

Spatial stratification and educational choices at upper secondary level

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Introduction

Spatial environment may influence social differentiation in many ways: the economic background, as well as local government policies has an impact on a rather broad area (administrative regions (Dupray, Gasquet, 2003) or commuting zones (Grelet, 2004)); the impact of the social context takes place in smaller areas like municipalities or neighbourhoods. As shown in France by Tabard (2003), Prêteceille (1995) and more recently Maurin (2004) and in the US by Brooks-Gunn, Duncan and Aber (1997), social inequalities are strengthened by spatial stratification. It seems that nowadays, the analysis of social inequalities would not be complete without taking account of the spatial environment in which they occur.

Pathways within the educative system unfold in a specific environment, which “shapes individual’s choice and actions” (Allmendinger, 1989). In France, a spatial stratification enhances the effect of families’ social status on educational and occupational pathways (Grelet, 2004). In the present study, we aim at broadening the scope of the French research and see if its findings can be generalised to other European countries. In this first step of a longer term research, we raise the issue of the existence of regional ‘societal effects’ observable across countries. We therefore use the data provided by the European Social Survey. Taking into account both vertical and horizontal differentiations of educational attainment, we examine the role of the educational background as a channel for social reproduction, and the way in which, besides the family background, the local context may shape this reproduction process. Both descriptive and explanatory analyses give evidence of a regional effect, which reinforces the influence of social background on the choice of schooling curricula.

This paper is divided in three parts: the first section presents the data and variables used in this study; the second part is dedicated to the identification of the different socio-economic patterns which may characterize the regional contexts; the third section focuses on the factors explaining educational choices.

I- Data and definitions

The European Social Survey (ESS) results from a research programme which “aims at a continuous study of political, social and cultural structures and changes in modern western society” (see the ESS website). The survey is designed to guarantee cross-national and longitudinal comparability. The first wave of the survey was launched in 2002, in 22 participating countries. The national sample size varies from 1200 to 3000, and a total of 42359 people were interviewed¹. The questionnaire covers three main areas: individual attitudes and attributes, social position and networks and social context and environment. We focus on the questions giving information on the background of respondents.

As regards educational background, which is our variable of interest, we need to know not only the level of attainment, but also the distinction between the two tracks which can lead to the same level: general or vocational. As the ISCED classification does not provide this information, we apply the national classifications used by the different countries. Only 10 countries make the distinction between vocational and general education (at least at the secondary level): Belgium, Switzerland, Czech Republic, Denmark, Spain, France, Luxembourg, the Netherlands, Poland and Sweden. We selected the 18000 respondents of these countries (see table 1 in the appendix for the national sample sizes).

As we wanted to avoid heterogeneity due to the differences between generations, which may be dramatically high regarding educational attainment, we made a second selection of respondents who were younger than 40 when interviewed (born after 1962). We also excluded those who were still in education at the time of survey, so that the registered level of education is really the highest level achieved. And lastly, because we were interested in the choice between vocational and general education, which is rarely made before the upper secondary cycle, we selected those who reached at least ISCED 3 level.

A little bit more than 4300 respondents remain after these selections.

The main background variables under scrutiny are, besides gender, the educational background of young respondents, their social background and the environmental context they live in. We distinguish 4 categories of educational background by crossing the track and level of education (see the appendix for a precise definition of the variables). Social background is defined by parents' educational attainment (separate or crossed) and occupation (separate or crossed). Environmental context is given by the type of local area the respondent lives in (like a city or a village). Furthermore, we use a subdivision into regions available in the ESS data (NUTS 1 or 2, depending on the country), allowing ourselves to merge some of them within a country in order to keep a reasonable size of the regional samples (see table 2 in the appendix for a list of the 48 regions). The regional context is entered in multilevel models by the means of several indicators computed on the ESS data (reduced to the 10 countries under scrutiny):

- The share of manufacturing / agricultural / services industry among working respondents;
- The share of self-employed workers among working respondents;
- The unemployment ratio;
- The share of respondents working in a small firm (less than 25 employees).

The data suffer from several limitations. Firstly, it is not always possible to identify, in the national classifications of educational levels, the boundary between general and vocational tertiary education; so that vocational tertiary education is likely to be under-represented in our data. Besides, we only have information on the highest level achieved, which may result from

¹ ESS covers persons 15 years and older.

several orientations which occurred during individuals' curricula: in other words, we know the arrival point of the entire pathway, and not the choices made during the educational carrier. Secondly, as we study the effect of the environmental context on educational choices, we would have needed to know the place young people lived in when they were still in education: ESS data do not provide such information, so that we assume that, despite some mobility, globally people stayed in the same region or type of environment. It is a strong assumption for the highest educated, but maybe not so bold for the less educated ones.

II- Several socio-economic patterns characterize regional contexts

We carried out a Principal Component Analysis (PCA), completed by a Hierarchical Cluster Analysis (HCA) of the 48 regions, which features are described by a small set of socio-economic indicators: those mentioned above, plus the proportion of people living in each type of local area. Furthermore, several indicators were used as supplementary variables in the PCA. They link the individual characteristics (educational and social backgrounds) of young people with the type of region they live in. These indicators were computed – on the sub-sample of the respondents under 40 who reached at least ISCED 3 level – as the share of each category of educational background, as well as each category of parents' level of education and of occupation.

Figure 1 (see appendix) shows the position of the variables on the PCA first factorial map.

The horizontal axis² contrasts regions whose industry is dominated by tertiary activities on the left hand side, and, on the right hand side, regions where the share of agriculture or manufacturing industry is high. Big cities and their suburbs are found on the left, along with high status families –who live in cities; general education is favoured in these areas. Self-employed as well as workers of the primary or secondary sector, living more often in towns and villages – but also in suburbs–, are found on the right side of the map; vocational education is predominant in these areas.

The vertical axis mirrors parents' as well as children level of education: tertiary level on the top of the map, secondary level on the bottom. On the right side, the second factor contrasts parents working in the primary or secondary sector, according to their status: self-employed on the top and unskilled workers on the bottom.

To summarize, orientation towards general education is predominant in areas of tertiary activities; the level of attainment in both tracks grows with parents' level of education. The choice of vocational training seems to obey a reproduction scheme (Grelet, 2005): young people having exited vocational training at the secondary level are found in regions of predominant manufacturing or agricultural industry, where live also unskilled and low-educated families.

If we now look at the position of the 48 regions on the factorial map (Graph 1, Appendix 2), we see on the left hand side most of the regions belonging to western countries, where the services sector is predominant. By contrast, eastern countries' regions are found on the right side of the map.

A cluster analysis carried out on the 48 regions confirms the existence of typical regional patterns. We identify 7 clusters (the contours of which are drawn on Graph 2, Appendix 2):

- **Cluster 1** gathers 3 regions, the only ones to be restricted to capital cities (Stockholm, Madrid and Prague), which is the main characteristic of the cluster. The proportion of

² The first factor, which extracts almost half of the variance.

respondents working in services industry, of high-status parents³, and of respondents having achieved tertiary education is at its maximum.

- **Cluster 2** gathers 14 regions. Apart from the concentration in big cities, they share roughly the same characteristics as the previous ones, in a less pronounced way.

- **Cluster 3** gathers 6 regions close from the average, and has no particular distinguishing feature. The proportion of high status families is still high, but here, the presence of manufacturing industry and of big firms may explain that vocational tracks hold an important place in the educative system. As regards parents' level of education, one out of four children has a father who completed upper secondary education.

- **Cluster 4** gathers 7 regions of low demographic density, but not characterised by agriculture. The rate of young people exiting a vocational track (including at the tertiary level) is above the average. As regards parents' level of education, it is similar but slightly lower than in the previous cluster.

- **Cluster 5** gathers five regions located in Eastern Europe. The rate of people working in a manufacturing industry is at its maximum (46%); the rate of young people exiting a vocational secondary track as well. Very few parents reached upper secondary level of education.

- **Cluster 6** gathers 8 Polish and Spanish regions, where agriculture coexists with manufacturing industry: the presence of small firms and the rate of self-employed workers are consistent with this feature. Families' status is rather low. The share of young people exiting vocational tracks is still above the average, but the proportion of those who completed general tertiary education reaches 20%.

- **Cluster 7** gathers two regions where the share of agricultural industries is dramatically above the average. 75% of young respondents exit a vocational track -among which 8% completed at the tertiary level.

These results, drawn from data covering several countries, are consistent with the French findings, and give evidence of a strong link between the social background of young adults, the socio-economic context where they live and the educational choices they made when building their schooling curricula. It has to be noticed that regions of the same country are allocated to different clusters: *the corresponding patterns cross the countries' boundaries*.

Moving from descriptive analysis to explanatory analysis, we will now test to which extent the level achieved depends on the local context in which educational carrier unfolds.

III- Factors influencing the probability of having a ISCED 3-4 vocational diploma

We assume that the chances of having passed a medium level vocational diploma depend on the family social resources (education level of the father and the mother, occupation of both), but also on geographical context. Using the first wave of ESS Survey, we select the type of local area (city, suburbs, town, village, farms) as an explanatory variable. We also take in account the region of residence, as the second level of a multilevel binary model (see Goldstein, 1995; Hox, 2003; Courgeau and Baccaïni, 1997). The small number of countries under scrutiny does not allow adding a country level in the model.

In a first step, we estimate a single model for male and female, with gender as an explanatory variable, then separate models for male and female.

³ As usual in big cities, respondents concentrate on the two extremes of the social ladder (whereas 22% of fathers completed tertiary education, 67% of parents didn't reach the upper secondary level).

Four models have been carried out on young people having attained at least ISCED 3 level. They estimate step by step the probability of *achieving ISCED 3 or 4 vocational education*, rather than achieving *either general education, or vocational education at level 5 or higher*. Model 1 is basic, with only a constant term and a random regional effect. Model 2 includes gender and family background. The type of local area is entered as additional explanatory variable in model 3. Finally, model 4 includes explanatory variables at regional level, in order to make the regional effect more explicit.

Main results of the general models

The regional effect remains significant in the four models (Table 3A, Appendix 2). It has the same extent in models 1 and 2. The mother's level of education has a stronger influence than the father's. The higher it is, the lower the probability of having achieved level 3 or 4 vocational. Having a father graduated from higher education has the same result. Again, mother's occupation has a significant effect, along with father's occupation. Having a father professional, manager, or in an intermediate position lowers significantly the probability of exiting ET system at level 3 or 4, in a vocational track.

If the father is junior manager or technician, mother's occupation makes the difference: if she works in a skilled occupation, the probability for the son or the daughter of having achieved vocational level 3 or 4 is lower, close to the one predicted when the father is a professional, manager or in an intermediate occupation.

In model 3, we add the type of local area as a predictor. Living in a city, a suburb or a town lowers the target probability, compared to living in a rural area. The extent of the variance of the regional random parameter remains unchanged and significant.

In model 4, we add four explanatory variables at regional level: the unemployment ratio, which is not significant, the regional share of small firms, not significant either, the regional share of manufacturing industry and the ratio of independent work among total employment. The two latter variables are significant. The variance of the random regional term decreases, but remains significantly different from zero.

Regional or national effect?

One can wonder if the regional effect is really regional or mostly national. The answer is that the residuals have a strong national component (Graph 3A, Appendix 2), but nevertheless, they display a certain degree of heterogeneity within countries: this result is convergent with the cluster analysis.

Belgian, Danish and Polish regions have positive residuals in model 3, the Swedish and Spanish countries have negative ones, meaning that the former have a well developed vocational system at the second stage of secondary education or at postsecondary education and the latter offer only a few possibilities of it. In other countries, the residuals are more unstable: One Czech region and Three French are on the negative side, the south of the Netherlands being on the positive. When we take in account the fact that a region has a more or less extensive manufacturing sector and independent employment, heterogeneity among regions from the same country grows: only 4 from the 7 Swedish regions remain with a negative residual. Only three Spanish regions (East, Center and Madrid) and none in France have still a significant negative residual.

The gendered models

For men, results are globally the same as the ones obtained in the general model (Table 3B and Graph 3B, Appendix 2). The regional effect is significant, and remains significant when we add the four regional variables.

When we compare the results for men only, the variations across regions are smaller (graph 3B). Most of the Swiss, Danish and Polish regions correspond to higher probabilities of ISCED 3-4 vocational attainment, but it is not true for East Switzerland anymore. Only one French Region and two Spanish ones have a significantly positive residual. And the Polish regions don't show a positive residual any more.

For women, the regional results are slightly different from those obtained for the men (Table 3C and Graph 3C, Appendix 2): if vocational education at level 3 or 4 is still more frequent for women in Switzerland and Denmark, only two Polish regions show a probability significantly higher than other regions. In four Regions among six, French woman have a lower probability of level 3-4 vocational education. When the regional context is taken in account, just a few regions are significantly different: all regions from Switzerland, two Danish ones, the South of the Netherlands on the positive side; two French (South-East and Great Paris area), the East of Spain, and only one Swedish region remain on the negative side.

Conclusion

In this first exploratory analysis led on 48 European regions, we give evidence of a crossed influence of both social origin and environmental context on the main educational choices (track and level of attainment) and on the educational background with which young people enter the labour market.

Several factors may explain the role of space as a link between social structure and schooling curricula. Local specificities exist in the educative system. Besides historical grounds, they appear to be partly a response to families' educational demand and partly to labour market needs. Firstly, the range and amount of training supply are very heterogeneous, horizontally as well as vertically: in cities, the whole range of opportunities provided by the educational system is largely available. By contrast, the training supply is often much narrower in rural areas. Secondly, the local educative system reacts to families' educational demand, and this latter may not be the same according to their own socio-occupational status. Thirdly, economic decision-makers contribute also to shape the local training supply. Both families' and companies' educational demand are shaped by the socio-economic features of the local environment.

Our first results are encouraging: they show that the regional context effect cannot be reduced to a country effect. Regional differentiation in a single country can be isolated, even with a very simplified infra-national classification. Considering that, it seems worthwhile studying further spatial context effects on educational attainment.

This study is a step towards our research goal, which is to analyse how youngsters' social origin and socioeconomic environment influence the level and content (field of study) of their educational curricula; and to use local units smaller than regions, close to the notion of neighbourhoods (Marpsat, 1999), to characterise the context in which schooling curricula and occupational pathways unfold. The first wave of the European Social Survey does not provide enough information, neither on the field of study, nor on the infra-regional localisation. The next step will be to investigate the availability of other data, to explain in a comparative perspective, not only the choice of a track, but also the field of study (variable F6a in ESS wave 2); and to sharpen the characterisation of the socio-economic context.

To take in account the neighbourhoods' level, we intent to use ESS wave 2, if the proper data are available, or use national surveys (perhaps LFS), if researchers from other countries teams are interested and ready to share national data.

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Appendix 1: Variables

- Educational background:
 - Upper secondary education (ISCED 3 and 4), Vocational track
 - Upper secondary education (ISCED 3 and 4), General track
 - Tertiary education (ISCED 5 and 6), Vocational track
 - Tertiary education (ISCED 5 and 6), General track

- Type of local area the respondent lives in:
 - A big city
 - Suburbs or outskirts of a big city
 - A town or a small city
 - A country village
 - A farm or home in the countryside

- Social background:
 - Parents' level of education:
 - Father and Mother didn't reach upper secondary ISCED 3 level
 - Father didn't reach ISCED 3 level, Mother completed at ISCED 3 or more
 - Father completed at ISCED 3 or 4 level, Mother at ISCED 2 or less
 - Father completed at ISCED 3 or 4 level, Mother at ISCED 3 or more
 - Father completed at ISCED 5 or 6 level, whatever the Mother's level.
 - Parent's occupation:
 - Father holds a managerial or similar occupation (professional, clerical or intermediate), Mother doesn't work
 - Father holds a managerial or similar occupation (professional, clerical or intermediate), Mother works
 - Father is a technician, Mother doesn't work
 - Father is a technician, Mother is an unskilled worker
 - Father is a technician, Mother is a skilled worker
 - Father is an unskilled worker, Mother doesn't work
 - Father is an unskilled worker, Mother works
 - Father doesn't work (or occupation unknown), Mother doesn't work
 - Father doesn't work (or occupation unknown), Mother works.

- Regional context: all indicators have been computed on the ESS data (reduced to the 10 countries under scrutiny):
 - The share of manufacturing / agricultural / services industry among working respondents
 - The share of self-employed workers among working respondents
 - The unemployment ratio
 - The share of respondents working in a small firm (less than 25 employees).

- Countries and regions: tables 1 below gives the sample size of each of the 10 selected country, and table 2 gives the desegregation of the countries into 48 regions.

Table 1: The selected countries and their sample size (unweighted)

Country	Size of ESS sample	Size of selected sub-sample*
Belgium	1899	480
Switzerland	2040	553
Czech republic	1360	287
Denmark	1506	355
Spain	1729	310
France	1503	512
Luxembourg	1552	376
the Netherlands	2364	508
Poland	2110	524
Sweden	1999	417
<i>Total</i>	<i>18062</i>	<i>4322</i>

* ESS1 respondents, born after 1962, not in education, who completed at least at upper secondary level.

Table 2: desegregation of the 10 selected countries into 48 regions

Country	Regions
Belgium (B)	Flanders (BFla) Brussels and Wallonia (BWal)
Switzerland (C)	Genferseeregion (CGnf) Zentrales Mittelland (CMit) Nordschweiz (CNor) Zentralschweiz (CZnt) Ostschweiz (Cost)
Czech Republic (Z)	Prague (Z Prg) Central Bohemia (ZCBo) South Bohemia + Plzen Reg (ZSBo) Severozapad (Karlovy Vary Reg.+ Usti Reg.) (ZSvz) Severovýchod (Liberec Reg. +Hradec Kralove Reg. +Pardubice Reg) (ZSvc) Jihovýchod (Vysocina + South Moravia) (ZJyv) Styredni Morava (Olomouc Reg.+ Zlin Reg.) (ZSMo) Moravian Silesia Reg. (ZMoS)
Denmark (D)	North Seeland (Copenhag, Frederiksb. Roskilde, Vestsjæl, Storstrøm, Bornholm) (DNSe) South Jutland (Fyns, Sønderjyllands, Ribe, Vejle) (DSJu) North Jutland (Ringkøbing, Århus, Viborg, Nordjyllands) (DNJu)
Spain (E)	North West (Galicia, Principado de Asturias, Cantabria) (ENWe) North East (País Vasco, Comunidad Foral de Navarra, La Rioja, Aragón) (ENEs) Comunidad de Madrid (EMad) Central regions (Castilla y León, Castilla-la Mancha, Extremadura) (ECnt) East (Cataluña, Comunidad Valenciana, Illes Balears) (EEst) South (Andalucía, Región de Murcia, Ceuta y Melilla, Canarias) (ESud)
France (F)	Paris region (Région parisienne, Bassin Parisien Est, Bassin Parisien Ouest) (FBP) North and East (FN+E) West (FWes) South-West (FSW) South-East (FSE) Mediterranean regions (FMed)
Luxembourg (L)	
The Netherlands (N)	North (Groningen, Friesland, Drenthe) (NNor) East (Overijssel, Gelderland, Flevoland) (NEst) West (Utrecht, Nord Holland, Zuid Holland, Seeland) (NWest) South (Nord Brabant, Limburg) (NSud)
Poland (P)	Poludniowo Zachodni (PPZz) Polnochy (PPY) Wschodni (PW) Polnocho Zachodni (PPZ) Centralny (PC) Poludnovy (PP)
Sweden (S)	Stockholm (SSto) Östra Mellansverige (SÖMe) Sydsverige (SSyd) Norra Mellansverige (SNMe) Mellersta Norrland+Övre Norrland (SNoL) Småland med öarna (SSma) Västsverige (SVäs)

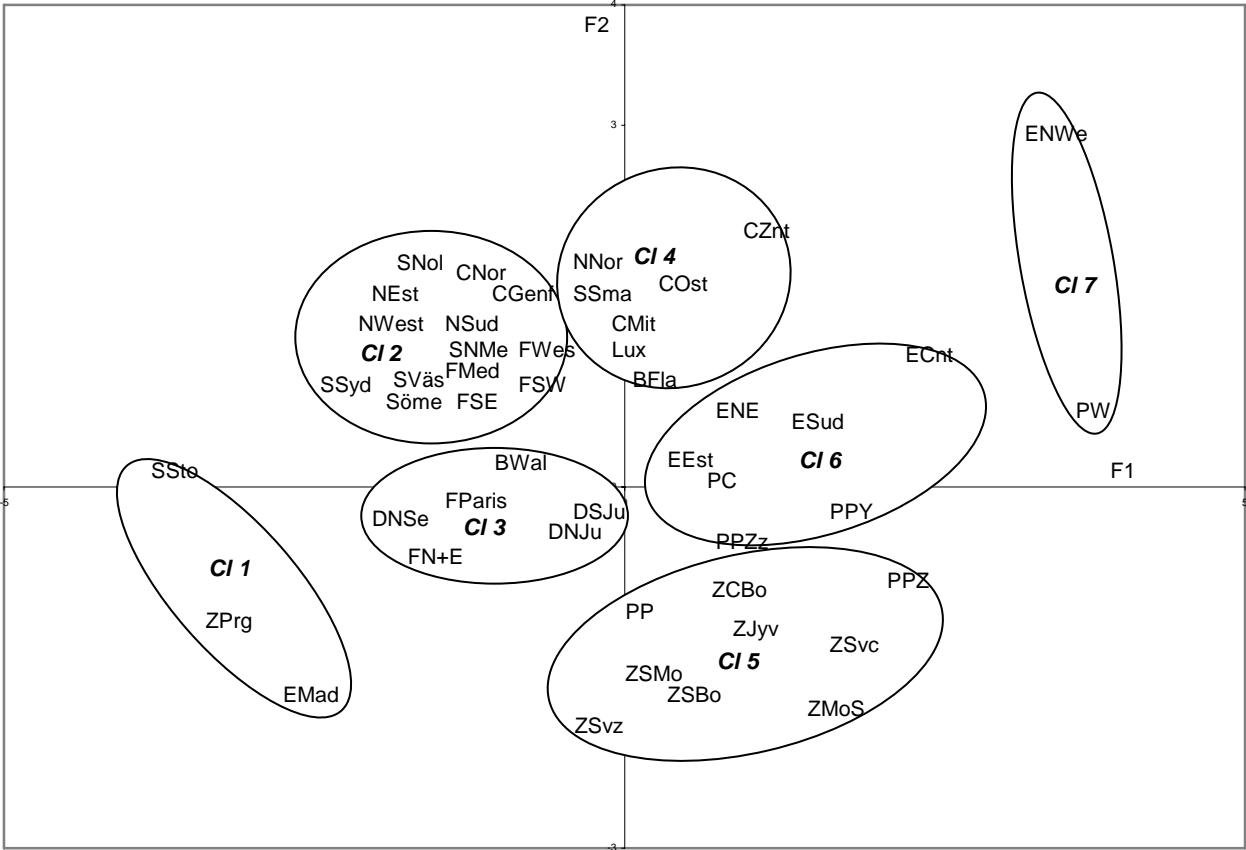
Appendix 2: Tables and Graphs

Graph 1: The first factorial map of the PCA (variables)



Source: ESS, wave 1.

Graph 2: The first factorial map of the PCA (regions)



Source: ESS, wave 1. See table 2 in appendix 1 for the acronym of the regions (the first letter refers to the country).

Table 3A- Probability of having attained ISCED level 3-4 vocational, vs ISCED 3-4 General or Higher Education

Highest level attained: ISCED 3-4 Vocational vs 3-4 general or 5 and over male and female together

Variable	model 1	model 2	model 3	model 4
Constant	0,11 ns	0,77 ***	1,06 ***	1,05 ***
Gender				
Male		0,25 ***	0,25	0,25 ***
Female		ref	ref	ref
parents' level of education				
father and mother isced 0-2		ref	ref	ref
father isced 0-2, mother isced 3-6		-0,47 ***	-0,45 ***	-0,42 ***
father isced 3-4, mother isced 0-2		-0,07 NS	-0,07 NS	-0,04 NS
father isced 3-4, mother Isced 3-6		-0,49 ***	-0,45 ***	-0,41 ***
Father isced 5-6		-1,41 ***	-1,29 ***	-1,26 ***
parents' occupation				
father manager, mother doesn't work		-0,97 ***	-0,95 ***	-0,95 ***
father manager, mother works		-0,91 ***	-0,89 ***	-0,91 ***
father technician, mother doesn't work		-0,38 ***	-0,38 ***	-0,38 ***
father technician, mother unskilled		-0,49 ***	-0,5 ***	-0,53 ***
father technician, mother skilled		-0,83 ***	-0,82 ***	-0,85 ***
father unskilled, mother works		-0,06 NS	-0,09 NS	-0,11 NS
father unskilled, mother doesn't work		ref	ref	ref
father doesn't work, mother doesn't work		-0,36 **	-0,32 *	-0,32 *
father doesn't work, mother works		-0,36 *	-0,31 NS	-0,33 *
Local area				
Village			ref	ref
City			-0,77 ***	-0,77 ***
Suburbs			-0,39 ***	-0,38 ***
Town			-0,45 ***	-0,36 ***
Farms			-0,24 NS	-0,23 NS
regional context				
unemployment ratio				-0,03 NS
share of manufacturing industry				0,06 ***
share of small firms				-0,02 NS
share of self-employed workers				0,06 **
sigma**2(u)	0,85 ***	0,85 ***	0,79 ***	0,5 ***
2negloglikelihood	4544	4147	4089	4070

Source: ESS, wave 1.

*: significant at 10% level.

**: significant at 5% level.

***: significant at 1% level.

Graph 3A: Regional residuals - Males and females together (Source: ESS, Wave 1)

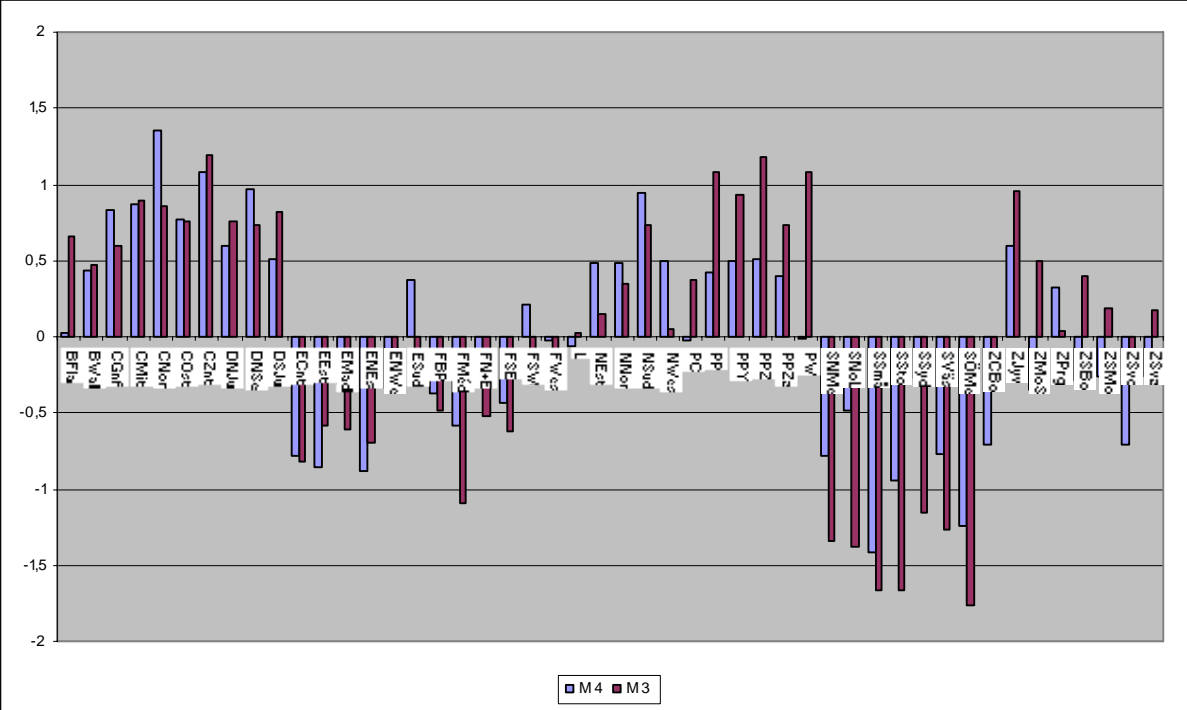


Table 3B: Separate models for male

Highest level attained: ISCED 3-4 Vocational vs 3-4 general or 5 and over

MALE

Variable	model 3	model 4
Constant	1,49 ***	1,45 ***
parents' level of education		
father and mother isced 0-2	ref	ref
father isced 0-2, mother isced 3-6	-0,44 **	-0,42 ***
father isced 3-4, mother isced 0-2	0,44 NS	-0,09 NS
father isced 3-4, mother Isced 3-6	-0,28 *	-0,21 NS
Father isced 5-6	-1,22 ***	-1,17 ***
parents' occupation		
father manager, mother doesn't work	-1,11 ***	-1,09 ***
father manager, mother works	-1,06 ***	-1,06 ***
father technician, mother doesn't work	-0,51 ***	-0,50 **
father technician, mother unskilled	-0,55 **	-0,58 **
father technician, mother skilled	-0,90 **	-0,94 ***
father unskilled, mother works	-0,1 NS	-0,12 NS
father unskilled, mother doesn't work	ref	ref
father doesn't work, mother doesn't work	-0,38 NS	-0,35 **
father doesn't work, mother works	-0,73 *	-0,73 **
Local area		
Village	ref	ref
City	-1,0 ***	-1,0 ***
Suburbs	-0,76 ***	-0,73 ***
Town	-0,38 ***	-0,39 ***
Farms	-0,18 NS	-0,15 NS
regional context		
unemployment ratio		-0,01 NS
share of manufacturing industry		0,06 ***
share of small firms		-0,01 NS
share of self-employed workers		0,06 **
sigma**2(u)	0,82 ***	0,51 ***
2negloglikelihood	1971	1954

Source: ESS, wave 1.

*: significant at 10% level.

**: significant at 5% level.

***: significant at 1% level

Table 3C: Separate models for women

Highest level attained: ISCED 3-4 Vocational vs 3-4 general or 5 and over

Female

variable	model 3	model 4
constant	0,93 ***	0,9 ***
parents' level of education		
father and mother isced 0-2	ref	ref
father isced 0-2, mother isced 3-6	-0,27 ***	-0,26 **
father isced 3-4, mother isced 0-2	-0,07 NS	-0,02 NS
father isced 3-4, mother Isced 3-6	-0,45 ***	-0,30 **
Father isced 5-6	-1,29 ***	-0,93 ***
parents' occupation		
father manager, mother doesn't work	-0,73 ***	-0,70 ***
father manager, mother works	-0,64 ***	-0,63 ***
father technician, mother doesn't work	-0,32 *	-0,30 *
father technician, mother unskilled	-0,29 ***	-0,29 NS
father technician, mother skilled	-0,65 ***	-0,63 ***
father unskilled, mother works	-0,07 NS	-0,09 NS
father unskilled, mother doesn't work	ref	ref
father doesn't work, mother doesn't work	-0,16 NS	-0,15 NS
father doesn't work, mother works	-0,15 NS	-0,16 NS
Local area		
village	ref	ref
city	-0,27 ***	-0,26 **
suburbs	-0,19 NS	-0,17 NS
town	-0,34 ***	-0,35 ***
farms	-0,56 **	-0,54 **
regional context		
unemployment ratio		-0,04 NS
share of manufacturing industry		0,05 ***
share of small firms		-0,01 NS
share of self-employed workers		0,04 **
sigma**2(u)	0,61 ***	0,44 ***
2negloglikelihood	2316	2302

Source: ESS, wave 1.

*: significant at 10% level.

**: significant at 5% level.

***: significant at 1% level

Graph 3B: Regional residuals - Separate models for men.

