4	12	871	23.1	16
Basic Metals	27	15	9.0	15	9	48.2	6	22	27.1	16	2	12.4	17	497	25.7	14
Fabricated M	28	25	39.4	8	23	72.5	2	103	46.9	8	18	18.0	15	1884	31.4	12
Non-electrice	29	43	49.6	5	41	44.9	7	124	49.8	6	26	68.0	5	2712	44.8	7
Electrical eq	30,31	21	49.9	4	38	35.1	9	43	48.5	7	19	76.0	4	940	59.4	2
Radio, TV an	32	8	75.5	1	2	73.8	1	34	81.5	2	4	81.4	2	390	48.5	4
Instruments	33	6	58.9	2	4	29.2	12	29	41.1	11	1	33.0	9	662	46.2	5
Motor Vehicl	34	9	40.6	7	15	60.6	4	64	65.3	3	3	31.1	10	502	62.1	1
Other Transf	35	24	35.6	9	1	0.0	17	7	96.2	1	4	33.3	8	297	58.4	3
Furniture	36	22	58.4	3	7	43.8	8	66	55.7	5	3	85.6	1	781	42.0	8
Other, Coke,	23,40,4	14	2.6	17	37	29.6	11	24	18.3	17	28	22.4	14	1156	31.9	11
Total		385	27.0		370	38.1		983	47.8		159	36.6		17029	41.1	

Table A3a. Innovation Outputs by Country and Industry: Sales in New Products

		Sales in New Incremental Products / Total Sales																				
Sector	NACE	Germany		Italy		Netherlands		Benelux		Denmark		Ireland		Norway								
		Cases	SNP/Inc	Rk	Cases	SNP/Inc	Rk	Cases	SNP/Inc	Rk	Cases	SNP/Inc	Rk	Cases	SNP/Inc	Rk						
Food, Drink & 15,16		90	19.1	15	468	10.9	15	152	22.8	10	74	24.1	12	51	11.2	16	102	15.9	13	66	21.5	7
Textiles, Cloth 17, 18,		95	24.4	13	1069	14.7	11	63	24.5	7	61	27.0	10	14	49.0	2	71	21.3	11	14	12.3	13
Paper, Pulp & 20,21		56	8.5	17	369	13.9	12	92	21.4	12	26	15.1	14	22	25.0	10	35	21.6	10	32	15.8	11
Printing and I		52	30.4	7	280	5.8	17	101	22.6	11	39	29.6	7	19	32.4	8	38	24.6	6	43	1.4	17
Chemicals and I		24	21.5	14	380	13.3	14	180	23.5	9	66	25.7	11	35	32.7	7	80	17.3	12	17	14.2	12
Rubber and I		25	43.5	3	362	20.2	8	2	43.6	3	30	32.2	5	28	14.3	14	57	32.7	1	10	18.1	9
Non-metallic		26	8.9	16	441	13.6	13	73	16.0	16	28	21.4	13	23	6.1	17	36	23.4	7	16	7.0	14
Basic Metals		27	38.4	4	244	8.6	16	29	13.3	17	25	12.3	17	12	27.7	9	13	5.2	17	15	4.5	15
Fabricated M		28	27.2	10	960	15.7	10	177	23.9	8	54	31.6	6	41	16.3	13	61	25.2	5	25	24.0	6
Non-electric		29	31.6	6	1328	26.9	2	218	25.4	6	57	35.3	3	83	42.9	3	56	30.9	3	43	29.5	4
Electrical eq 30,31		127	45.4	2	414	23.2	6	52	50.7	2	37	28.0	9	21	14.2	15	56	31.6	2	21	31.6	3
Radio, TV an		32	26.2	12	149	25.4	5	10	37.9	5	20	35.6	2	26	36.0	6	32	26.1	4	8	46.9	1
Instruments		33	29.3	8	219	26.9	2	56	39.4	4	14	29.2	8	21	19.4	12	43	23.3	8	6	20.5	8
Motor Vehicle		34	26.4	11	199	26.0	3	25	21.2	13	19	12.6	16	7	57.0	1	12	11.0	15	9	16.7	10
Other Transf		35	35.4	5	110	21.3	7	43	75.0	1	8	35.1	4	11	38.5	5	7	14.2	14	24	24.1	5
Furniture		36	27.4	9	430	19.7	9	39	18.8	15	30	58.8	1	16	23.6	11	31	21.6	10	22	35.6	2
Other, Coke, 23,40,4		247	53.0	1	86	25.9	4	686	21.0	14	9	13.6	15	3	40.2	4	2	7.1	16	14	1.4	17
Total		2213	31.2		7508	20.8		1998	23.6		597	23.6		433	26.9		732	20.9		385	15.1	

Table A3a. Innovation Outputs by Country and Industry: Sales in New Products

Sector	NACE	Portugal		Spain		UK		Aggregate	
		Cases	SNP/Inc Rk	Cases	SNP/Inc Rk	Cases	SNP/Inc Rk	Cases	SNP/Inc Rk
Food, Drink	15,16	45	18.2 7	101	48.3 3	6	9.8 15	1155	19.0 13
Textiles, Cloth	17, 18,	38	15.1 8	76	24.8 10	6	50.6 2	1507	18.5 14
Paper, Pulp	20,21	18	11.6 12	35	18.7 13	9	23.5 6	694	14.3 16
Printing and I	22	8	64.6 2	23	29.8 7	7	16.1 11	610	17.2 15
Chemicals a	24	48	11.9 11	118	15.2 16	8	11.9 13	1093	20.3 12
Rubber and f	25	15	11.1 13	55	13.8 17	11	20.3 7	701	31.1 3
Non-metallic	26	21	3.9 16	59	27.3 8	4	3.6 17	788	14.0 17
Basic Metals	27	9	33.7 5	22	17.8 14	2	9.9 14	446	23.1 11
Fabricated M	28	23	52.6 3	103	34.7 5	18	12.4 12	1656	23.3 10
Non-electric	29	41	18.8 6	124	23.4 12	26	39.0 4	2454	30.4 4
Electrical eq	30,31	38	14.7 10	43	25.5 9	19	42.3 3	828	34.3 1
Radio, TV an	32	2	72.1 1	34	38.6 4	4	29.4 5	342	29.0 5
Instruments	33	4	4.4 15	29	24.1 11	1	20.0 8	553	28.4 6
Motor Vehicle	34	15	48.4 4	64	56.8 2	3	16.2 10	447	26.4 8
Other Transp	35	1	0.0 17	7	93.6 1	4	5.8 16	254	32.7 2
Furniture	36	7	14.8 9	66	34.0 6	3	64.5 1	714	26.0 9
Other, Coke,	23,40,4	37	8.2 14	24	17.2 15	28	18.3 9	1136	28.2 7
Total		370	16.6	983	33.3	159	22.0	15378	25.5

Table A3a. Innovation Outputs by Country and Industry: Sales in New Products

Sector		Germany		Italy		Netherlands		Benelux		Denmark		Ireland		Norway								
		Cases	SNPRad	Cases	SNPRad	Cases	SNPRad	Cases	SNPRad	Cases	SNPRad	Cases	SNPRad	Cases	SNPRad							
Food, Drink	15,16	90	9.5	14	468	5.5	16	152	14.9	6	74	10.8	13	51	8.7	16	102	8.5	12	66	23.6	4
Textiles, Cloth	17, 18,	95	13.8	11	1069	13.8	8	63	14.9	6	61	19.1	7	14	22.0	6	71	15.5	8	14	9.3	11
Paper, Pulp	20,21	56	3.0	17	369	9.7	12	92	11.3	9	26	7.7	14	22	12.4	13	35	7.8	13	32	5.1	13
Printing and I	22	52	10.1	13	280	8.2	14	101	14.7	7	39	14.4	11	19	0.8	17	38	3.9	15	43	2.5	16
Chemicals and	24	161	14.9	9	380	10.9	11	180	4.5	16	66	21.6	5	35	12.8	12	80	22.2	4	17	8.5	12
Rubber and f	25	131	26.3	3	362	11.8	10	2	11.8	8	30	17.3	8	28	13.9	11	57	18.3	6	10	4.7	14
Non-metallic	26	87	14.9	9	441	8.3	13	73	8.1	15	28	7.6	15	23	10.5	14	36	13.7	10	16	11.2	10
Basic Metals	27	75	5.2	16	244	4.0	17	29	1.8	17	25	4.1	17	12	15.5	10	13	7.4	14	15	4.5	15
Fabricated M	28	194	11.9	12	960	11.8	10	177	11.2	10	54	16.5	9	41	9.6	15	61	13.9	9	25	15.5	8
Non-electric	29	478	14.7	10	1328	15.2	4	218	15.2	4	57	25.8	3	83	24.1	4	56	34.2	1	43	19.9	6
Electrical eq	30,31	127	19.8	7	414	33.1	1	52	18.6	2	37	20.2	6	21	38.1	2	56	26.5	3	21	18.4	7
Radio, TV an	32	57	22.3	6	149	14.4	7	10	42.1	1	20	34.8	1	26	21.4	7	32	18.9	5	8	28.6	2
Instruments	33	160	26.2	4	219	20.0	3	56	10.1	13	14	14.1	12	21	27.4	3	43	27.1	2	6	38.4	1
Motor Vehicle	34	94	61.2	1	199	15.0	5	25	9.8	14	19	21.9	4	7	17.4	9	12	18.2	7	9	24.0	3
Other Transp	35	39	51.1	2	110	23.4	2	43	10.1	13	8	27.6	2	11	49.2	1	7	3.6	16	24	11.4	9
Furniture	36	70	24.7	5	430	14.8	6	39	16.4	3	30	16.2	10	16	23.4	5	31	9.9	11	22	22.6	5
Other, Coke,	23,40,4	247	6.4	15	86	5.9	15	686	11.0	11	9	6.7	16	3	17.5	8	2	0.2	17	14	1.3	17
Total		2213	28.4		7508	11.6		1998	10.9		597	19.0		433	17.5		732	15.3		385	11.9	

Table A3a. Innovation Outputs by Country and Industry: Sales in New Products

Sector	NACE	Portugal		Spain		UK		Aggregate					
		Cases	SNPRad Rk	Cases	SNPRad Rk	Cases	SNPRad Rk	Cases	SNPRad Rk				
Food, Drink	15,16	45	38.6	1	101	12.2	11	6	20.7	8	1155	11.8	12
Textiles, Cloth	17, 18,	38	19.6	8	76	20.9	6	6	29.7	3	1507	14.9	9
Paper, Pulp	20,21	18	5.4	15	35	18.1	7	9	20.3	10	694	8.4	15
Printing and I	22	8	7.0	14	23	7.1	15	7	1.8	17	610	8.6	14
Chemicals and I	24	48	10.0	12	118	14.2	9	8	10.6	13	1093	14.3	10
Rubber and F	25	15	13.1	10	55	29.3	2	11	23.9	6	701	19.1	6
Non-metallic	26	21	9.6	13	59	9.9	12	4	22.8	7	788	11.1	13
Basic Metals	27	9	15.4	9	22	9.3	13	2	2.5	16	446	5.1	17
Fabricated M	28	23	19.9	7	103	12.2	11	18	5.5	14	1656	12.1	11
Non-electric	29	41	26.2	3	124	26.5	3	26	28.9	4	2454	16.7	8
Electrical eq	30,31	38	20.4	6	43	22.9	4	19	33.7	2	828	25.6	3
Radio, TV an	32	2	1.6	16	34	42.9	1	4	52.4	1	342	22.7	5
Instruments	33	4	24.8	4	29	17.0	8	1	13.0	12	553	23.5	4
Motor Vehicle	34	15	12.3	11	64	8.4	14	3	14.9	11	447	45.2	1
Other Transf	35	1	0.0	17	7	2.6	16	4	27.5	5	254	37.7	2
Furniture	36	7	29.0	2	66	21.7	5	3	20.3	10	714	18.9	7
Other, Coke,	23,40,4	37	21.4	5	24	1.0	17	28	4.1	15	1136	7.4	16
Total		370	21.6		983	14.5		159	14.6		15378	18.8	

Table A3b. Innovation Outputs by Country and Industry: Exports in New Products

Sector	NACE	France		Germany		Italy		BelLux		Denmark		Ireland		Norway		Spain		UK		Aggregate											
		Cases	ENP	Rk	Cases	ENP	Rk	Cases	ENP	Rk	Cases	ENP	Rk	Cases	ENP	Rk	Cases	ENP	Rk	Cases	ENP	Rk									
Food, Drink	15,16	1	20.0	12	31	14.7	16	304	15.3	15	64	35.2	10	51	15.2	17	80	22.2	13	31	50.5	5	60	57.6	7	4	33.1	13	626	23.1	13
Textiles, Clothing	17,18	121	28.5	6	59	36.0	10	782	30.3	10	60	40.3	9	13	80.4	3	57	44.2	8	13	20.2	14	50	53.7	8	5	82.0	2	1160	34.7	10
Paper, Pulp	20,21	73	20.9	11	22	8.4	17	252	17.1	14	26	20.3	14	20	51.5	7	13	31.7	11	27	22.0	13	22	44.6	10	5	56.0	8	460	19.8	15
Printing and publishing	22	57	15.2	16	12	21.6	15	135	11.8	16	32	27.4	13	17	67.4	5	16	49.0	6	7	30.7	11	12	24.1	16	3	64.5	6	291	22.4	14
Chemicals	24	138	21.9	9	107	34.9	11	337	25.9	12	66	46.5	8	34	42.6	10	63	36.2	9	16	24.6	12	92	34.6	14	8	37.0	12	861	36.5	9
Rubber and plastic	25	100	21.8	10	65	68.7	4	327	38.4	7	28	50.9	6	27	29.7	14	39	63.3	2	8	12.7	15	35	45.2	9	10	66.8	5	639	52.8	5
Non-metallic mineral products	26	56	17.9	14	41	23.2	14	294	31.6	9	24	27.7	12	21	21.0	16	21	15.4	15	12	35.7	10	29	40.6	12	2	23.5	16	500	23.5	12
Basic metals	27	50	15.6	15	55	28.9	13	185	8.9	17	24	17.2	15	12	34.2	13	9	8.0	16	15	9.0	16	19	26.4	15	1	15.0	17	370	15.9	16
Fabricated metal products	28	173	19.5	13	91	34.7	12	652	31.9	8	47	54.7	5	38	21.6	15	35	52.8	5	18	38.7	8	71	41.9	11	13	30.0	15	1138	32.9	11
Non-electrical machinery	29	234	27.8	7	330	46.2	9	1220	45.5	4	53	57.8	3	82	71.8	4	33	65.3	1	38	45.7	6	103	58.1	6	26	42.3	10	2119	46.0	7
Electrical machinery	30,31	103	67.3	1	74	57.5	7	324	62.1	1	35	50.6	7	21	37.0	12	47	56.9	3	17	58.9	4	36	65.0	5	17	75.2	4	674	61.9	3
Radio, television and sound recording apparatus	32	42	43.5	2	37	77.2	3	121	43.7	5	17	81.5	1	26	65.7	6	26	46.9	7	7	77.7	1	27	75.9	2	4	79.6	3	307	59.6	4
Instruments	33	100	40.4	4	92	61.6	6	178	40.1	6	11	15.5	16	21	42.1	11	39	52.9	4	6	63.4	3	19	38.2	13	1	51.0	9	467	48.8	6
Motor vehicles	34	44	33.3	5	51	90.1	1	162	46.7	3	18	33.5	11	7	84.9	2	9	34.3	10	7	38.1	9	51	68.2	4	3	32.7	14	352	68.0	1
Other transport equipment	35	41	26.2	8	27	88.9	2	85	49.2	2	8	55.3	4	9	88.1	1	6	17.6	14	13	38.9	7	4	99.2	1	2	58.6	7	195	64.0	2
Furniture	36	58	41.1	3	43	55.1	8	344	27.9	11	26	77.3	2	14	42.7	9	20	22.6	12	16	70.1	2	42	69.5	3	2	99.7	1	565	44.9	8
Other (incl. 40,41,2)		15	6.4	17	8	62.3	5	37	24.1	13	5	10.6	17	3	49.9	8	2	0.6	17	11	0.8	17	7	12.9	17	11	40.7	11	99	14.8	17
Total		1406	31.9		1145	63.5		5739	38.4		544	42.3		416	44.1		515	35.7		262	21.9		679	49.5		117	45.1		10823	47.1	

Table A3b. Innovation Outputs by Country and Industry: Exports in New Products

Sector	NACE	Germany		Italy		BeLux		Denmark		Ireland		Norway		Spain		UK		Aggregate	
		Cases	ENPinc Rk	Cases	ENPinc Rk	Cases	ENPinc Rk	Cases	ENPinc Rk	Cases	ENPinc Rk	Cases	ENPinc Rk	Cases	ENPinc Rk	Cases	ENPinc Rk	Cases	ENPinc Rk
Food, Drink	15, 16	31	11.6 15	304	7.4 16	64	18.4 11	51	10.3 16	80	13.2 13	31	39.2 4	60	44.6 5	4	9.9 14	625	13.8 14
Textiles, Clothing	17, 18	59	23.7 12	782	16.1 12	60	27.8 8	13	56.5 3	57	23.3 7	13	10.7 12	50	21.8 11	5	46.6 3	1039	21.0 11
Paper, Printing	20, 21	22	7.5 16	252	11.1 14	26	15.2 12	20	30.6 8	13	21.7 8	27	19.8 7	22	14.9 15	5	24.2 10	387	13.2 15
Printing and publishing	22	12	19.6 14	135	8.2 15	32	5.4 16	17	52.4 4	16	38.1 2	7	9.8 13	12	20.6 12	3	32.4 6	234	14.1 13
Chemicals	24	107	19.6 14	337	17.7 10	66	25.8 9	34	30.4 9	63	14.3 11	16	14.1 10	92	18.8 14	8	6.1 16	723	21.7 10
Rubber and plastic	25	65	48.4 2	327	29.4 2	28	34.3 4	27	14.1 15	39	43.1 1	8	8.5 14	35	9.6 17	10	32.7 5	539	38.7 1
Non-metallic mineral products	26	41	5.8 17	294	18.5 9	24	20.8 10	21	7.9 17	21	12.6 14	12	2.7 16	29	35.0 6	2	0.0 17	444	12.5 16
Basic metals	27	55	25.6 11	185	5.3 17	24	13.2 13	12	16.0 13	9	5.1 16	15	4.6 15	19	19.0 13	1	13.0 12	320	11.7 17
Fabricated metal products	28	91	26.3 10	652	20.9 7	47	40.2 2	38	14.3 14	35	31.5 3	18	16.3 9	71	29.9 8	13	21.7 11	965	25.2 8
Non-electrical machinery	29	330	33.0 5	1220	29.9 1	53	32.3 5	82	49.1 5	33	30.6 4	38	33.1 5	103	27.0 10	26	27.8 7	1885	32.5 4
Electrical and electronic equipment	30, 31	74	32.4 6	324	20.4 8	35	28.2 7	21	19.2 12	47	28.4 5	17	39.6 3	36	45.3 4	17	50.9 2	571	27.6 6
Radio, television and communication equipment	32	37	47.0 3	121	26.5 4	17	39.1 3	26	46.3 7	26	15.3 9	7	50.8 1	27	54.3 3	4	27.6 8	265	36.8 2
Instrumental apparatus	33	92	32.1 7	178	21.4 6	11	6.7 15	21	19.4 11	39	27.9 6	6	19.4 8	19	28.4 9	1	25.0 9	367	27.8 5
Motor vehicles	34	51	26.6 9	162	27.3 3	18	3.0 17	7	75.6 2	9	6.6 15	7	12.2 11	51	56.8 2	3	11.0 13	308	23.7 9
Other transport equipment	35	27	37.2 4	85	21.7 5	8	29.5 6	9	87.2 1	6	13.7 12	13	27.6 6	4	99.0 1	2	6.7 15	154	34.6 3
Furniture	36	43	27.7 8	344	13.2 13	26	61.7 1	14	20.6 10	20	14.3 11	16	50.6 2	42	30.2 7	2	76.6 1	507	25.6 7
Other (inc40,41,2)		8	55.3 1	37	16.6 11	5	6.7 15	3	48.0 6	2	0.4 17	11	0.6 17	7	11.4 16	11	33.0 4	84	17.2 12
Total		1145	27.6	5739	21.6	544	21.3	416	30.7	515	18.6	262	13.6	679	34.5	118	27.7	9417	24.5

Table A3b. Innovation Outputs by Country and Industry: Exports in New Products

Sector	NACE	Germany		Italy		BeLux		Denmark		Ireland		Norway		Spain		UK		Aggregate										
		Cases	ENPRad	Rk	Cases	ENPRad	Rk	Cases	ENPRad	Rk	Cases	ENPRad	Rk	Cases	ENPRad	Rk	Cases	ENPRad	Rk	Cases	ENPRad	Rk						
Food, Drink	15,16	31	3.0	15	304	7.9	13	64	16.7	9	51	4.9	15	80	9.1	12	31	11.3	11	60	13.0	9	4	23.1	12	625	9.3	13
Textiles, Clothing	17,18	59	12.4	11	782	14.1	8	60	12.5	12	13	23.9	1	57	21.0	8	13	9.5	13	50	31.9	3	5	35.3	3	1039	14.4	10
Paper, Printing	20,21	22	1.0	17	252	6.0	15	26	5.1	15	20	20.9	5	13	10.0	11	27	2.1	16	22	29.8	5	5	32.0	6	387	6.3	15
Printing and Publishing	22	12	1.9	16	135	3.5	17	32	22.0	6	17	15.0	10	16	10.9	10	7	20.2	6	12	3.5	15	3	32.6	5	234	8.9	14
Chemicals	24	107	15.3	9	337	8.2	12	66	20.7	7	34	12.3	12	63	21.9	6	16	10.5	12	92	15.8	8	8	31.0	7	723	16.7	8
Rubber and Plastics	25	65	20.3	7	327	9.0	11	28	16.8	8	27	15.7	9	39	20.2	9	8	4.2	15	35	35.6	2	10	34.2	4	539	16.8	7
Non-metallic Mineral Products	26	41	17.4	8	294	13.1	9	24	6.9	14	21	13.0	11	21	2.8	16	12	33.1	2	29	5.6	14	2	23.5	10	444	12.1	11
Basic Metals	27	55	3.3	14	185	3.6	16	24	4.0	16	12	18.2	7	9	2.9	15	15	4.4	14	19	7.4	13	1	30.17	320	4.4	17	
Fabricated Metal Products	28	91	8.5	12	652	11.0	10	47	14.5	11	38	7.3	14	35	21.2	7	18	22.4	5	71	11.9	10	13	8.2	15	965	10.5	12
Non-electrical Machinery	29	330	13.2	10	1220	15.6	6	53	25.5	4	82	22.7	3	33	34.7	1	38	12.5	9	103	31.1	4	26	14.5	14	1885	15.9	9
Electrical and Electronic Equipment	30,31	74	25.1	6	324	41.7	1	35	22.4	5	21	17.8	8	47	28.4	3	17	19.3	8	36	19.6	7	17	24.5	9	571	31.4	3
Radio, Television and Communication Equipment	32	37	30.1	3	121	17.2	5	17	42.3	1	26	19.5	6	26	31.5	2	7	26.9	3	27	21.7	6	4	51.9	2	265	28.5	4
Instrumentation	33	92	29.5	4	178	18.8	4	11	8.7	13	21	22.7	3	39	25.0	5	6	43.7	1	19	9.8	12	1	26.0	8	367	25.8	5
Motor Vehicles	34	51	63.5	1	162	19.4	3	18	30.5	2	7	9.2	13	9	27.7	4	7	25.9	4	51	11.4	11	3	21.7	13	308	51.6	1
Other Transport Equipment	35	27	52.3	2	85	27.5	2	8	25.6	3	9	0.9	17	6	3.9	14	13	11.6	10	4	0.2	17	2	51.9	2	154	44.0	2
Furniture	36	43	27.4	5	344	14.7	7	26	15.6	10	14	22.1	4	20	8.3	13	16	19.4	7	42	39.2	1	2	23.2	11	507	19.9	6
Other (inc40,41,2)		8	7.0	13	37	7.4	14	5	3.9	17	3	1.9	16	2	0.3	17	11	0.2	17	7	1.5	16	11	7.8	16	84	5.5	16
Total		1145	35.9		5739	16.8		544	21.0		416	13.3		515	17.1		262	8.3		679	15.0		117	17.6		9417	26.0	

Table A3c. Innovation Outputs by Country and Industry: Sales New to the Firm and Industry

Sales New to the Firm / Total Sales		Germany		Italy		Netherlands		Belgium		Denmark		Norway		Portugal		UK		Aggregate										
Sector	NACE	Cases	SNPFir Rk	Cases	SNPFir Rk	Cases	SNPFir Rk	Cases	SNPFir Rk	Cases	SNPFir Rk	Cases	SNPFir Rk	Cases	SNPFir Rk	Cases	SNPFir Rk	Cases	SNPFir Rk									
Food, Drink	15,16	64	21.9	15	468	9.0	15	152	28.8	12	69	28.1	12	51	14.1	16	66	18.7	10	45	31.9	7	6	2.2	12	921	18.4	15
Textiles, C	17, 18, 19	68	27.8	12	1069	17.7	8	63	37.0	6	61	33.0	10	14	39.5	6	14	6.9	14	38	27.0	8	6	39.5	2	1333	21.9	13
Paper, Pul	20,21	36	9.7	17	369	16.9	9	92	31.0	10	22	13.9	16	22	31.7	9	32	13.9	11	18	17.0	11	9	6.2	11	600	16.6	16
Printing an	22	32	35.5	9	280	5.5	17	101	28.6	14	25	43.9	3	19	28.9	12	43	3.2	16	8	64.0	2	7	17.8	7	515	19.0	14
Chemicals	24	120	29.1	11	380	13.1	12	180	25.4	15	64	37.5	6	35	20.9	14	17	12.7	12	48	13.8	12	8	1.5	13	852	26.0	8
Rubber an	25	74	40.8	6	362	18.7	6	2	55.5	4	21	33.3	8	28	22.2	13	10	19.0	9	15	11.4	13	11	17.7	8	523	30.1	7
Non-metall	26	58	14.4	16	441	15.7	10	73	23.4	16	26	21.0	13	23	12.6	17	16	8.6	13	21	4.8	14	4	23.7	5	662	15.6	17
Basic Mete	27	63	40.4	7	244	6.2	16	29	14.2	17	16	15.3	15	12	40.1	5	15	5.6	15	9	2.3	15	2	6.3	10	390	24.4	11
Fabricated	28	126	30.9	10	960	18.0	7	177	33.2	8	49	37.8	5	41	18.6	15	25	27.6	6	23	32.9	6	18	6.4	9	1419	25.6	9
Non-electri	29	370	35.6	8	1328	28.3	3	218	36.9	7	45	56.5	2	83	51.5	2	43	36.1	2	41	39.8	3	26	1.4	14	2154	33.2	6
Electrical €	30,31	89	48.4	4	414	22.3	5	52	67.3	3	24	41.7	4	21	29.4	11	21	34.8	4	38	22.2	10	19	59.3	1	678	35.1	3
Radio, TV	32	44	25.9	13	149	29.9	2	10	67.3	3	19	66.0	1	26	51.1	3	8	64.8	1	2	73.8	1	4	28.3	4	262	34.2	5
Instrument	33	113	44.0	5	219	34.7	1	56	47.9	5	6	29.2	11	21	29.6	10	6	28.8	5	4	26.5	9	1	0.0	16	426	41.0	2
Motor Vehi	34	70	58.8	2	199	11.7	14	25	30.5	11	15	34.3	7	7	43.7	4	9	20.1	8	15	35.8	5	3	0.0	16	343	46.2	1
Other Tran	35	30	23.2	14	110	13.3	11	43	84.0	1	8	20.1	14	11	34.3	8	24	23.0	7	1	0.0	17	4	0.0	16	231	23.5	12
Furniture	36	53	49.4	3	430	23.7	4	39	32.6	9	26	33.0	10	16	37.6	7	22	35.7	3	7	37.4	4	3	30.4	3	596	34.8	4
Other, Cok	23,40,41	137	70.3	1	53	11.9	13	807	28.6	14	7	4.3	17	3	57.7	1	14	2.4	17	29	1.1	16	17	23.5	6	1067	24.5	10
Total		1547	43.0		7475	15.5		2119	30.5		503	35.7		433	30.1		385	15.4		362	19.0		148	14.4		12972	29.4	

Note: no data for France, Greece, Ireland, Luxembourg and Spain

Table A3c. Innovation Outputs by Country and Industry: Sales New to the Firm and Industry

Sales New to the Industry / Total Sales		Germany		Italy		Netherlands		Belgium		Denmark		Norway		Portugal		UK		Aggregate								
Sector	NACE	Cases	SNPInd	Rk	Cases	SNPInd	Rk	Cases	SNPInd	Rk	Cases	SNPInd	Rk	Cases	SNPInd	Rk	Cases	SNPInd	Rk							
Food, Drini	15,16	64	6.6	11	468	7.3	14	152	8.9	2	69	7.0	11	66	26.4	2	45	25.0	4	6	28.3	9	921	10.3	10	
Textiles, C	17, 18, 19	68	9.7	7	1069	10.8	10	63	2.4	8	61	13.1	5	14	14.5	6	38	7.7	10	6	40.8	4	1333	10.9	9	
Paper, Pul	20,21	36	1.4	17	369	6.8	15	92	1.7	11	22	7.1	10	32	7.0	13	18	0.0	16	9	37.7	5	600	4.9	16	
Printing an		32	4.7	14	280	8.5	13	101	8.7	3	25	0.0	17	43	0.7	16	8	7.6	11	7	0.1	17	515	6.0	15	
Chemicals		24	120	7.3	10	380	11.1	8	180	2.6	7	64	9.7	17	10.0	11	48	8.1	9	8	21.1	11	852	8.7	13	
Rubber an		25	74	29.4	2	362	13.3	6	2	0.0	17	21	11.6	10	3.7	14	15	12.8	7	11	26.5	10	523	20.1	4	
Non-metall		26	58	9.3	8	441	6.2	17	73	0.7	15	26	9.0	9	16	9.6	12	21	8.6	8	4	2.6	16	662	7.4	14
Basic Metz		27	63	3.2	15	244	6.3	16	29	0.9	14	16	1.9	14	15	3.4	15	9	45.9	1	2	6.1	15	390	4.4	17
Fabricated		28	126	8.2	9	960	9.5	12	177	1.9	10	49	11.2	7	25	11.9	9	23	39.6	2	18	11.6	13	1419	9.0	12
Non-electri		29	370	10.7	6	1328	13.9	5	218	3.7	4	45	6.5	12	43	13.5	7	41	5.1	13	26	66.6	1	2154	13.6	7
Electrical e	30,31	89	6.2	12	414	34.0	1	52	1.9	10	24	1.6	15	21	15.1	5	38	12.9	6	19	16.7	12	678	20.1	4	
Radio, TV		32	44	22.6	4	149	10.0	11	10	12.7	1	19	4.5	13	8	10.7	10	2	0.0	16	4	53.2	3	262	14.6	5
Instrument		33	113	11.4	5	219	12.3	7	56	1.5	12	6	13.1	5	6	30.2	1	4	2.7	14	1	33.0	7	426	11.4	8
Motor Vehi		34	70	28.8	3	199	29.3	3	25	0.6	16	15	0.1	16	9	20.5	4	15	24.8	5	3	31.1	8	343	25.7	2
Other Tran		35	30	63.4	1	110	31.4	2	43	1.0	13	8	42.6	1	24	12.5	8	1	0.0	16	4	33.3	6	231	47.2	1
Furniture		36	53	2.7	16	430	10.9	9	39	2.6	7	26	42.2	2	22	22.8	3	7	6.5	12	3	55.3	2	596	10.1	11
Other, Cok	23,40,41	137	5.9	13	53	23.4	4	807	3.4	5	7	15.9	3	14	0.2	17	29	34.1	3	17	6.9	14	1067	15.5	6	
Total		1547	17.1		7475	18.0		2119	4.0		503	7.3		433	14.3		385	11.6		148	28.6		12972	15.5		

Note: no data for France, Greece, Ireland, Luxembourg and Spain

Table A4. Comparing Innovation Outputs across Country within each Industry

Food, Drink and Tobacco (15,16)																
Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
Italy	16.3	10	10.9	10	5.5	9	15.3	6	7.4	8	7.9	6	9.0	7	7.3	5
Denmark	19.9	9	11.2	8	8.7	8	15.2	7	10.3	6	4.9	7	14.1	6	5.7	8
Ireland	24.4	8	15.9	7	8.5	9	22.2	5	13.2	4	9.1	5				
Germany	28.6	7	19.1	5	9.5	7	14.7	8	11.6	5	3.0	8	21.9	4	6.6	7
UK	30.5	6	9.8	10	20.7	3	33.1	4	9.9	7	23.1	1	2.2	8	28.3	1
Benelux	34.9	5	24.1	2	10.8	6	35.2	3	18.4	3	16.7	2	28.1	3	7.0	6
Netherlands	37.7	4	22.8	3	14.9	4							28.8	2	8.9	4
Norway	45.1	3	21.5	4	23.6	2	50.5	2	39.2	2	11.3	4	18.7	5	26.4	2
Portugal	56.8	2	18.2	6	38.6	1							31.9	1	25.0	3
Spain	60.6	1	48.3	1	12.2	5	57.6	1	44.6	1	13.0	3				
Aggregate	30.8		19.0		11.8		23.2		13.8		9.3		18.4		10.3	

Textiles, clothing and leather (17, 18, 19)																
Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
France	21.1	10	12.3	9	9.3	9	28.5	7	10.7	7	9.5	7	6.9	7	14.5	2
Norway	21.5	9	14.7	8	13.8	7	30.3	6	16.1	6	14.1	4	17.7	6	10.8	4
Italy	34.7	7	15.1	7	19.6	3							27.0	5	7.7	6
Portugal	36.8	6	21.3	6	15.5	5	44.2	3	23.3	4	21.0	3				
Ireland	38.2	5	24.4	5	13.8	8	36.0	5	23.7	3	12.4	6	27.8	4	9.7	5
Germany	39.4	4	24.5	4	14.9	6							37.0	2	2.4	7
Netherlands	45.7	3	24.8	3	20.9	2	53.7	2	21.8	5	31.9	1				
Spain	46.0	2	27.0	2	19.1	4	40.3	4	27.8	2	12.5	5	33.0	3	13.1	3
Benelux	70.8	1	49.0	1	22.0	1	80.4	1	56.5	1	23.9	2	39.5	1	31.3	1
Denmark																
Aggregate	32.0		18.5		14.9		34.7		21.0		14.4		21.9		10.9	

Paper, Pulp and Wood Products (20, 21)																
Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
Germany	11.5	10	8.5	9	3.0	9	8.4	8	7.5	7	1.0	7	9.7	7	1.4	7
France	16.3	9					20.9	5								
Portugal	17.1	8	11.6	7	5.4	7							17.0	3	17.0	2
Norway	20.9	7	15.8	5	5.1	8	22.0	4	19.8	3	2.1	6	13.9	5	13.9	3
Benelux	22.8	6	15.1	6	7.7	6	20.3	6	15.2	4	5.1	5	13.9	6	13.9	4
Italy	23.6	5	13.9	7	9.7	4	17.1	7	11.1	6	6.0	4	16.9	4	6.8	5
Ireland	29.4	4	21.6	2	7.8	5	31.7	3	21.7	2	10.0	3				
Netherlands	32.7	3	21.4	3	11.3	3							31.0	2	1.7	6
Spain	36.6	2	18.7	4	18.1	1	44.6	2	14.9	5	29.8	1				
Denmark	37.3	1	25.0	1	12.4	2	51.5	1	30.6	1	20.9	2	31.7	1	31.7	1
Aggregate	21.3		14.3		8.4		19.9		13.2		6.3		16.6		16.6	

Table A4. Comparing Innovation Outputs across Country within each Industry

Printing and publishing (22)

Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
Norway	3.9	9	1.4	8	2.5	7	30.7	3	9.8	5	20.2	2	3.2	6	0.7	5
Italy	14.0	8	5.8	7	8.2	4	11.8	8	8.2	6	3.5	6	5.5	5	8.5	2
France	14.2	7					15.2	7								
Ireland	28.6	6	24.6	5	3.9	6	49.0	2	38.1	2	10.9	4				
Denmark	33.2	5	32.4	1	0.8	8	67.4	1	52.4	1	15.0	3	28.9	3	4.3	4
Spain	36.9	4	29.8	3	7.1	5	24.1	5	20.6	3	3.5	6				
Netherlands	37.3	3	22.6	6	14.7	1							28.6	4	8.7	1
Germany	40.5	2	30.4	2	10.1	3	21.6	6	19.6	4	1.9	7	35.5	2	4.7	3
Benelux	44.0	1	29.6	4	14.4	2	27.4	4	5.4	7	22.0	1	43.9	1	0.0	6
Aggregate	24.1		17.2		8.6		30.1		12.6		7.9		19.0		6.0	

Chemicals and Chemical Products (24)

Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
France	16.6	10					21.9	8								
Portugal	21.9	9	11.9	9	10.0	7							13.8	5	8.1	5
Norway	22.7	8	14.2	7	8.5	8	24.6	7	14.1	7	10.5	6	12.7	7	10.0	3
Italy	24.2	7	13.3	8	10.9	6	25.9	6	17.7	5	8.2	7	13.1	6	11.1	2
Netherlands	28.0	6	23.5	3	4.5	9							25.4	3	2.6	7
Spain	29.4	5	15.2	6	14.2	4	34.6	5	18.8	4	15.8	3				
Germany	36.4	4	21.5	4	14.9	3	34.9	4	19.6	3	15.3	4	29.1	2	7.3	6
Ireland	39.5	3	17.3	5	22.2	1	36.2	3	14.3	6	21.9	1				
Denmark	45.5	2	32.7	1	12.8	5	42.6	2	30.4	1	12.3	5	20.9	4	24.6	1
Benelux	47.3	1	25.7	2	21.6	2	46.5	1	25.8	2	20.7	2	37.5	1	9.7	4
Aggregate	32.2		20.3		14.3		36.5		21.7		16.7		26.0		8.7	

Rubber and Plastics (25)

Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
France	20.2	10					21.8	8								
Norway	22.8	9	18.1	6	4.7	9	12.7	9	8.5	8	4.2	8	19.0	4	3.7	7
Portugal	24.2	8	11.1	9	13.1	7							11.4	7	12.8	4
Denmark	28.2	7	14.3	7	13.9	6	29.7	7	14.1	6	15.7	6	22.2	3	6.0	6
Italy	32.0	6	20.2	5	11.8	8	38.4	6	29.4	5	9.0	7	18.7	5	13.3	3
Spain	43.1	5	13.8	8	29.3	1	45.2	5	9.6	7	35.6	1				
UK	44.2	4	20.3	4	23.9	3	66.8	2	32.7	4	34.2	2	17.7	6	26.5	2
Benelux	49.5	3	32.2	3	17.3	5	50.9	4	34.3	3	16.8	5	33.3	2	11.6	5
Ireland	51.0	2	32.7	2	18.3	4	63.3	3	43.1	2	20.2	4				
Germany	69.8	1	43.5	1	26.3	2	68.7	1	48.4	1	20.3	3	40.8	1	29.4	1
Aggregate	45.2		31.1		19.1		52.8		38.7		16.8		30.1		20.1	

Table A4. Comparing Innovation Outputs across Country within each Industry

Instruments (33)

Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
France	35.2	8					40.4	4								
Spain	41.1	7	24.1	5	17.0	5	38.2	6	28.4	2	9.8	5				
Benelux	43.3	6	29.2	3	14.1	6	15.5	7	6.7	6	8.7	6	29.2	5	13.1	2
Denmark	46.8	5	19.4	7	27.4	1	42.1	3	19.4	5	22.7	3	29.6	4	17.2	1
Italy	46.9	4	26.9	4	20.0	4	40.1	5	21.4	4	18.8	4	34.7	3	12.3	3
Netherlands	49.5	3	39.4	1	10.1	7										
Ireland	50.3	2	23.3	6	27.1	2	52.9	2	27.9	3	25.0	2	47.9	1	1.5	5
Germany	55.5	1	29.3	2	26.2	3	61.6	1	32.1	1	29.5	1	44.0	2	11.4	4
Aggregate	46.2		28.4		23.5		48.8		27.8		25.8		41.0		11.4	

Motor Vehicles (34)

Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
Ireland	29.5	8	11.0	7	18.2	3	34.3	4	6.6	4	27.7	3	0.0	6	0.0	6
Netherlands	31.1	7	21.2	5	9.8	6							30.5	4	0.6	4
Benelux	34.5	6	12.6	6	21.9	2	33.5	5	3.0	5	30.5	2	34.3	3	0.1	5
France	34.5	6					33.3	6								
Italy	41.0	4	26.0	4	15.0	4	46.7	3	27.3	2	19.4	4	11.7	5	29.3	1
Portugal	60.6	3	48.4	2	12.3	5							35.8	2	24.8	3
Spain	65.3	2	56.8	1	8.4	7	68.2	2	56.8	1	11.4	5				
Germany	87.5	1	26.4	3	61.2	1	90.1	1	26.6	3	63.5	1	58.8	1	28.8	2
Aggregate	62.1		26.4		45.2		68.0		23.7		51.6		46.2		25.7	

Other Transport (35)

Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
France	28.9	6					26.2	5								
Norway	35.6	5	24.1	4	11.4	4	38.9	4	27.6	3	11.6	3	23.0	4	23.0	4
Italy	44.7	4	21.3	5	23.4	3	49.2	3	21.7	4	27.5	2	13.3	5	31.4	3
Netherlands	85.0	3	75.0	1	10.1	5							84.0	1	1.0	5
Germany	86.5	2	35.4	3	51.1	1	88.9	1	37.2	2	52.3	1	23.2	3	63.4	1
Denmark	87.7	1	38.5	2	49.2	2	88.1	2	87.2	1	0.9	4	34.3	2	53.4	2
Aggregate	58.4		32.7		37.7		64.0		34.6		44.0		23.5		47.2	

Table A4. Comparing Innovation Outputs across Country within each Industry

Furniture (36)																
Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
France	23.9	9					41.1	6								
Ireland	31.5	8	21.6	6	9.9	8	22.6	8	14.3	6	8.3	7				
Italy	34.5	7	19.7	7	14.8	7	27.9	7	13.2	7	14.7	6	23.7	6	10.9	3
Netherlands	35.1	6	18.8	8	16.4	5										
Denmark	46.9	5	23.6	5	23.4	2	42.7	5	20.6	5	22.1	3	37.6	2	9.3	4
Germany	52.1	4	27.4	4	24.7	1	55.1	4	27.7	4	27.4	2	49.4	1	2.7	5
Spain	55.7	3	34.0	3	21.7	4	69.5	3	30.2	3	39.2	1				
Norway	58.4	2	35.6	2	22.6	3	70.1	2	50.6	2	19.4	4	35.7	3	35.7	2
Benelux	74.9	1	58.8	1	16.2	6	77.3	1	61.7	1	15.6	5	33.0	4	42.2	1
Aggregate	42.0		26.0		18.9		44.9		25.6		19.9		34.8		10.1	

Other, Coke, Petroleum and Utilities (23,40,41)																
Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
Norway	2.6	11	14	10	1.3	8	0.8	8	0.6	7	0.2	8	0.6	8	0.0	8
Ireland	7.3	10	7.1	9	0.2	10	0.6	9	0.4	8	0.3	7				
France	17.8	9					6.4	7								
Spain	18.3	8	17.2	6	1.0	9	12.9	5	11.4	5	1.5	6				
Benelux	20.2	7	13.6	7	6.7	4	10.6	6	6.7	6	3.9	4	4.3	6	15.9	3
UK	22.4	6	18.3	5	4.1	7	40.7	3	33.0	3	7.8	1	23.5	3	6.9	4
Portugal	29.6	5	8.2	8	21.4	1							1.1	7	34.1	1
Italy	31.8	4	25.9	3	5.9	6	24.1	4	16.6	4	7.4	2	11.9	5	23.4	2
Netherlands	32.0	3	21.0	4	11.0	3							20.1	4	2.4	6
Denmark	57.8	2	40.2	2	17.5	2	49.9	2	48.0	2	1.9	5	57.7	2	0.1	7
Germany	59.5	1	53.0	1	6.4	5	62.3	1	55.3	1	7.0	3	65.1	1	5.5	5
Aggregate	36.5		25.9		6.8		15.0		17.1		5.5		21.6		13.7	

Aggregate table																
Country	SNP	Rk	SNPInc	Rk	SNPRad	Rk	ENP	Rk	ENPInc	Rk	ENPRad	Rk	SNPFir	Rk	SNPInd	Rk
Norway	27.0	11	15.1	10	11.9	8	21.9	9	13.6	8	8.3	8	13.0	8	9.9	6
France	27.6	10					31.9	8								
Italy	32.5	9	20.8	7	11.6	9	38.4	6	21.6	5	16.8	5	15.5	6	18.0	3
Ireland	36.3	8	20.9	6	15.3	5	35.7	7	18.6	7	17.1	4				
UK	36.6	7	22.0	5	14.6	6	45.1	3	27.7	3	17.6	3	14.4	7	28.6	1
Portugal	38.1	6	16.6	9	21.6	2							19.0	5	21.1	2
Benelux	42.6	5	23.6	4	19.0	3	42.3	5	21.3	6	21.0	2	35.7	2	7.3	7
Denmark	44.4	4	26.9	3	17.5	4	44.1	4	30.7	4	13.3	7	30.1	3	14.3	5
Netherlands	46.5	3	19.3	8	8.9	10							24.9	4	3.2	8
Spain	47.8	2	33.3	1	14.5	7	49.6	2	34.4	1	15.0	6				
Germany	59.5	1	31.2	2	28.4	1	63.5	1	27.6	4	35.9	1	42.7	1	17.0	4
Aggregate	42.0		25.0		18.4		48.0		24.0		25.4		28.7		15.1	

Table A5. Similarity in Innovation Output between countries, across 17 industries

Sales in New Products/Total Sales: Values												
	France	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
France	1.00											
Germany	0.53*	1.00										
Italy	0.87*	0.65*	1.00									
Netherlands	0.66*	0.50*	0.68*	1.00								
Benelux	0.39	0.31	0.50*	0.63*	1.00							
Denmark	0.45	0.63*	0.59*	0.42	0.32	1.00						
Ireland	0.50*	0.00	0.52*	0.32	0.50*	-0.04	1.00					
Norway	0.67*	0.21	0.64*	0.54*	0.69*	0.20	0.54*	1.00				
Portugal	0.05	-0.07	-0.18	-0.11	0.15	-0.16	0.06	0.27	1.00			
Spain	0.45	0.46	0.46	0.74*	0.64*	0.47	0.10	0.64*	0.09	1.00		
UK												
All Countries	0.82	0.86	0.87	0.68	0.52	0.64	0.35	0.61	-0.03	0.65	0.40	1.00

*Coefficient significantly different from zero at 5% level

Sales in New Products/Total Sales: Rankings												
	France	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
France	1.00											
Germany	0.65*	1.00										
Italy	0.90*	0.73*	1.00									
Netherlands	0.70*	0.44	0.66*	1.00								
Benelux	0.52*	0.33	0.54	0.69*	1.00							
Denmark	0.67*	0.60*	0.66*	0.34	0.28	1.00						
Ireland	0.44	0.10	0.52	0.42	0.53*	-0.02	1.00					
Norway	0.80*	0.32	0.68*	0.59*	0.64*	0.24	0.59*	1.00				
Portugal	0.08	0.05	-0.11	0.02	0.13	-0.02	0.02	0.29	1.00			
Spain	0.66*	0.39	0.54*	0.61*	0.66*	0.38	0.21	0.73*	0.30	1.00		
UK												
All Countries	0.90	0.83	0.89	0.59	0.55	0.67	0.43	0.67	0.07	0.63	0.51	1.00

*Coefficient significantly different from zero at 5% level

Tabel A5. Similarity in Innovation Output between countries, across 17 industries

Sales in New Incremental Products/ Total Sales: Values											
	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.39	1.00									
Netherlands	0.37	0.41	1.00								
Benelux	0.03	0.18	0.29	1.00							
Denmark	0.16	0.31	-0.01	-0.15	1.00						
Ireland	-0.09	0.17	0.26	0.52*	-0.37	1.00					
Norway	-0.04	0.52*	0.41	0.66*	-0.06	0.48*	1.00				
Portugal	-0.03	-0.14	-0.23	0.00	0.25	0.06	0.18	1.00			
Spain	-0.06	0.16	0.56*	0.18	0.25	-0.25	0.28	0.06	1.00		
UK											
All Countries	0.76	0.76	0.67	0.32	0.16	0.18	0.52	-0.07	0.25	0.24	1.00

*Coefficient significantly different from zero at 5% level

Sales in New Incremental Products/ Total Sales: Ranking											
	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.37	1.00									
Netherlands	0.28	0.44	1.00								
Benelux	0.17	0.30	0.57*	1.00							
Denmark	0.12	0.35	0.01	-0.03	1.00						
Ireland	0.09	0.21	0.52*	0.63*	-0.38	1.00					
Norway	0.03	0.48	0.55*	0.71*	-0.13	0.46	1.00				
Portugal	-0.10	-0.16	-0.15	0.12	0.25	0.13	0.14	1.00			
Spain	-0.25	0.06	0.09	0.25	0.03	-0.09	0.44	0.30	1.00		
UK											
All Countries	0.71	0.74	0.68	0.47	0.14	0.29	0.61	-0.12	0.04	0.30	1.00

*Coefficient significantly different from zero at 5% level

Table A5. Similarity in Innovation Output between countries, across 17 Industries

Sales in New Radical Products/Total Sales: Values

	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.50*	1.00									
Netherlands	0.04	0.26	1.00								
Benelux	0.54*	0.56*	0.62*	1.00							
Denmark	0.52*	0.81*	0.14	0.48*	1.00						
Ireland	0.15	0.50*	0.18	0.47	0.22	1.00					
Norway	0.39	0.43	0.42	0.42	0.31	0.55*	1.00				
Portugal	-0.26	-0.07	-0.12	-0.30	-0.09	0.20	0.36	1.00			
Spain	-0.06	0.26	0.73*	0.54*	0.09	0.59*	0.39	-0.01	1.00		
UK											
All Countries	0.96	0.66	0.17	0.64	0.62	0.29	0.49	-0.21	0.06	0.38	1.00

*Coefficient significantly different from zero at 5% level

Sales in New Radical Products/Total Sales: Ranking

	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.75*	1.00									
Netherlands	0.03	0.33	1.00								
Benelux	0.64*	0.72*	0.36	1.00							
Denmark	0.52*	0.80*	0.24	0.46	1.00						
Ireland	0.45	0.58*	0.25	0.52*	0.34	1.00					
Norway	0.54*	0.61*	0.33	0.45	0.38	0.56*	1.00				
Portugal	-0.13	0.03	0.28	-0.26	0.16	0.24	0.28	1.00			
Spain	0.22	0.40	0.66*	0.39	0.28	0.71*	0.38	0.18	1.00		
UK											
All Countries	0.91	0.90	0.25	0.77	0.65	0.55	0.68	-0.04	0.34	0.56	1.00

*Coefficient significantly different from zero at 5% level

Table A5. Similarity in Innovation Output between countries, across 17 industries

Exports in New Products/Total Exports: Values												
	France	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
France	1.00											
Germany	0.41	1.00										
Italy	0.72*	0.73*	1.00									
Netherlands				1.00								
Benelux	0.49*	0.37	0.47		1.00							
Denmark	0.12	0.49*	0.31		0.15	1.00						
Ireland	0.45	0.11	0.46		0.38	0.10	1.00					
Norway	0.74*	0.26	0.47		0.61*	0.01	0.33	1.00				
Portugal									1.00			
Spain	0.57*	0.53*	0.64*		0.69*	0.42	0.14	0.60		1.00		
UK											0.77	0.41
All Countries	0.72	0.82	0.88		0.59	0.43	0.47	0.55		0.77	0.41	1.00

*Coefficient significantly different from zero at 5% level

Exports in New Products/Total Exports: Ranking												
	France	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
France	1.00											
Germany	0.53*	1.00										
Italy	0.70*	0.73*	1.00									
Netherlands				1.00								
Benelux	0.55*	0.33	0.52*		1.00							
Denmark	0.30	0.44	0.30		0.16	1.00						
Ireland	0.46	0.16	0.48*		0.39	0.05	1.00					
Norway	0.70*	0.23	0.50*		0.55*	0.01	0.32	1.00				
Portugal									1.00			
Spain	0.74*	0.49*	0.66*		0.76*	0.36	0.17	0.64*		1.00		
UK											0.75	0.37
All Countries	0.80	0.76	0.90		0.59	0.34	0.48	0.56		0.75	0.37	1.00

*Coefficient significantly different from zero at 5% level

Tabel A5. Similarity in Innovation Output between countries, across 17 Industries

Exports in New Incremental Products/Total Exports: Values

	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.53*	1.00									
Netherlands			1.00								
Benelux	0.16	0.24		1.00							
Denmark	0.28	0.28		-0.20	1.00						
Ireland	0.03	0.28		0.20	-0.19	1.00					
Norway	0.09	0.13		0.61*	-0.02	0.05	1.00				
Portugal								1.00			
Spain	0.07	0.26		0.12	0.52*	-0.25	0.43		1.00		
UK										0.37	
All Countries	0.68	0.82		0.52	0.26	0.39	0.44		0.37	0.23	1.00

*Coefficient significantly different from zero at 5% level

Exports in New Incremental Products/Total Exports: Rankings

	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.62*	1.00									
Netherlands	0.34	0.48*	1.00								
Benelux	0.32	0.34	0.88*	1.00							
Denmark	0.26	0.20	0.09	-0.20	1.00						
Ireland	0.12	0.31	0.35	0.38	-0.05	1.00					
Norway	0.15	0.17	0.65*	0.52*	0.07	0.22	1.00				
Portugal								1.00			
Spain	0.05	0.28	0.43	0.18	0.14	-0.20	0.56		1.00		
UK										0.27	
All Countries	0.77	0.81	0.68	0.58	0.21	0.48	0.48		0.27	0.31	1.00

*Coefficient significantly different from zero at 5% level

Table A5. Similarity in Innovation Output between countries, across 17 industries

Exports in New Radical Products/Total Exports: Values											
	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.62*	1.00									
Netherlands			1.00								
Benelux	0.55*	0.42		1.00							
Denmark	-0.17	0.03		-0.02	1.00						
Ireland	0.29	0.41		0.62	0.44	1.00					
Norway	0.41	0.35		0.25	0.20	0.35	1.00				
Portugal								1.00			
Spain	-0.09	0.02		0.11	0.67	0.42	-0.21		1.00		
UK										1.00	
All Countries	0.97	0.72		0.65	-0.15	0.41	0.40		-0.08	0.46	1.00

*Coefficient significantly different from zero at 5% level

Exports in New Radical Products/Total Exports: Rankings											
	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.87*	1.00									
Netherlands			1.00								
Benelux	0.57*	0.57*		1.00							
Denmark	0.01	0.13		-0.10	1.00						
Ireland	0.37	0.52*		0.64*	0.40	1.00					
Norway	0.53*	0.52*		0.38	0.10	0.39	1.00				
Portugal								1.00			
Spain	0.05	0.13		0.14	0.64*	0.44	-0.17		1.00		
UK										1.00	
All Countries	0.93	0.90		0.73	0.05	0.55	0.49		0.19	0.41	1.00

*Coefficient significantly different from zero at 5% level

Table A5. Similarity in Innovation Output between countries, across 17 industries

Sales New to the Firm/ Total Sales: Values											
	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.04	1.00									
Netherlands	-0.10	0.46	1.00								
Benelux	-0.06	0.49	0.36	1.00							
Denmark	0.50*	0.21	0.06	0.11	1.00						
Ireland						1.00					
Norway	-0.03	0.75*	0.61*	0.72*	0.22		1.00				
Portugal	-0.02	0.31	0.12	0.81*	0.20		0.57*	1.00			
Spain									1.00		
UK										0.00	
All Countries	0.61	0.56	0.32	0.45	0.35		0.58	0.31		0.00	1.00

*Coefficient significantly different from zero at 5% level

Sales New to the Firm/Total Sales: Rankings											
	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.10	1.00									
Netherlands	-0.05	0.70*	1.00								
Benelux	0.12	0.37	0.39	1.00							
Denmark	0.43	0.14	0.09	-0.01	1.00						
Ireland						1.00					
Norway	0.10	0.79*	0.72*	0.53	0.14		1.00				
Portugal	0.06	0.29	0.20	0.75*	0.13		0.48*	1.00			
Spain									1.00		
UK										-0.13	
All Countries	0.66	0.54	0.47	0.51	0.34		0.69	0.35		-0.13	1.00

*Coefficient significantly different from zero at 5% level

Tabel A5. Similarity in Innovation Output between countries, across 17 industries

Sales New to the Industry/Total Sales: Values											
	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.54*	1.00									
Netherlands	-0.13	-0.30	1.00								
Benelux	0.43	0.20	-0.25	1.00							
Denmark	0.70*	0.63*	-0.29	0.40	1.00						
Ireland						1.00					
Norway	0.04	0.09	0.03	0.22	0.32		1.00				
Portugal	-0.26	-0.01	-0.20	-0.27	-0.34		-0.20	1.00			
Spain									1.00		
UK											
All Countries	0.93	0.79	-0.21	0.47	0.78		0.13	-0.22		0.19	1.00

*Coefficient significantly different from zero at 5% level

Sales New to the Industry/Total Sales: Rankings											
	Germany	Italy	Netherlands	Benelux	Denmark	Ireland	Norway	Portugal	Spain	UK	Aggregate
Germany	1.00										
Italy	0.46	1.00									
Netherlands	-0.30	-0.13	1.00								
Benelux	0.16	0.20	-0.14	1.00							
Denmark	0.54*	0.61*	-0.05	0.21	1.00						
Ireland						1.00					
Norway	0.26	0.29	0.11	0.12	0.65*		1.00				
Portugal	-0.22	-0.09	-0.23	-0.20	-0.34		-0.17	1.00			
Spain									1.00		
UK											
All Countries	0.72	0.85	-0.15	0.18	0.54		0.35	-0.13		0.36	1.00

*Coefficient significantly different from zero at 5% level

Table A6a. Innovation Outputs by Size classes: Sales in New Products

SNP	Sector	NACE	France			Germany			Italy			Netherlands			Benelux			Denmark										
			Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total						
	Food, Drink	15,16	20.0	19.7	15.3	21.1	20.0	26.1	39.0	56.7	28.6	13.0	20.5	17.5	16.3	40.9	22.0	40.7	37.7	24.7	36.9	82.7	34.9	12.0	35.9	48.3	19.9	
	Textiles, Clothing	17, 18, 19	22.9	14.8	16.8	16.3	25.0	39.9	28.6	50.0	38.2	25.0	30.6	28.3	28.5	40.0	39.1	39.7	39.4	46.2	45.3	47.9	46.0	100.0	60.0	68.5	70.8	
	Paper, Printing	20,21	17.0	13.8	22.4	14.2	23.4	7.8	29.1	34.3	11.5	23.4	25.9	21.4	23.6	44.9	30.2	22.6	32.7	18.3	24.6	31.6	22.8	50.0	27.8	33.6	37.3	
	Printing and publishing	22	12.9	13.8	22.4	14.2	2.7	43.5	23.1	47.3	40.5	2.7	15.5	36.0	14.0	41.0	38.1	24.5	37.3	52.7	25.4	41.1	44.0	29.8	49.1	9.0	33.2	
	Chemicals	24	16.1	20.8	15.8	16.6	23.5	36.9	29.6	27.4	36.4	23.5	25.0	27.2	24.2	27.6	32.3	25.0	28.0	58.5	17.8	78.6	47.3	49.3	41.0	32.3	45.5	
	Rubber and plastic products	25	22.2	17.6	13.9	20.2	42.7	74.5	41.3	54.2	69.8	42.7	27.4	24.7	32.0	50.0	80.0		55.5	51.5	37.0	61.1	49.5	18.0	30.5	30.6	28.2	
	Non-metallic mineral products	26	14.1	12.9	17.3	14.2	21.1	22.1	43.2	39.9	23.8	21.1	23.2	21.2	21.9	24.7	23.4	23.6	24.1	28.8	30.3	28.2	29.0	16.1	16.1	19.9	16.5	
	Basic metals	27	15.0	9.2	16.3	14.8	43.9	43.9	38.6	25.7	43.6	10.4	20.8	15.8	12.5	15.0	8.3	45.1	15.1	15.2	26.4	26.4	48.2	16.5	55.1	32.9	7.9	43.1
	Fabricated metal products	28	15.2	15.1	14.9	15.2	37.6	39.9	36.9	36.3	39.2	37.6	24.7	28.0	27.5	38.0	35.6	30.5	35.1	40.2	55.0	40.4	48.2	8.0	29.3	34.8	25.8	
	Non-electrical machinery	29	29.3	25.1	22.5	28.2	39.8	45.9	49.4	52.2	46.3	39.8	44.2	44.5	42.2	29.1	40.4	50.1	40.6	62.9	53.8	55.1	61.2	79.6	38.0	84.2	52.3	
	Electrical machinery	30,31	59.9	30.1	25.7	57.8	61.7	55.3	44.9	89.4	65.3	61.7	39.0	37.6	56.2	72.3	60.1	51.6	69.2	46.7	51.2	53.2	48.2	90.0	42.5	48.3	57.4	
	Radio, television and communication equipment	32	38.1	27.3	44.7	37.9	38.7	47.7	86.1	60.3	48.6	38.7	46.1	46.7	39.9	86.3	65.0	53.6	80.0	71.9	54.7	79.1	70.4	45.0	47.7	50.2	46.8	
	Instrument	33	36.8	28.2	24.7	35.2	52.2	58.0	42.4	57.9	55.5	52.2	40.0	47.0	46.9	51.1	45.5	45.9	49.5		42.1	54.6	43.3	45.0	47.7	50.2	46.8	
	Motor vehicles	34	34.7	19.0	10.9	34.5	39.9	87.7	44.7	72.2	87.5	39.9	53.0	32.8	41.0	29.6	42.4	76.3	31.1	34.3	57.4	35.5	34.5	90.0	42.4	60.6	74.4	
	Other transport equipment	35	28.9	37.6	16.5	28.9	43.2	87.0	62.7	32.9	86.5	43.2	50.9	54.9	44.7	91.6	62.4	35.5	85.0	69.1	0.0	39.7	62.7	92.5	42.2	62.5	87.7	
	Furniture	36	28.3	14.9	15.3	23.9	39.7	51.9	51.9	61.1	52.1	39.7	30.2	36.4	34.5		36.2	33.0	35.1	92.4	52.7	48.8	74.9	67.0	48.6	41.2	46.9	
	Other, coke, petroleum products		17.8	10.5	8.7	17.8	33.7	61.0	39.8	52.6	59.5	33.7	11.6	11.0	31.8	34.2	28.4	26.8	32.0	1.3	66.0	50.3	20.2	47.1	50.0	20.0	57.8	
	Total		28.3	20.4	18.7	27.6	33.9	60.0	40.9	77.2	59.5	33.9	28.9	30.0	32.5	36.5	30.3	29.9	34.5	45.6	28.2	65.4	42.6	47.1	40.6	43.2	44.4	

Table A6a. Innovation Outputs by Size classes: Sales in New Products

SNP	Sector	NACE	Ireland			Norway			Portugal			Spain			UK			Aggregate								
			Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total				
	Food, Drink	15,16	16.4	28.4	30.3	24.4	49.5	40.2	41.4	45.1	65.1	35.2	26.3	56.8	69.2	50.4	34.3	60.6	29.3	67.0	35.0	30.5	31.3	29.7	30.3	30.8
	Textiles, Clothing	17, 18, 19	30.0	31.8	51.7	36.8	21.3	22.4	21.5	30.7	45.5	56.8	34.7	25.8	40.0	40.0	72.6	45.7	92.0	48.0	80.3	32.5	31.8	31.4	32.0	32.0
	Paper, Printing and publishing	20,21		32.2	25.6	29.4	20.8	20.7	22.3	20.9	14.6	23.5	30.0	17.1	3.1	54.4	70.1	36.6	60.0	16.8	43.9	17.5	25.7	24.6	21.3	21.3
	Printing and publishing	22	2.0	44.3	26.8	28.6	0.0	3.7	16.3	3.9	86.4	6.2	48.5	71.6	30.0	33.9	79.7	36.9	25.0	7.4	5.4	17.9	23.2	20.6	33.9	24.1
	Chemicals	24		43.9	22.5	39.5	24.4	11.4	32.9	22.7	15.0	24.4	36.0	21.9	24.5	33.4	40.1	29.4	5.0	48.3	48.8	22.5	33.8	25.6	29.1	32.2
	Rubber and plastic	25	100.0	40.4	29.9	51.0		15.2	37.1	22.8	20.0	29.5	16.5	24.2	83.0	35.1	39.3	43.1		44.4	38.1	44.2	55.6	30.1	28.3	45.2
	Non-metallic mineral products	26	22.3	27.2	48.5	37.0	3.0	30.1	24.8	18.2	3.9	33.9	46.9	13.4	29.4	38.4	54.7	37.2	52.0	0.0	43.7	26.4	20.2	26.7	31.9	23.1
	Basic metals	27		3.5	42.4	12.6	8.8	6.5	25.1	9.0	47.0	81.3	18.7	48.2	25.5	52.6	50.5	27.1	15.0		0.0	12.4	26.2	22.9	20.6	25.7
	Fabricated metal products	28		59.5	34.6	39.2		42.7	32.2	39.4	91.7	38.0	60.4	72.5	49.9	44.5	50.0	46.9	12.6	25.1	22.1	18.0	32.8	30.7	29.4	31.4
	Non-electrical machinery	29	75.2	57.1	44.7	65.1	39.7	55.3	64.6	49.6	27.3	47.6	46.4	44.9	51.0	45.6	52.6	49.8	69.4	48.5	46.6	68.0	45.0	44.1	44.3	44.8
	Electrical machinery	30,31	59.0	56.8	54.5	58.0	35.0	75.2	31.4	49.9	20.2	69.1	68.8	35.1	62.9	37.1	51.7	48.5	85.7	31.9	54.9	76.0	58.6	42.9	77.0	59.4
	Radio, television and communication equipment	32	46.9	45.5	41.1	45.3	91.0	30.0	38.5	75.5	73.8				84.1	74.9	55.2	81.5	83.0	84.3	20.0	81.4	48.1	52.7	48.3	48.5
	Instrument	33	65.3	46.4	43.3	50.3		59.0	55.6	58.9		21.0	57.8	29.2	37.4	38.9	62.3	41.1		33.0		33.0	48.2	39.6	44.9	46.2
	Motor vehicles	34		23.9	37.2	29.5		41.2	32.4	40.6	45.6	83.5	50.9	60.6	64.9	69.3	64.4	65.3		30.0	46.0	31.1	62.4	51.9	43.0	62.1
	Other transport equipment	35	17.0	5.0	50.0	18.4	29.4	45.9	52.5	35.6	0.0			0.0	100.0	100.0	49.7	96.2	25.0	35.2		33.3	59.2	49.3	45.8	58.4
	Furniture	36		24.6	47.4	31.5		68.0	47.1	58.4		41.6	61.5	43.8	11.9	54.1	58.5	55.7		88.0	50.0	85.6	47.6	37.2	38.3	42.0
	Other, coke, petroleum and other products			7.0	70.0	7.3	0.1	48.2	51.9	2.6	1.8	6.4	79.7	29.6		69.1	43.1	18.3	22.9	16.8	27.4	22.4	32.6	23.2	37.9	31.9
	Total		36.6	34.5	39.3	36.3	22.4	34.6	38.4	27.0	31.7	35.0	71.6	38.1	47.9	46.7	50.3	47.8	36.7	36.4	33.9	36.6	42.8	31.8	40.4	41.1

Table A6a. Innovation Outputs by Size classes: Sales in New Products

Sector	NACE	France			Germany			Italy			Netherlands			Benelux			Denmark							
		Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Total				
Food, Drink	15,16	0.0	0.0	0.0	18.3	21.2	37.8	19.1	9.4	13.2	10.4	10.9	24.1	14.1	32.9	22.8	18.0	24.5	54.7	24.1	7.5	18.9	21.2	11.2
Textiles, Clothing	17, 18, 19	0.0	0.0	0.0	26.2	18.6	19.8	24.4	12.2	16.0	14.8	14.7	20.0	23.8	26.1	24.5	27.1	27.9	21.1	27.0	88.0	36.2	39.2	49.0
Paper, Printing	20,21	0.0	0.0	0.0	7.5	14.8	11.1	8.5	15.4	12.6	13.5	13.9	24.3	22.1	14.0	21.4	12.3	16.1	22.5	15.1	30.0	20.3	27.3	25.0
Printing and publishing	22	0.0	0.0	0.0	33.0	19.6	22.8	30.4	2.7	9.5	8.1	5.8	20.3	31.0	13.6	22.6	36.5	14.9	25.2	29.6	29.8	46.7	3.3	32.4
Chemicals	24	0.0	0.0	0.0	21.8	16.2	17.0	21.5	13.3	13.3	14.2	13.3	24.5	17.7	15.5	23.5	31.2	11.2	44.7	25.7	40.0	23.4	13.1	32.7
Rubber and plastic products	25	0.0	0.0	0.0	47.2	22.6	25.9	43.5	27.7	17.3	14.7	20.2	40.0	60.0	43.6	43.6	35.1	17.7	36.8	32.2	8.0	16.3	12.7	14.3
Non-metallic mineral products	26	0.0	0.0	0.0	7.8	21.5	21.7	8.9	15.7	12.0	12.5	13.6	16.5	15.2	16.8	16.0	21.3	22.2	18.2	21.4	6.1	3.8	11.9	6.1
Basic metals	27	0.0	0.0	0.0	39.0	23.6	19.4	38.4	7.5	12.2	11.3	8.6	14.3	7.0	37.1	13.3	11.3	22.6	28.6	12.3	35.0	21.6	2.0	27.7
Fabricated metal products	28	0.0	0.0	0.0	27.5	27.2	20.4	27.2	19.6	12.8	17.5	15.7	30.8	21.9	19.0	23.9	23.7	39.5	19.8	31.6	5.0	19.1	19.8	16.3
Non-electrical machinery	29	0.0	0.0	0.0	31.7	31.4	26.8	31.6	28.1	26.0	25.6	26.9	18.9	25.8	28.9	25.4	35.0	37.8	29.6	35.3	50.0	35.6	24.0	42.9
Electrical and electronic equipment	30,31	0.0	0.0	0.0	35.9	23.0	69.2	45.4	24.2	18.6	21.7	23.2	54.8	46.4	18.0	50.7	32.6	17.7	30.4	28.0	70.0	18.0	5.7	14.2
Radio, television and communication equipment	32	0.0	0.0	0.0	25.8	40.4	35.0	26.2	24.8	31.9	22.8	25.4	44.2	21.6	18.6	37.9	36.1	29.2	54.2	35.6	12.6	21.3	23.0	36.0
Instrumentation	33	0.0	0.0	0.0	30.0	26.3	25.4	29.3	33.5	21.6	23.1	26.9	43.6	30.6	27.7	39.4	29.6	29.6	25.4	29.2	12.6	24.4	27.0	19.4
Motor vehicles	34	0.0	0.0	0.0	26.4	22.1	49.6	26.4	27.6	12.8	18.1	26.0	20.0	33.3	39.2	21.2	12.3	47.5	26.6	12.6	80.0	10.0	34.5	57.0
Other transport equipment	35	0.0	0.0	0.0	35.3	46.4	12.1	35.4	20.7	20.2	34.6	21.3	83.8	40.6	26.3	75.0	38.5	0.0	27.2	35.1	41.8	3.0	52.5	38.5
Furniture	36	0.0	0.0	0.0	27.3	28.3	23.0	27.4	26.9	18.1	18.3	19.7	22.8	17.3	21.7	18.8	78.9	33.3	28.6	58.8	54.0	24.9	19.1	23.6
Other, coke, petroleum products		0.0	0.0	0.0	55.6	22.6	27.7	53.0	27.4	10.2	4.1	25.9	22.8	17.7	17.7	21.0	1.1	48.7	16.6	13.6	30.3	28.0	0.0	40.2
Total		0.0	0.0	0.0	30.6	24.3	56.1	31.2	23.0	15.8	16.6	20.8	25.6	19.1	19.6	23.6	24.6	17.7	39.8	23.6	30.3	23.4	18.5	26.9

Table A6a. Innovation Outputs by Size classes: Sales in New Products

SNPRad	Sector	NACE	France			Germany			Italy			Netherlands			Benelux			Denmark								
			Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total	Large	Medium	Small	Total				
	Food, Drink	15,16	0.0	0.0	0.0	0.0	7.9	17.9	18.7	9.5	3.5	7.3	7.1	5.5	16.8	7.9	7.8	14.9	6.7	12.3	28.1	10.8	4.4	17.0	27.0	8.7
	Textiles, Clothing	17, 18, 19	0.0	0.0	0.0	0.0	13.7	10.0	30.2	13.8	12.8	14.6	13.5	13.8	20.0	15.3	13.6	14.9	19.1	17.3	26.8	19.1	13.0	23.8	29.2	22.0
	Paper, Printing	20,21	0.0	0.0	0.0	0.0	0.3	14.2	23.2	3.0	8.0	13.4	7.9	9.7	20.6	8.1	8.6	11.3	6.0	8.5	9.0	7.7	20.0	7.5	6.3	12.4
	Printing and publishing	22	0.0	0.0	0.0	0.0	10.5	3.5	24.5	10.1	0.0	6.0	27.9	8.2	20.6	7.1	10.9	14.7	16.1	10.5	15.8	14.4	0.0	2.4	5.6	0.8
	Chemicals	24	0.0	0.0	0.0	0.0	15.0	13.4	10.4	14.9	10.3	11.7	13.0	10.9	3.1	14.6	9.6	4.5	27.3	6.6	33.9	21.6	9.3	17.6	19.2	12.8
	Rubber and plastic products	25	0.0	0.0	0.0	0.0	27.3	18.7	28.3	26.3	15.0	10.1	10.0	11.8	10.0	20.0	11.8	11.8	16.5	19.4	24.2	17.3	10.0	14.3	17.9	13.9
	Non-metallic mineral products	26	0.0	0.0	0.0	0.0	14.3	21.7	18.2	14.9	5.5	11.2	8.7	8.3	8.3	8.2	6.8	8.1	7.5	8.1	10.0	7.6	10.0	12.3	8.0	10.5
	Basic metals	27	0.0	0.0	0.0	0.0	4.9	15.0	6.3	5.2	2.9	8.6	4.5	4.0	0.7	1.3	8.0	1.8	4.0	3.8	19.6	4.1	20.2	11.3	5.9	15.5
	Fabricated metal products	28	0.0	0.0	0.0	0.0	12.3	9.7	15.9	11.9	18.0	11.9	10.5	11.8	7.2	13.7	11.5	11.2	16.5	15.5	20.6	16.5	3.0	10.3	15.0	9.6
	Non-electrical machinery	29	0.0	0.0	0.0	0.0	14.3	17.9	25.4	14.7	11.7	18.2	18.9	15.2	10.2	14.6	21.2	15.2	27.8	16.0	25.5	25.8	29.6	18.0	13.8	24.1
	Electrical and electronic equipment	30,31	0.0	0.0	0.0	0.0	19.5	22.0	20.2	19.8	37.4	20.4	15.9	33.1	17.5	13.7	33.7	18.6	14.1	33.6	22.9	20.2	20.0	21.1	25.3	21.4
	Radio, television and communication equipment	32	0.0	0.0	0.0	0.0	21.8	45.7	25.4	22.3	13.9	14.2	23.9	14.4	42.1	43.4	35.0	42.1	35.8	25.4	24.9	34.8	20.0	21.1	25.3	21.4
	Instrument	33	0.0	0.0	0.0	0.0	28.0	16.1	32.5	26.2	18.7	18.5	23.9	20.0	7.5	14.8	18.2	10.1	22.0	9.8	8.9	21.9	32.4	23.3	23.2	27.4
	Motor vehicles	34	0.0	0.0	0.0	0.0	61.4	22.6	22.6	61.2	12.3	40.2	14.8	15.0	9.6	9.1	37.1	9.8	22.0	9.8	8.9	21.9	10.0	32.5	26.1	17.4
	Other transport equipment	35	0.0	0.0	0.0	0.0	51.6	16.3	20.9	51.1	22.5	30.8	20.3	23.4	7.8	21.8	9.2	10.1	30.6	0.0	12.4	27.6	50.7	39.2	10.0	49.2
	Furniture	36	0.0	0.0	0.0	0.0	24.6	23.6	38.1	24.7	12.8	12.1	18.1	14.8	11.4	10.7	8.9	11.0	13.5	19.4	20.2	16.2	13.0	23.7	22.1	23.4
	Other, coke, petroleum products		0.0	0.0	0.0	0.0	5.4	17.2	24.9	6.4	6.3	1.4	6.9	5.9	11.4	10.7	8.9	11.0	0.3	17.3	33.7	6.7	13.0	22.0	20.0	17.5
	Total		0.0	0.0	0.0	0.0	29.3	16.6	21.1	28.4	11.0	13.0	13.5	11.6	10.8	11.2	10.3	10.9	21.0	10.5	25.6	19.0	16.7	17.2	24.7	17.5

Table A6b. Innovation Outputs by Size classes: Exports in New Products

Exports in New Incremental Products / Total Exports		France			Germany			Italy			Netherlands			Belux			Denmark		
		Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small
Sector	NACE																		
	Food, Dir 15,16	0.0	0.0	0.0	10.3	15.0	81.0	11.6	1.9	13.6	7.9	7.4	12.4	22.6	28.4	18.4	9.0	14.4	13.5
	Textiles, C 17, 18, 19	0.0	0.0	0.0	24.6	18.9	7.3	23.7	10.2	19.9	17.0	16.1	29.0	26.0	16.5	27.8	92.0	40.1	40.3
	Paper, Pu 20,21	0.0	0.0	0.0	7.5	7.9	7.1	7.5	10.2	13.3	9.5	11.1	9.8	20.3	9.5	15.2	30.0	37.3	7.4
	Printing ar	0.0	0.0	0.0	18.0	46.0	24.2	19.6	7.5	7.9	11.3	8.2	1.9	11.8	9.7	5.4	66.9	43.3	0.2
	Chemicals	0.0	0.0	0.0	19.7	16.0	12.4	19.6	18.3	16.2	17.8	17.7	30.8	11.5	45.1	25.8	36.3	20.0	10.7
	Rubber ar	0.0	0.0	0.0	49.6	24.1	48.7	48.4	46.8	17.5	15.4	29.4	37.0	18.4	38.5	34.3	7.0	18.1	8.7
	Non-meta	0.0	0.0	0.0	5.5	25.3	17.4	5.8	22.1	16.3	15.1	18.5	20.8	21.5	7.4	20.8	6.1	11.5	11.7
	Basic Met	0.0	0.0	0.0	27.0	11.1	6.2	25.6	3.5	9.9	14.7	5.3	12.4	23.6	29.7	13.2	12.3	19.2	0.0
	Fabricatec	0.0	0.0	0.0	26.5	25.1	24.6	26.3	36.8	13.1	27.3	20.9	19.5	55.8	18.3	40.2	7.0	17.7	18.5
	Non-elect	0.0	0.0	0.0	32.8	35.2	32.4	33.0	32.7	26.6	28.5	29.9	31.5	37.2	26.6	32.3	56.9	39.0	30.1
	Electrical - 30,31	0.0	0.0	0.0	33.3	16.9	32.0	32.4	20.6	18.1	25.0	20.4	31.2	22.0	23.9	28.2	19.6	15.9	19.2
	Radio, TV	0.0	0.0	0.0	47.7	32.0	29.3	47.0	26.7	26.4	22.0	26.5	39.3	36.6	14.3	39.1	80.0	26.0	23.8
	Instrumen	0.0	0.0	0.0	32.4	30.8	30.8	32.1	24.2	17.7	20.7	21.4		6.1	45.3	6.7	17.2	20.9	24.0
	Motor Veh	0.0	0.0	0.0	26.6	23.6	4.0	26.6	29.4	12.0	13.4	27.3	2.7	55.2	16.5	3.0	100.0	10.1	2.2
	Other Trai	0.0	0.0	0.0	37.2	31.3	73.2	37.2	19.3	29.6	52.2	21.7	32.4	0.0	15.7	29.5	99.8	4.1	63.6
	Furniture	0.0	0.0	0.0	28.1	22.0	19.6	27.7	11.0	12.6	14.8	13.2	78.8	40.3	21.5	61.7	19.9	23.4	20.6
	Other, Coke, Petrole	0.0	0.0	0.0	72.2	8.8		55.3	18.5	1.7	0.7	16.6	0.0	58.0	22.3	6.7	50.0	29.0	30.0
	Total	0.0	0.0	0.0	27.7	25.2	28.9	27.6	22.8	18.9	21.1	21.6	21.9	17.8	30.0	21.3	35.6	23.9	20.5

Table A6b. Innovation Outputs by Size classes: Exports in New Products

Sector	NACE	Exports in New Incremental Products / Total Exports																			
		Ireland			Norway			Portugal			Spain			UK			Aggregate				
		Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Total	
Food, Drink	15,16	11.2	15.8	11.9	13.2	84.6	38.7	24.7	39.2	58.4	34.9	17.4	44.6	10.0	0.0	57.0	9.9	10.9	17.8	16.9	13.8
Textiles, C 17, 18, 19		15.0	26.0	23.9	23.3	10.6	12.5	10.7		10.0	17.3	36.2	21.8	59.0	16.5	46.6		21.4	22.0	17.9	21.0
Paper, Pu	20,21		28.8	13.7	21.7	16.1	26.9	14.8	19.8	3.3	13.9	68.4	14.9	29.5	12.7	24.2		10.2	18.6	14.8	13.2
Printing ar	22	0.0	58.6	24.1	38.1		9.6	24.8	9.8	10.0	32.4	95.4	20.6	33.0	31.8	32.4		12.5	18.5	17.5	14.1
Chemicals	24		13.3	19.5	14.3	14.7	9.2	17.8	14.1	12.8	22.1	23.4	18.8	0.0	9.8	18.0	6.1	23.7	13.4	23.0	21.7
Rubber ar	25	81.0	15.9	30.9	43.1		5.5	19.5	8.5	0.0	9.5	19.8	9.6	32.8	9.2	32.7		45.7	18.0	20.5	38.7
Non-meta	26	16.1	10.2	10.4	12.6	3.0	2.7	1.6	2.7	29.6	41.4	28.4	35.0	0.0	0.0	0.0	0.0	11.7	17.6	11.7	12.5
Basic Met	27		1.9	32.5	5.1	4.3	6.3	15.0	4.6	18.3	36.6	32.6	19.0	13.0			13.0	11.4	12.8	17.2	11.7
Fabricate	28		54.0	25.7	31.5	12.1	24.6	16.3		32.0	30.3	26.8	29.9	12.8	32.9	27.9	21.7	25.8	24.1	26.3	25.2
Non-elect	29	34.6	23.8	22.4	30.6	21.7	42.8	42.5	33.1	25.8	22.7	40.8	27.0	25.4	35.0	27.1	27.8	33.5	30.2	28.9	32.5
Electrical - 30,31		29.5	32.5	15.2	28.4	34.5	51.6	14.4	39.6	68.2	21.8	40.9	45.3	54.4	29.6	36.0	50.9	29.0	21.9	22.2	27.6
Radio, TV	32	20.0	3.7	21.6	15.3	60.0	10.0	28.6	50.8	52.2	66.7	10.0	54.3	32.0	19.8	0.0	27.6	38.7	27.4	22.4	36.8
Instrumen	33	24.8	26.3	34.1	27.9		19.2	31.8	19.4	35.0	14.1	30.2	28.4		25.0		25.0	29.8	23.2	26.2	27.8
Motor Ver	34		4.9	12.4	6.6		12.3	1.0	12.2	58.8	30.7	41.4	56.8		11.4	0.0	11.0	23.8	15.4	18.1	23.7
Other Trai	35	16.0	0.0	30.5	13.7	39.9	13.0	56.0	27.6	100.0	100.0	16.0	99.0		6.7		6.7	34.8	23.3	51.3	34.6
Furniture	36		12.8	20.4	14.3		63.8	30.0	50.6		19.4	50.6	30.2		76.6		76.6	33.1	20.1	17.1	25.6
Other, Coke, Petroleum and		0.0	41.0	0.4	0.6	0.0	61.7	45.2	0.6	10.0	36.6	1.0	11.4	43.1	2.4	9.0	33.0	18.8	6.3	3.4	17.2
Total		21.8	16.4	16.5	18.6	10.4	22.7	25.2	13.6	36.7	29.1	33.7	34.5	29.6	22.6	25.3	27.7	25.6	19.9	21.6	24.5

Table A6c. Innovation Outputs by Size classes: Sales New to the Firm and Industry

Sector	NACE	France			Germany			Italy			Netherlands			BeLux			Denmark							
		Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small					
		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total					
Food, Drink	15,16				20.1	28.6	74.2	21.9	5.6	12.7	11.2	9.0	30.1	20.2	37.4	28.8	15.0	33.6	86.0	28.1	7.4	27.0	44.3	14.1
Textiles, C	17, 18, 19				28.6	24.6	26.1	27.8	10.7	19.9	19.6	17.7	40.0	35.4	38.7	37.0	33.4	32.2	31.5	33.0	50.0	30.7	58.6	39.5
Paper, Publ	20,21				6.5	26.9	29.1	9.7	19.7	16.4	13.5	16.9	41.1	29.4	20.5	31.0	11.0	14.6	26.2	13.9	50.0	16.6	31.6	31.7
Printing an	22				42.5	2.3	28.3	35.5	1.7	11.1	7.1	5.5	26.8	37.0	18.1	28.6	52.7	25.4	34.6	43.9	23.9	49.1	9.0	28.9
Chemicals	24				29.3	25.3	23.7	29.1	11.7	15.8	17.2	13.1	25.0	29.3	22.7	25.4	47.7	10.3	76.9	37.5	14.1	31.1	26.3	20.9
Rubber an	25				41.5	35.3	43.4	40.8	22.9	16.8	16.0	18.7	50.0	80.0		55.5	33.3	32.0	39.3	33.3	16.4	24.2	20.0	22.2
Non-metal	26				12.4	39.4	24.9	14.4	18.4	14.2	13.5	15.7	24.0	22.7	22.7	23.4	21.0	20.2	30.7	21.0	16.0	7.0	9.0	12.6
Basic Mete	27				41.0	24.1	29.5	40.4	3.6	14.4	13.2	6.2	15.0	7.1	42.1	14.2	14.5	17.0	49.8	15.3	55.1	26.7	7.9	40.1
Fabricated	28				31.9	27.3	28.2	30.9	31.9	16.2	16.9	18.0	38.0	32.8	28.0	33.2	20.1	49.4	32.4	37.8	8.0	21.2	22.0	18.6
Non-electri	29				35.2	40.2	34.2	35.6	27.4	27.9	30.8	28.3	25.5	37.3	44.4	36.9	61.3	39.2	20.7	56.5	63.4	39.3	21.5	51.5
Electrical €	30,31				49.9	29.3	33.5	48.4	21.1	26.6	25.3	22.3	72.2	54.6	37.3	67.3	41.4	43.1	38.3	41.7		30.1	27.9	29.4
Radio, TV	32				24.6	82.2	44.7	25.9	30.7	25.2	27.2	29.9	75.5	47.6	31.2	67.3	68.3	41.9	71.2	66.0	89.7	35.9	31.0	51.1
Instrument	33				46.8	30.3	42.3	44.0	44.6	24.5	31.4	34.7	50.5	41.6	42.8	47.9		28.0	45.4	29.2	22.0	34.5	40.3	28.6
Motor Vehi	34				58.9	38.1	64.2	58.8	10.5	20.3	21.1	11.7	29.6	37.1	57.7	30.5	34.3	42.1	13.6	34.3	45.9	38.5	48.0	43.7
Other Tran	35				22.7	62.7	39.7	23.2	10.6	23.6	35.1	13.3	91.2	58.4	34.5	84.0	22.0	0.0	17.8	20.1	33.5	41.2	44.2	34.3
Furniture	36				50.5	42.5	60.8	49.4	30.6	21.5	22.9	23.7		35.3	27.0	32.6	37.0	25.8	31.5	33.0		39.2	32.4	37.6
Other, Cok	23, 40, 41				72.7	34.7	47.7	70.3	12.4	6.3	6.1	11.9	30.6	26.7	21.3	28.6	1.3	1.9	40.7	4.3	67.0	50.0	16.0	57.7
Total					43.6	32.3	38.5	43.0	14.2	17.7	19.3	15.5	32.0	28.2	24.9	30.5	39.1	19.8	61.2	35.7	29.4	31.6	28.2	30.1

Table A6c. Innovation Outputs by Size classes: Sales New to the Firm and Industry

Sales In New Products New to the Industry / Total Sales

Sector	NACE	France			Germany			Italy			Netherlands			BeLux			Denmark							
		Large	Medium	Small Total	Large	Medium	Small Total	Large	Medium	Small Total	Large	Medium	Small Total	Large	Medium	Small Total	Large	Medium	Small Total					
Food, Drink	15, 16				6.1	10.5	0.0	6.6	7.4	7.8	6.3	7.3	10.8	1.8	3.3	8.9	9.7	3.6	0.8	7.0	4.6	8.9	4.1	5.7
Textiles, C	17, 18, 19				11.3	3.9	5.2	9.7	14.3	10.7	8.7	10.8	0.0	3.7	1.0	2.4	12.8	13.1	16.4	13.1	50.0	29.3	9.8	31.3
Paper, Pulp	20, 21				1.3	2.2	3.2	1.4	3.7	9.5	7.9	6.8	3.8	0.7	2.1	1.7	7.3	7.5	2.2	7.1	0.0	11.2	2.0	5.6
Printing and	22				1.0	20.8	13.2	4.7	1.0	4.4	28.9	8.5	14.2	1.0	6.4	8.7	0.0	0.0	0.0	0.0	5.9	0.0	0.0	4.3
Chemicals	24				7.5	4.4	1.2	7.3	11.8	9.2	10.0	11.1	2.6	3.0	2.4	2.6	10.7	7.5	0.0	9.7	35.1	9.9	6.0	24.6
Rubber and	25				33.0	6.0	18.8	29.4	19.7	10.7	8.6	13.3	0.0	0.0	0.0	0.0	11.8	9.2	20.7	11.6	1.6	6.3	10.5	6.0
Non-metallic	26				9.7	3.8	7.0	9.3	2.7	9.0	7.7	6.2	0.7	0.7	0.9	0.7	8.9	10.1	2.8	9.0	0.0	9.2	10.9	4.0
Basic Metals	27				2.9	14.5	0.5	3.2	6.7	6.4	2.7	6.3	0.0	1.2	2.9	0.9	2.0	0.0	0.0	1.9	0.0	6.2	0.0	3.0
Fabricated	28				8.0	9.6	5.2	8.2	5.7	8.4	11.1	9.5	0.0	2.8	2.5	1.9	20.1	5.6	13.0	11.2	0.0	8.2	12.8	7.3
Non-electrical	29				10.7	9.2	19.3	10.7	12.4	16.3	13.7	13.9	3.6	3.1	5.8	3.7	3.8	14.6	36.2	6.5	16.2	14.4	16.3	15.5
Electrical	€ 30, 31				5.5	15.6	18.1	6.2	40.6	12.4	12.2	34.0	0.1	5.5	14.4	1.9	0.4	5.2	3.5	1.6		7.9	56.3	22.9
Radio, TV	32				23.1	3.9	14.7	22.6	8.0	20.8	19.5	10.0	10.7	17.4	22.4	12.7	3.7	12.9	7.9	4.5	0.3	6.6	17.3	6.3
Instrument	33				11.2	12.2	13.4	11.4	7.6	15.5	15.6	12.3	0.6	3.9	3.1	1.5		14.1	0.0	13.1	23.0	13.2	9.9	17.2
Motor Vehicle	34				28.9	6.6	14.8	28.8	29.3	32.7	11.8	29.3	0.0	5.3	18.6	0.6	0.0	21.2	17.3	0.1	44.1	3.9	12.5	30.8
Other Transport	35				64.3	0.0	1.8	63.4	32.6	27.4	19.8	31.4	0.4	4.0	0.9	1.0	47.1	0.0	21.8	42.6	59.0	1.0	18.3	53.4
Furniture	36				1.4	9.3	1.3	2.7	9.1	8.7	13.5	10.9		0.9	6.0	2.6	55.4	27.0	18.1	42.2		9.4	8.8	9.3
Other, Cok	23, 40, 41				5.8	7.3	16.5	5.9	25.1	5.9	8.9	23.4	3.6	1.7	5.5	3.4	0.0	64.1	7.8	15.9	0.0	0.0	4.0	0.1
Total					17.6	8.8	11.6	17.1	21.2	11.4	11.0	18.0	4.4	2.0	5.0	4.0	7.1	7.8	6.7	7.3	17.7	9.0	15.0	14.3

Table A6c. Innovation Outputs by Size classes: Sales New to the Firm and Industry

Sector	NACE	Ireland			Norway			Portugal			Spain			UK			Aggregate						
		Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small	Total			
Food, Drini	15,16				34.8	16.3	21.1	26.4	32.0	5.9	4.6	25.0				29.2	0.0	15.7	28.3	12.0	7.4	6.3	10.3
Textiles, C	17, 18, 19								7.2	7.7	15.4	7.7								12.6	10.5	8.8	10.9
Paper, Pulp	20,21				7.5	7.8	1.7	7.0	0.0	0.1	0.0	0.0								2.7	7.3	6.8	4.9
Printing an	22				0.0	1.2	0.5	0.7	8.6	5.6	4.8	7.6				0.0	0.0	1.0	0.1	2.3	4.5	22.8	6.0
Chemicals	24				11.2	4.1	8.7	10.0	10.9	6.4	6.8	8.1				5.0	45.8	13.3	21.1	8.9	7.8	7.9	8.7
Rubber anv	25								0.0	17.7	9.8	12.8								27.3	9.6	9.5	20.1
Non-metall	26				0.0	18.8	2.5	9.6	2.8	20.7	46.5	8.6				1.6	0.0	17.1	2.6	7.0	8.6	7.4	7.4
Basic Mete	27				2.9	3.6	24.8	3.4	47.0	43.8	2.3	45.9				7.4		0.0	6.1	4.1	7.3	3.6	4.4
Fabricated	28								53.1	14.9	33.9	39.6				4.9	21.1	15.8	11.6	8.6	8.3	10.6	9.0
Non-electri	29				6.3	15.6	30.3	13.5	0.0	2.2	22.7	5.1				69.4	20.0	33.4	66.6	13.5	13.4	14.6	13.6
Electrical e	30,31				17.6	11.6	13.0	15.1	2.6	42.0	1.7	12.9				15.9	19.1	28.8	16.7	21.4	14.1	14.8	20.1
Radio, TV	32				9.1	3.0	20.1	10.7	0.0			0.0				41.5	71.4	0.0	53.2	14.2	17.1	18.4	14.6
Instrument	33								0.0	12.1	2.7								33.0	10.3	13.5	14.1	11.4
Motor Vehi	34								40.8	0.1	50.9	24.8							30.0	25.8	25.1	13.1	25.7
Other Tran	35				14.7	8.5	10.1	12.5	0.0			0.0				25.0	35.2		33.3	50.2	17.5	16.5	47.2
Furniture	36								0.0	4.2	25.0	6.5							58.3	7.5	10.9	13.4	10.1
Other, Cok	23, 40, 41				0.0	2.7	6.4	0.2	0.0	19.8	79.0	34.1				6.4	13.5	10.5	6.9	16.7	4.0	23.8	15.5
Total					11.1	11.5	16.7	11.6	14.6	10.7	64.4	21.1				29.0	27.3	19.8	28.6	16.9	9.4	12.6	15.5

Table A7. Regressions of Country / Size Class Means Within Each Industry on Size-class Dummy Variables

Sector	SNP				SNPInc				SNPRad									
	constant	small	medium	large	R ²	cases	constant	small	medium	large	R ²	cases	constant	small	medium	large	R ²	cases
Food, Drink and Tobacco	37.2	4.9	-2.9	-2.0	0.04	27	22.3	2.7	-1.0	-1.6	0.02	27	14.9	2.2	-1.9	-0.3	0.03	27
t-values	10.9	1.0	0.6	0.4			8.9	0.8	0.3	0.5			14.9	0.8	0.7	0.1		
Textiles, Clothing and Leather	39.5	7.9	-1.9	6.0	0.14	19	23.9	2.2	0.1	2.1	0.03	16	19.3	6.6*	-2.5	-4.1	0.34	16
t-values	10.4	1.6	0.4	1.0			8.9	0.6	0.0	0.5			9.8	2.6	1.0	1.3		
Paper, Pulp and Wood Products	27.6	4.0	0.8	-4.8	0.06	21	18.4	3.9	-1.3	-2.6	0.07	18	11.0	0.4	2.3	-2.7	0.05	18
t-values	8.6	0.9	0.2	1.0			6.9	1.1	0.4	0.6			5.1	0.1	0.8	0.8		
Printing and Publishing	30.1	4.4	-4.8	0.3	0.05	22	22.6	-1.2	-0.7	1.9	0.01	19	10.6	4.3	-5.5*	1.2	0.32	18
t-values	7.4	0.8	0.8	0.1			5.2	0.2	0.1	0.3			6.3	1.9	2.4	0.4		
Chemicals and Chemical Products	31.6	3.7	-3.5	-0.2	0.04	24	19.4	1.0	-3.1	2.1	0.06	21	14.2	3.4	-1.4	-2.0	0.13	21
t-values	10.4	0.9	0.8	0.0			9.2	0.3	1.0	0.7			9.3	1.6	0.7	0.9		
Rubber and Plastics	38.8	-1.6	-7.3	8.9	0.16	16	25.3	-3.7	-7.7*	11.4*	0.53	13	18.9	1.4	-2.1	0.7	0.09	13
t-values	9.5	0.3	1.3	1.4			11.1	1.2	2.5	3.3			11.0	0.6	0.9	0.3		
Non-metallic Mineral Products	26.1	3.1	0.7	-3.8	0.08	21	17.5	2.7	-1.0	-1.6	0.05	18	10.5	0.5	2.1	-2.7	0.18	18
t-values	11.2	1.0	0.2	1.2			8.4	0.9	0.4	0.6			9.7	0.4	1.4	1.7		
Basic Metals	26.8	6.8	-0.8	-6.0	0.12	18	22.7	4.9	0.2	-5.1	0.10	15	6.8	-2.4	-0.3	2.6	0.17	15
t-values	7.4	1.3	0.2	1.2			6.4	1.0	0.0	1.0			5.2	1.3	0.2	1.4		
Fabricated Metal Products	38.9	-2.5	-3.2	5.7	0.06	25	28.3	-4.4	-2.9	7.2	0.16	22	14.0	1.1	-1.1	-0.1	0.05	22
t-values	12.0	0.6	0.7	1.2			11.0	1.2	0.8	1.9			15.5	0.9	0.9	0.1		
Non-electrical Machinery	46.1	1.2	0.0	-1.2	0.01	27	28.3	0.1	1.0	-1.2	0.01	24	20.4	1.7	-1.0	-0.7	0.04	24
t-values	18.0	0.3	0.0	0.3			15.6	0.1	0.4	0.5			15.8	0.9	0.6	0.4		
Electrical equipment, office machine	52.5	2.3	-2.3	0.0	0.01	29	29.1	-0.3	-1.6	1.9	0.01	26	24.9	4.3	0.1	-4.4	0.07	26
t-values	16.1	0.5	0.5	0.0			10.0	0.1	0.4	0.5			9.2	1.1	0.0	1.1		
Radio, TV and Communications Equ	52.9	-1.8	2.5	-0.7	0.01	14	29.9	-4.8	5.2	-0.4	0.25	11	27.4	0.2	-0.1	-0.1	0.00	11
t-values	10.4	0.3	0.4	0.1			11.3	1.3	1.4	0.1			7.3	0.0	0.0	0.0		
Instruments	45.2	2.8	-4.7	1.9	0.12	17	28.2	-1.2	-2.9	4.2	0.27	14	20.2	5.5*	-2.6	-2.9	0.35	14
t-values	18.2	0.8	1.4	0.5			19.5	0.6	1.5	2.0			12.5	2.4	1.2	1.2		
Motor Vehicles	49.5	1.9	-3.8	1.9	0.02	15	32.1	5.0	-6.3	1.3	0.13	12	24.3	0.0	2.2	-2.2	0.01	12
t-values	8.0	0.2	0.4	0.2			7.8	0.9	1.1	0.2			4.7	0.0	0.3	0.3		
Other Transport	48.8	-10.3	3.1	7.2	0.14	15	34.5	-4.3	-4.3	-4.3	0.06	12	19.6	-5.8	3.3	2.5	0.11	12
t-values	9.0	1.3	0.4	0.9			5.8	0.5	0.2	0.7			5.0	1.1	0.6	0.5		
Furniture	38.7	0.2	-1.5	1.3	0.01	13	24.8	-1.9	-0.5	2.3	0.09	10	19.7	2.2	-1.2	-1.0	0.05	10
t-values	8.6	0.0	0.2	0.2			12.7	0.7	0.2	0.8			6.8	0.6	0.3	0.2		

* Denotes significance at the 5% level.

Table A8. Regressions of Industry / Size Class Means Within Each Country on Size-class Dummy Variables

Country	SNP			SNPInc			SNPRad											
	constant	small	medium large	R ²	cases	constant	small	medium large	R ²	cases	constant	small	medium large	R ²	cases			
Belgium	45.9	3.1	-4.7	1.5	0.04	46	27.9	0.5	-3.5	3.0	0.06	46	18.7	4.1*	-1.9	-2.2	0.09	46
t-values	17.6	0.8	1.3	0.4			16.5	0.2	1.5	1.2			13.4	2.0	1.0	1.1		
Denmark	42.7	-4.0	-3.6	7.6	0.06	32	24.0	-6.3*	-1.8	8.1*	0.17	31	20.2	2.3	-3.3	1.1	0.03	31
t-values	11.5	0.8	0.7	1.3			10.2	2.0	0.6	2.2			7.2	0.6	0.9	0.2		
France	21.6	-3.1	-2.3	5.4*	0.13	38												
t-values	13.4	1.4	1.0	2.3														
Germany	46.2	2.8	-4.7	1.9	0.05	34	26.7	-1.4	-1.9	3.3	0.04	34	19.5	4.2	-2.8	-1.4	0.10	34
t-values	16.8	0.7	1.2	0.5			13.7	0.5	0.7	1.2			11.9	1.8	1.2	0.6		
Ireland	36.2	6.0	-7.0	1.0	0.10	27	21.0	4.4	-0.1	-4.2	0.11	26	17.3	-0.6	-6.1*	6.7	0.17	25
t-values	9.6	1.2	1.4	0.2			10.6	1.6	0.0	1.4			7.4	0.2	2.0	1.8		
Italy	33.4	-0.3	-2.3	2.6	0.03	39	18.9	-1.4	-1.6	3.0*	0.09	39	14.5	1.1	-0.7	-0.4	0.01	39
t-values	16.7	0.1	0.8	0.9			16.3	0.9	1.0	1.9			12.0	0.6	0.4	0.2		
Netherlands	42.8	-4.3	-0.2	4.5	0.04	44	27.5	-5.9*	-0.1	5.9*	0.11	44	15.2	1.6	-0.1	-1.5	0.02	44
t-values	15.8	1.1	0.1	1.2			13.4	2.0	0.0	2.0			10.4	0.8	0.1	0.7		
Norway	30.5	7.0	4.3	-11.3	0.13	24	16.9	5.7	-0.3	-5.4	0.09	24	14.5	0.4	3.8	-4.2	0.07	23
t-values	7.7	1.4	0.8	1.7			5.5	1.4	0.1	1.1			5.7	0.1	1.2	1.0		
Portugal	41.2	0.9	-1.8	0.9	0.00	24	24.4	-2.7	-1.7	4.5	0.02	23	17.7	5.4	-0.9	-4.5	0.08	24
t-values	8.2	0.1	0.2	0.1			4.9	0.4	0.2	0.6			5.7	1.2	0.2	1.0		
Spain	51.8	0.3	0.4	-0.8	0.00	29	37.0	-2.8	1.1	1.7	0.01	29	16.0	2.0	-0.5	-1.5	0.03	27
t-values	14.0	0.1	0.1	0.1			8.1	0.4	0.2	0.2			8.3	0.8	0.2	0.5		
UK	47.5	-4.7	9.1	-4.4	0.06	19	25.7	-2.0	3.0	-1.0	0.02	19	23.1	-3.8	4.8	-0.9	0.04	18
t-values	7.2	0.5	1.0	0.5			6.1	0.3	0.5	0.2			5.1	0.6	0.8	0.1		

* Denotes significance at the 5% level

