

Sex-Differences in Job-Allocation: What Drives Women's Investments in their Jobs?

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Abstract

Women tend to concentrate in jobs that require lower investments in specific skills and this has negative consequences for their earnings. This paper proposes a supply-side model with macro-level effects to explain why this is the case. The job-allocation decision is modeled as a discrete choice between two ideal job-types, one that requires high investments in the job and one that does not. Individuals consider the tenure-reward profiles of each job-type and choose rationally on the basis of their expected job tenure. Women's tenure expectations are influenced by individual-level characteristics, including their gender attitudes and preferences, but also by two types of social structures from which information is drawn: 1) *macro-level distributions* —in particular, the presence of professional women and housework-cooperative men in women's region of residence—, and 2) *past family experiences* —in particular, the employment histories of women's own mothers. This model is tested using data from 17 industrialized European societies comprising 165 different regions. Results are consistent with the model predictions.

Keywords: Skills, gender, job-allocation, rationality, informational structure, macro-micro effects, European Social Survey.

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Sex-differences in job-specific skills —i.e. skills that are acquired on the job— account for a significant part of the gender wage gap (see e.g. Macpherson and Hirsch 1995) and, according to several estimations, could explain most of the statistical effect of occupational sex-composition on earnings (Tam 1997; 2000; Tomaskovic-Devey and Skaggs 2002; Polavieja 2008; 2009). Hence it is crucial for any theory of sex-differences in labor-market rewards to focus on the processes leading to sex-differences in job-skill acquisition. Why are women less likely to acquire job-specific skills linked to higher earnings?

There is a vast sociological literature dealing with sex-differences in labor-market performance (for a review see, e.g., Leicht 2008; Morris and Western 1999; Polavieja 2008; Reskin 1993). Most of this literature has focused on occupational sex-segregation and on its consequences for earnings. Yet the question of sex-differences in job-specialization has not been central to the existing debates until the seminal work of Tam (1997; 2000) and the studies that stemmed from it (Tomaskovic-Devey and Skaggs 2002; Polavieja 2008; 2009). Using cross-sectional data from the 1988 U.S. Current

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Population Survey, Tam showed that the observable impact of occupational sex composition on wages disappeared entirely once both information on the average length of specific training required in respondents' occupations and a set of industry dummies were introduced in the wage equations. Tam interpreted this finding as evidence against the existence of a cultural devaluation of women's work and in support for the standard human capital assertion that investments in specialized skills produce high economic returns over tenure but entail significant costs for workers, particularly for women (for a discussion see England *et al.* 2000; Polavieja 2005; Tam 2000; Tomaskovic-Devey and Skaggs 2002).

Tam's paper inaugurated a very fruitful line of research. His main finding that job-learning time absorbs the statistical effect of occupational sex-composition on earnings has been subsequently confirmed using more precise job-level measurements of specialization (see Polavieja 2008; 2009; Tomaskovic-Devey and Skaggs 2002). All these papers focus specifically on what Petersen and Morgan (1995) called the *valuative* process, i.e. the processes linking individuals (in jobs) to earnings. Yet this emphasis on *valuative* processes relegates the crucial question of allocation to the background. What this literature is calling for, but is still missing, is therefore an analysis that tackles specifically the process linking individuals to jobs.

Although Tam (1997) only investigated the earning consequences of sex-differences in job-specialization, the human capital theory he endorsed also entails a clear explanation for such differences, which is consubstantial to the whole approach (see, e.g., Becker 1981; 1985; Goldin and Polachek 1987; Polachek 1981; Zellner 1975). The main thrust of this allocation theory is the assertion that women face higher opportunity costs for

investing in specialized human capital. These costs can stem from higher disruption risks (Polachek 1981), higher housework burden (Becker 1985) and/or an intrinsic competitive advantage in the domestic sphere (Becker 1981:21-25; 1985:41). Faced with these costs, women will rationally choose jobs that require lower specific investments but produce lower returns to seniority.

The claim that women might rationally “choose” particular jobs that entail lower returns has generally been received with criticism by most sociological theories of gender inequality (see, e.g., Corcoran *et al.* 1984; England 1982; 1984; England *et al.* 1988; 2000; Marini 1989) and, in particular, by the so-called socio-cultural and social-closure approaches. According to the former, sex-differences in job-allocation and earnings are ultimately the product of socialization processes that transmit sex-specific values, orientations and stereotypes regarding men and women’s roles in society. These values and stereotypes are carried over into the labor market by employers and employees alike, producing biased assessments regarding men and women’s respective levels of ability and occupational competence. Biased assessments would lead in turn to sex-differences in job-allocation, training, promotion and pay (see, e.g., Corell 2001; Corell *et al.* 2007; Crompton and Harris 1997, 1998; England *et al.* 1994, 2000; Lovaglia *et al.* 1998; Shu and Marini 1998). Socio-cultural theories tend to view the process of status categorization leading to gender-biased evaluations as an expression of patriarchy, which is a form of male domination reproduced through socialization and interactional processes (see: Ridgeway 1997; Ridgeway and Erickson 2000). To be sure, these theories do not reject the possibility that women’s self-select themselves into the less-rewarding jobs but view this self-selection process as mainly driven by gender

preferences, attitudes, and self-assessments that reflect socialization in patriarchal values.²

Social-closure theories also reject quite explicitly what Tomaskovic-Devey and Skaggs (2002:123) call the “*typical human capital imagery of voluntary investment strategies*” (see also: Reskin 1988; Tomaskovic-Devey 1993). Instead they stress the active role that more powerful individual actors (particularly male coworkers and often also employers) play in excluding status inferiors (i.e. women) from the best and most desired jobs, which tend to be those requiring specific training (Tomaskovic-Devey and Skaggs 2002:109). Sex-differences in job-allocation are therefore seen as the result of the monopolization of privileged positions at the workplace, which would be a micro-level manifestation of gender politics³ (Tilly 1998). Social-closure theories thus see power relations as embodied in real actors operating within organizations.

Socio-cultural and closure models are particularly concerned with, and offer important insights into, the gender dimension of power relations. Yet whilst socio-cultural theories treat power relations as a rather impersonal phenomenon that operates largely through socialization and interactional processes, models of social-closure focus on power relations at the micro level. Notwithstanding these differences, defenders of both theories typically view this concern with power as irreconcilable with rational-action

² Hakim’s preference theory sees women’s labor market behavior as largely governed by their own core gender preferences (see Hakim 2000; 2003). Yet differences in core-preferences are thought to reflect personal agency to a much greater extent than socialization approaches would concede. Hakim’s preference theory does not explain the origin of core preferences.

³ Social-closure arguments are generally compatible with an understanding of firms as gendered organizational contexts (Acker 1990; Hultin and Szulkin 2003; Reskin *et al.* 1999).

approaches and this seems to be what lies at the heart of their criticism of the human capital model. This study takes a very different stand as, in our view, there is absolutely nothing inherent to rational action models that prevents them from dealing with the crucial question of power. In fact, we would argue, rational action approaches are particularly well-equipped to spell out the crucial link between macro-level structures and individual-level behavior and in so-doing can offer very important analytical insights into the actual mechanisms of inequality transmission.

In contrast to socialization and social closure theories, this paper argues that perceived disruption risks can indeed hinder women's investments in the job even in the absence of discriminating employers or hostile coworkers and regardless of women's own gender preferences. Yet, counter to human capital and other standard economic approaches, we also argue that individuals' job-choices are influenced by the social structures in which they live and that this influence is a crucial channel for the social reproduction of gender inequality. Our approach thus marries the emphasis on rational investment choices that is characteristic (but obviously not exclusive) of economic approaches with the typically sociological concern with the contextual determinants of individual behavior. It is our conviction that gender stratification research can benefit considerably from this marriage.

We thus propose a supply-side model of job-allocation with societal-level effects that recognizes the centrality of sex-differences in perceived job-disruption risks. This model assumes that individuals are uncertain about their probabilities of success in different jobs requiring different skill-investments but they act rationally within their cognitive limits. The job-allocation decision is therefore treated as an investment

decision. In informing these decisions agents consider 1) the observed tenure-reward profiles of the different jobs and 2) their own expected tenure in the job. Rational individuals only choose to invest in specialized job-skills if they expect to spend a minimum time at the job. Evaluations of expected tenure thus play a crucial role in this allocation model.

Individuals' prospective assessments of their expected tenure are then modeled as a function of individual-level characteristics, including gender preferences and attitudes, but also of societal sources of information that are likely to influence the investment decision through their impact on tenure expectations. Two types of social structures are expected to have an effect on women's allocation choices: 1) *macro-level distributions*—in particular, the proportion of women already employed in highly-specialized jobs and the proportion of men willing to share domestic responsibilities, both measured at the regional level—, and 2) *past family experiences*—in particular, the employment histories of women's own mothers. Sex-differences in job-allocation are therefore interpreted as the result of a truly macro-micro process whereby gender structures and past family experiences exert an independent influence on women's rational investment choices.

Our theoretical approach thus connects to the so-called “membership-based” models of inequality and intergenerational mobility recently advocated by economists (see Durlauf 2001) in that it assumes the presence of spill-over effects from the macro-level characteristics of societies to the purposefully rational investment choices of individuals. These effects are interpreted as information. By emphasizing the social dimension of informational retrieving our model provides a clear link between macro-

level structures and micro-level behavior, as has been repeatedly called for by the defenders of analytical sociology (see, e.g., Coleman 1990; Hedström 2005; Hedström and Swedberg 2000).

By placing a greater emphasis on the social determinants and the allocation consequences of disruption-risk expectations, this model can help us better unearth the ‘structural’ component of gender inequalities, that is, the element that does not depend on intentional status-based discrimination or transmitted preference heterogeneity but on the very structure of opportunity individuals face when making risky choices (see also: Polavieja 2009). Our approach can thus explain why the job-allocation choices of men and women might still differ even if they become identical in their assets and preferences —and even in the absence of purposeful discrimination. It thus constitutes an innovative sociological contribution to the study of sex-differences in job-specialization.

Empirically, our approach complements previous studies that focused on the earning consequences of sex-differences in job-specialization by investigating specifically the determinants of such differences. We use the first-released dataset of the second round of the European Social Survey, ESS, carried out in 2004 (Jowell and CCT 2005). Europe combines low geographical mobility with very wide intra-national regional variation and these characteristics makes it an optimum field for the testing of our model. Since a central concern of this study is investigating how social structures affect individuals’ belief-formation, it is important to exploit societal-level variation, whilst keeping constant the country-level effects that are typically analyzed in most comparative research. By specifically targeting intra-national regional variation we can

net out the informational mechanisms discussed above from the more general institutional and public policy effects operating at the national level. The existing comparative literature on gender has focused on such country-level effects (see, e.g., Chang 2000; Estevez-Abe 2005; Mandel and Semyonov 2005; Polavieja 2009; Stier and Lewin-Epstein 2001) whilst largely ignoring intra-national regional variation and this despite the fact that sex-differences in labor-market behavior are meant to differ markedly within countries —between, say, Sicily and Milano, Flanders and Valonia, the Basque Country and Andalusia or the Scottish Highlands and London. In contrast to previous comparative studies, our approach capitalizes on regional diversity by using information for individuals residing in 17 different European countries and 165 European regions. Exploiting regional diversity constitutes another significant and innovative contribution of this study.

The ESS also includes an exceptionally exhaustive list of theoretically-relevant indicators, covering individual gender attitudes and personal traits, household characteristics and, crucially, very detailed information on the skill content of respondents' jobs. Probably no other comparative survey is currently as complete in all three realms. Having such detailed individual information for a large number of societal contexts makes it an optimum dataset for testing our model predictions.

The rest of the paper is organized as follows. In the first section the theoretical model is presented in two steps. First, we introduce a micro-level model of job allocation that highlights the crucial importance of expected tenure, and secondly we model the micro and macro-level factors influencing women's tenure expectations and discuss the empirical predictions that follow. The second section describes the main variables and

discusses the methodology and specification used in the empirical analyses. Then the main empirical results are presented. Finally, the study concludes with a summary and discussion of its main findings.

THE MODEL

Jobs are training slots and hence any job-matching decision is also a skill-investment decision (Thurow 1975). Individuals consider the expected returns of their job-matching decisions by looking at the tenure-earning profiles of the different types of jobs available to them. Jobs matter both because of the specific investment requirements they entail and the contractual hazard problems they give rise to. These two dimensions are related.

Both standard human capital theory (see in particular Becker 1993[1964] and Polachek 1981) and imperfect-market training models (for a review see Leuven 2005) have focused on the skill-dimension of jobs,⁴ whilst personnel,⁵ transaction cost and efficiency wage theories⁶ in economics, as well as rational action theories of class in

⁴ Polachek (1981) introduces job-allocation decisions within the general human capital framework. Yet human capital approaches have been generally criticized for subsuming the characteristics of jobs under the characteristics of individuals. For an early sociological critique along these lines see Granovetter (1981). See also Lazear (1995: 77-79) for a critique from personnel-economics. A further criticism of human capital approaches in the context of wage decomposition methods can be found in Polavieja (2005).

⁵ See, e.g.: Lazear (1995); Lazear and Rosen (1990); Milgrom and Roberts (1992).

⁶ See, e.g.: Akerloff and Yellen (1986); Goldin (1990); Shapiro and Stiglitz (1984); Stiglitz (1975); Williamson (1985: 240-72), Williamson, Wachter and Harris (1975).

sociology⁷ have all dealt with contractual-hazard (for a review of these approaches see, e.g., Polavieja 2005).

All types of training that occurs on the job, including training on skills that have an economic value outside the firm, can be conceived as entailing costs and benefits for both employees and employers. This would explain why, contradicting the predictions of standard human capital theory, employers are very often willing to bear with the costs of training in transferable skills (see, e.g., Acemoglu and Pischke 1998; Kessler and Lülfsmann 2006; Loewenstein and Spletzer 1998). Moreover, it could be argued that the distinction between transferable and firm-specific skills that is so central to Becker's original formulation (see Becker 1993[1964]: 33-49) is in fact hard to make in practice (Acemoglu and Pischke 1998). As such, neither the employer nor the employee will be able to assess easily the degree of skill-transferability of any given training scheme (including informal learning on the job), whilst both parties will recognize without difficulty the extent to which skill investments (of whichever type) have been made. Under this light, all types of job-skill investments can be seen as a source of contractual hazard —what Sorensen (2000) called composite rents.

Employers' investments in job skills generate incentives for closing the employment relationship to outside competition. This is typically achieved via long-term, open-ended contracts, which are used by employers as a means to safeguard their investments in workers' job-specific training. Yet closing the employment relation increases employees' opportunities for shirking. Employers thus face the problem of how to safeguard their skill-investments, whilst at the same time ensuring that workers' put

⁷ See: Breen (1997); Goldthorpe (2000: ch. 10); Polavieja (2003); Sorensen (2000).

forth productive effort (for a discussion see, e.g., Sorensen 1994). A typical way of dealing with the disincentive consequences of employment closure is the use of steep tenure-earning profiles where compensation increases with seniority (see, e.g., Breen 1997; Goldthorpe 2000: 206-29; Sorensen 2000). Steep tenure-earning profiles shift the returns to job-specific skill investments to the end of the employment career and this makes job-separations increasingly costly for the employee.⁸ Deferred compensation therefore acts as an incentive device that promotes both employees' durability in the firm and their sustained effort over time.⁹

Moreover, employers will best safeguard their skill-investments if they manage to reduce wages during the training period as a means to avoid early quits. Reducing earnings at the early stages of the employment relationship whilst deferring compensation to the end seems an optimal managerial strategy because it generates incentives for workers to invest in job-specialization as well as to stay in the firm after such investments have taken place. If totally successful, this compensation scheme would imply below-productivity wages at early stages (when most training takes place) and above-productivity wages (i.e. rents) at the end (see Lazear 1995: 239-42; Sorensen

⁸ Closure might, however, follow from workers' collective action or even from high levels of institutional regulation imposed directly by governments in non-unionized contexts. Yet, regardless of its source, closure is likely to generate the same type of incentive problems (Polavieja 2003).

⁹ Steep tenure-earning profiles would also follow even if we assumed that skill transferability is perfectly observable, as does the standard human capital theory, and even in the case of perfectly transferable skills. According to Becker (1993[1964]: 30-50), investments in skills that have an economic value outside the firm should be borne by employees themselves. This is typically achieved by reducing employees' wages during their training period. If employers succeed in shifting all the training costs to employees, the employment relationship would not need to be closed. Yet training will eventually pay off via higher productivity as workers accumulate tenure. Hence, the human capital model also expects wage gains over tenure in the case of job-skills that are transferable to other firms.

1994). Deferred compensation schemes of this kind will drastically reduce the contractual hazard problems generated by job-specific skill investments.

For simplicity, let us assume that there are only two types of jobs in the economy: jobs that require no (or very low) skill investments (L) and jobs that require high skill investments (H). In the former type, individuals are employed to use their general pre-market skills acquired through schooling, whilst in the latter type employees are trained to learn new skills that are specific to the job (although not necessarily to the firm). Training in H-type jobs can be formal or informal. The expected returns over tenure for these two types of jobs are represented graphically in figure 1.

[Figure 1 about here]

The job-matching decision

Individual i will choose job H over job L if his/her expected returns in job H (R_H) are greater than his/her expected returns in job L (R_L). Individuals calculate expected returns on the basis of the observed tenure-earnings profiles of each type of job and their expected tenure (t). For ease of exposition, we assume that returns over tenure in L jobs are 0, whilst returns over tenure in job H increase at a constant rate (β). Formally, individual i will choose job H if:

$$t \cdot R_L < t \cdot \alpha + \frac{1}{2}\beta t^2 \quad [1]$$

where each side of expression [1] is the reward profile of each type of job as defined by the areas shown in figure 1.¹⁰ It is now easy to demonstrate that rational individuals will only choose job H if their expected tenure (t) exceeds value t^* , as in any value below t^* returns over tenure will be greater in job L. Formally, individuals will choose H over L if $t > t^*$, where:¹¹

$$t^* = 2(R_L - \alpha) / \beta \quad [2]$$

Expected tenure (t) is thus crucial for the job-matching decision, which is here defined as a skill-investment decision. It is widely known that average tenure for men is significantly longer than for women, as men very seldom interrupt their careers for family-related reasons, whilst women typically do. Hence it should come as no surprise that men are more likely to invest in job-specific skills, the returns of which depend on seniority. Yet it is also obvious that not all women are equally likely to interrupt employment and hence variation in women's assessments of their prospective tenure should be expected. Understanding the sources of such variation seems crucial for any explanation of sex-differences in job-specific skills.

¹⁰ Note that $\frac{1}{2}\beta t^2 = [(\alpha + \beta t - \alpha) \cdot t] / 2$

¹¹ Expression [2] follows from:

$$0 < t(\alpha - R_L) + \frac{1}{2}\beta t^2$$

$$0 < (\alpha - R_L) + \frac{1}{2}\beta t$$

$$R_L - \alpha < \frac{1}{2}\beta t$$

$$t > 2(R_L - \alpha) / \beta$$

Sources of variation in women's expected tenure

Actors operate in a very complex and uncertain context. They are also cognitively restricted because their capability of retrieving, storing and processing information is limited in reality (Simon 1983 in Goldthorpe 2000: 119). Hence they have to draw on the imperfect information available to them to form expectations about the costs and benefits of their different courses of action. In this particular context, women's assessment of their prospective tenure becomes a crucial determinant of their job-investment decisions. How do women assess their prospective tenure in different jobs?

Women's expected tenure (t^w) will depend, first of all, on their own individual characteristics. Two such characteristics are apparent: 1) their previous investments in human capital (i.e. schooling) and 2) their own tastes and preference regarding the career-family trade-off. Schooling matters to the extent that general pre-market skills and job-specific skills are correlated —i.e. to the extent that H-type jobs are more likely to demand people with greater levels of general human capital, as it is indeed the case. Gender preferences and tastes, on the other hand, will have an obvious impact on expected tenure since family-oriented women will be much more willing to interrupt their careers for family-related reasons than career-oriented ones. Variation in preferences and tastes amongst women has been widely documented and so have been the labor market effects of such variation (see, e.g., Bowles *et al.* 2001; Brewster and Padavic 2000; Crompton and Harris 1997; 1998; Hakim 1996; 2000; Inglehart and Norris 2003). This model is however agnostic as to what are the sources of preference heterogeneity. Individual-level variation in schooling and preferences is therefore expected to have a clear impact on job choices. Yet job choices will also depend on

women's evaluation of the risks involved in opting for each of the two possible courses of action, for which information is needed.¹²

A central tenet of all mechanism-based explanations in sociology is that macro-level distributions affect individuals' belief formation (Hedström and Swedberg 1998: 19-21). Several mechanisms can account for this macro-to-micro effect, yet it is the informational dimension of macro-level distributions that concerns us here. In a context of uncertainty and imperfect information, individuals are likely to draw on the societal distribution of particular outcomes of interest (in a given reference group) to inform their own probabilities of success/failure in undertaking a particular course of action for which such outcomes of interest are consequential. This specific form of gathering information has been called *distributional inference* (Polavieja 2009). Distributional inference constitutes a fundamental channel through which macro-level structures affect micro-level behavior.

It seems reasonable to expect that, in assessing their expected tenure in the job (and hence in making their allocation choices), women will consider the existing societal distribution of two highly-consequential reference outcomes, namely: 1) the proportion of women already employed in highly-specialized jobs (H^w) and 2) the proportion of housework-cooperating men (C^m) living in their societies.

The former provides women with inferred information about their own probabilities of success/failure, should they opt for H-type jobs, since the more women make it into

¹² Although it can be argued that schooling affects individuals' capacity to retrieve and process information, differences in family and work orientations should have no bearing on information processing.

type-H jobs the lower the perceived risks of failure for other female job-candidates will be. The macro-level distribution of women between H and L-type jobs will thus be interpreted as relevant proxy information in a context where accurate information about the actual probabilities of each individual worker cannot be assessed *ex-ante*.

Similarly, the distribution of cooperative men (i.e. men willing to share domestic responsibilities equally with their spouses) present in women's societies should be a very relevant piece of information when it comes to assessing expected tenure. This is because having to attend family-related matters is the most important reason for job disruptions amongst women and hence any information on the likelihood of sharing such obligations is meant to play a role in women's assessments. *Ceteris paribus*, women living in gender-cooperative environments will tend to expect longer tenure because they will be comparatively more able to count on their (potential) spouses for dealing with family and household tasks.¹³

The family as a source of information

In principle, married and cohabiting women could draw the most relevant information on their individual expected tenure from their own spouses' household behavior. Yet it must be noted that spouses' behavior cannot be treated as an exogenous variable to skill-investment choices since women could choose their partners having in mind the type of job that they will be looking for. In contrast, the societal distribution of cooperative men can be treated as an exogenous variable that is informative for all

¹³ Here the model connects with Breen and Cooke's (2005) recent game-theoretic analysis of the division of domestic labor.

women, including those without partner. Note in addition that such distribution also conveys relevant information for women who are currently married to (or cohabiting with) uncooperative spouses, since it signals their chances of finding new cooperative partners should their actual partnership arrangements dissolve (Breen and Cooke 2005).

Finally, women could also retrieve relevant information from their own parents and, in particular, from their mothers. Again, it is assumed that, regardless of other possible effects, having a mother who invested in H-type jobs increases the likelihood that women chose such option simply because it conveys clear information about its feasibility (Breen and García-Penalosa 2002). Clearly, this “maternal” effect can operate through various other channels apart from informational conveyance, particularly those involved in the standard processes of intergenerational transmission of social advantage. Note, however, that the bulk of such standard effects of mothers’ employment on offsprings’ job choices should probably be captured by respondents’ own levels of education and partially also by their own tastes and preferences. If mothers’ experiences as employees also act as a relevant source of information for their daughters, then we should expect this mother-daughter association to hold even after controlling for all other possible indicators of inheritance effects.

In sum, prospective tenure plays a central role in this job-allocation model as women expecting job tenures below the theoretical value of t^* will rationally opt for L-type jobs. Women’s expected tenure (t^w) has been here defined as a function of schooling levels (S_i), individual preferences regarding work and family (P_i), the societal distribution of women in H-type jobs (H_{ir}^w) —where the r subscript stands for the societal unit from which i draws distributional inferences—, the societal distribution of

cooperative men (C_{ir}^M), and what could be term a “maternal informational effect” (M_i), here defined as the probability that respondents’ mothers have themselves invested in H-type jobs in the past. Hence:

$$t_i^w = f(S_i, P_i, H_{ir}^W, C_{ir}^M, M_i) \quad [3]$$

Expected tenure is a conceptual device and hence unobservable. But the preceding discussion sheds light on several plausible mechanisms affecting job-choices which can be subjected to empirical test. It is now possible to define the probability of choosing job H over L ($P_{H/L}$) as:

$$P_{H/Lirj} = f(\text{sex}_{irj} + S_{irj} + P_{irj} + \text{sex}_{irj} \cdot H_{rj}^W + \text{sex}_{irj} \cdot C_{rj}^M + \text{sex}_{irj} \cdot M_{irj} + X_{kirj})$$

$$i= 1, \dots, N$$

$$r=1, \dots, R$$

$$j=1, \dots, J$$

$$k= 1, \dots, K \quad [4]$$

where i is the individual subscript, r is the number of macro-level units individuals draw their relevant information from, which is assumed to be their region of residence (R) throughout all the different specifications estimated, j represents the number of the highest macro-level units individuals are clustered in (J), which will be estimated using alternatively countries or regions, and X is a vector of k control variables, which are described in the next section.

Note that in expression [4] respondents' sex is interacted with the two macro-level distributional variables as it follows from the above discussion on distributional inference that both the proportion of women employed in H-type jobs and the proportion of cooperative men present in respondent's societies of reference (r) should convey relevant information for women but not for men. Similarly, whether the mother of the individual i has held an H-type job or not should only have informational consequences in the case that respondent i is a woman and that is why expression [4] also includes an interaction between mother's employment and individual's job-choices. To be sure, mother's employment is expected to have also a significant effect for men but this effect will reflect only social-inheritance mechanisms and not relevant information as it is the case for women. In other words, it is expected that the effect of M will be greater for women than for men, controlling for other possible sources of parental influence.

DATA, VARIABLES AND MODEL SPECIFICATION

The data used to fit this model comes from the *Family, Work and Wellbeing* module included in the second round of the European Social Survey, ESS (2004). The working sample includes all currently-employed married or cohabiting wage-earners that are country nationals from Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Luxemburg, Norway, Poland, Portugal, Spain, Sweden, Slovenia, Switzerland and the United Kingdom (N=16,255). These are the countries included in the first-released data-files of the ESS (2004), to which this study draws. The bulk of the analysis is restricted to married and cohabiting respondents due to sample design, since it is only in the *Family, Work and Wellbeing* module that we have

information on all dimensions of the job captured by the job-skill factor used as the dependent variable in our preferred mode specification (see below). Yet information for all macro-level distributional indicators measured at the regional level has been computed using the full ESS sample size (N=34,088).

In the theoretical section of the paper, job-allocation decisions have been defined as skill-investment decisions over a discrete choice between two ideal types of jobs. Yet in practice the skill-content of a particular job includes several dimensions that can be more accurately described and measured using continuous indicators. The ESS includes the following four indicators on the skill-content of jobs: 1) the (self-assessed) time required to learn to do respondents' jobs well for someone with the right qualification;¹⁴ 2) whether respondents have attended a job-skill training course in the last 12 months; 3) degree of agreement with the sentence "*my job requires that I keep learning new things*";¹⁵ and 4) (self-assessed) evaluation of the number of years of post-compulsory education that would be optimal for performing respondent's job. Maximum-likelihood factor analysis can reduce these four indicators to a single and continuous job-skill factor (see table A1 and figure A1 in Appendix). This job-skill factor (JSF) is used as the dependent variable in our preferred model specifications, although, in order to test for the robustness of our findings, we have also used job-learning time alone as an alternative definition of job-specialization (see below). The actual form of the regression models fitted to the ESS is explained below. Regressions on the job-skill factor can be interpreted as modeling a latent continuous variable that underlies the discrete decision presented in the theoretical section of this paper (Long 1997: 40-7).

¹⁴ This is measured using an interval scale that ranges from 1 (*less than a week*) to 8 (*more than 2 years*).

¹⁵ This is measured using a 4-interval Likert scale ranging from 1 (*not at all true*) to 4 (*very true*).

Individual-level variables of interests are schooling (S) and subjective preferences (or tastes) regarding career and family orientations (P). Schooling is measured as years in education, whilst subjective preferences are captured drawing on the wealth of attitudinal indicators present at the ESS. Two different scales have been constructed that allow us to identify attitudinal differences in career and family orientations and hence to control for a source of individual heterogeneity that is usually unobservable in most existing research.

The first scale (P1) measures gender attitudes and has already been used in Polavieja (2008; 2009). The scale computes respondents' degree of agreement with the following 5 Likert-type items: 1. whether *women should be prepared to cut down on their wages for the sake of their families*, 2. whether *men should have equal domestic responsibilities as women*, 3. whether *men should have preference over scarce jobs*, 4. whether *parents should stick together for children even if they do not get along*, and 5. whether *a person's family should be his/her priority*. The scale shows a Cronbach's alpha of 0.6, it is normally distributed and ranges from 0 to 20, the latter value implying the highest score in "traditional" gender attitudes.

The second attitudinal control (P2) measures orientations towards 'social success', a dimension which is clearly different from gender attitudes (Schwartz 2006; Polavieja 2009). Such orientations include ambition, competence, self-assertion and the will to be recognized and admired for one's achievements. Our measurement is the result of applying factor analysis to a set of attitudinal questions from the so-called *Human Value* module of the ESS. In this module, respondents are presented with several descriptions

of fictitious individuals and are asked to evaluate how much alike they consider themselves to be in relation to the examples described (examples are chosen so as to have the same sex as respondents). Factor analysis showed that responses to the following descriptions did actually form part of a single factor (results available on request): 1. *Being very successful is important to her/him. She/he hopes people will recognize her/his achievements;* 2. *It is important to her/him to show her/his abilities. S/he wants people to admire what s/he does;* and 3. *It is important to her/him to get respect from others. S/he wants people to do what s/he says.* Responses to these descriptions were added up in a 6-interval scale ranging from -3 to 2. The scale showed a Cronbach's alpha of 0.7. This scale can be interpreted as tapping on differences in personal drive.¹⁶ Previous research has shown that the ambition scale has a positive and significant impact on individual earnings (Polavieja 2009). It seems reasonable to expect that social ambition thus defined also exerts an influence on skill-investment decisions. Estimating the effect of the social ambition scale offers an unusual opportunity to control for individual characteristics that are very seldom observed.

A note of caution seems, however, timely. Even when significant statistical associations are found between our attitudinal indicators and job-specialization, the cross-sectional nature of the ESS data precludes any interpretation as to the direction of causality. Gender attitudes and personal drive as measured by our indicators might precede and hence influence job-allocation choices, as our model predicts, but they could equally reflect psychological adaptation to more or less successful labor-market careers.

¹⁶ All the indicators that form this scale are part of what Schwartz (2006) identifies as "mastery cultures". Yet we favor an interpretation of the scale as capturing individuals' heterogeneity in values, orientations and traits possibly leading to differences in skill-investment choices amongst individuals of any given national/cultural context.

Although there is recent longitudinal evidence showing that gender attitudes measured early in life do influence labor market outcomes (see: Corrigan and Konrad 2007; Cunningham 2008), both effects are actually plausible and the ESS data cannot separate them out. Yet if gender attitudes and personality traits do influence job-allocation choices they must be controlled for in our model and this is something the ESS allows us to do, whilst most comparative datasets do not.

Distributional indicators are measured at the regional level using the full ESS working sample (N=34,088) as the basis for calculation. There are 165 regions in this sample. It has been assumed that women draw relevant information from the difference in percentage points between the proportion of women and the proportion of men that are employed in highly-skilled jobs in their region of residence (H^W), as this difference should capture the degree of social visibility of women in H-type jobs. In order to maximize the number of observations per regional cell¹⁷, highly-skilled jobs have been defined as all those occupations included in class I of the so-called Goldthorpe schema, widely used in Europe and which comprises higher grade professionals, administrators, managers and directors (see Goldthorpe 2000: chap. 10). This occupational definition is highly consistent with the reliability tests performed to the job-skill factor (see figures A2 and A3 in Appendix).¹⁸

¹⁷ Using direct information from the job-skill factor to compute regional sex-distributions would force us to work only with the *Work, Family and Wellbeing* module of the ESS, which is restricted to married and cohabiting respondents, hence reducing the number of observations in each region.

¹⁸ The proportion of employees in highly-specialized jobs is greater amongst men in 133 out the 165 regions of our sample, whilst only in 16 regions we find that the proportion of respondents' employed in highly-specialized jobs is higher amongst women.

The second macro-level indicator that is expected to convey relevant information for women's investment choices is the proportion of cooperative male in respondent's region (C^M). As a signal of male degree of cooperativeness we have used the proportion of men without tertiary education living in respondent's region of residence who (claim to) do half or more of the weekly housework (see figure A4 in Appendix). Focusing on men without tertiary education increases regional variance and it is perhaps more informative as a signal, since it is known that highly-educated men are on average more cooperative in all developed societies (see, e.g., Bianchi *et al.* 2000: 210).

Other macro-level variables used in the empirical models are the average job-skill factor score in respondents' industry at respondent's region of residence, which is interpreted as an indicator of the demand for job-specific skills, and the average rate of unemployment in respondents' industry at respondent's region of residence, which measures general economic conditions. These controls seek to net out the informational effect expected from the representation of professional women in the region from other possibly correlated economic influences at the demand side. They seem necessary demand-side controls to the extent that the proportion of skilled-jobs available should itself exert an influence on skill-investment choices.

The model also introduces a dummy variable, which has a value 1 if the mother was employed as a professional, manager, director or higher-grade technician when the respondent was 14 and 0 otherwise.¹⁹ This is admittedly a rather crude estimation of

¹⁹ This definition includes classes I and II of the Goldthorpe class schema, where class II adds lower-grade professionals and administrators and higher grade technicians. Class II has been included in the definition since there are very few respondent's whose mothers were higher-grade professionals, managers and directors.

mothers' skill investments yet it is the only one available at the ESS. In order to isolate the informational component of the overall mother effect, we also control for father's level of education when the respondent was 14, which should absorb the effect of social-inheritance that is not captured by respondent's own education and preferences. Other individual-level controls are respondents' age, marital status, size of the firm, firm's activity and union membership.

[Table 1 about here]

Specification

Skill-investments in jobs are analyzed using a simple two-level hierarchical linear model that allows us to estimate net effects at the individual level whilst controlling for societal-level variation in average job-skills. Our preferred specification is the so-called random-intercept model where intercepts are allowed to vary randomly between level-two (i.e. macro-level) units. It has been assumed that individuals draw information from the distributions of relevant outcomes at their region of residence. Hence we treat regions as the domain of individuals' distributional inferences. Yet in our preferred specification the regional distribution of relevant outcomes is measured as individual-level variation and we use countries as level-two units.²⁰ This strategy allows us to capitalize on both regional and national variation, whilst accounting for all country-level institutional effects likely to influence job-specific investments, such as welfare provision, public childcare and production-regime characteristics (see: Estevez-Abe

²⁰ In order to increase between-group variance former-East and former-West Germany as well as Flanders and the rest of Belgium are treated separately and this yields 19 level-two observations.

2005; Polavieja 2009; Stier and Lewin-Epstein 2001). Our empirical model can therefore be expressed as follows:

$$\begin{aligned} \text{JSF}_{ij} = & \beta_{0j} + \beta_1 \text{sex}_{ij} + \beta_2 \text{S}_{ij} + \beta_3 \text{P1}_{ij} + \beta_4 \text{P2}_{ij} + \beta_5 (\text{sex}_{ij} \cdot \text{H}_{ij}^{\text{W}}) \\ & + \beta_6 (\text{sex}_{ij} \cdot \text{C}_{ij}^{\text{M}}) + \beta_7 (\text{sex}_{ij} \cdot \text{M}_{ij}) + \beta_k \text{X}_{kij} + \mathbf{e}_{0ij} \end{aligned} \quad [5]$$

where β_{0j} equals the average intercept (γ_{00}) plus between-country variation (u_{0j}):

$$\beta_{0j} = \gamma_{00} + u_{0j}, u_{0j} \sim \text{N}(0, \sigma_u^2), \mathbf{e}_{0ij} \sim \text{N}(0, \sigma_e^2) \quad [6]$$

Following Snijders and Bosker (1999:41), the constant regression coefficient β_{0j} is now denoted γ_{00} to indicate that it is a parameter in the overall model. Substitution yields:

$$\begin{aligned} \text{JSF}_{ij} = & \gamma_{00} + \gamma_{01} \text{sex}_{ij} + \gamma_{02} \text{S}_{ij} + \gamma_{03} \text{P1}_{ij} + \gamma_{04} \text{P2}_{ij} + \gamma_{05} (\text{sex}_{ij} \cdot \text{H}_{ij}^{\text{W}}) \\ & + \gamma_{07} (\text{sex}_{ij} \cdot \text{M}_{ij}) + \gamma_{0k} \text{X}_{kij} + u_{0j} + \mathbf{e}_{0ij} \end{aligned} \quad [7]$$

u_{0j} can be estimated either as a fixed or as a random coefficient, this being a rather contentious issue in the specialized literature (Halaby 2004). In our data we have 19 level-two units containing an average of 600 level-one observations each. These sample sizes seem to favor random-intercept models over fixed-effects. Random-intercept models assume a normal distribution of level-two effects. They seem to be more fitting when level-two units can be regarded as a sample of a hypothetical population of societies, which, we would argue, is the case (Snijders and Bosker 1999). The estimation method used is maximum likelihood. Findings are, however, robust to several other specifications including using regions as level-two units or estimating

fixed-effects. In order to provide a further test for the robustness of our findings, random-intercept and fixed-effect regressions have also been fitted to the question of job-learning time alone (i.e. time that it would be required for somebody with the right qualification to learn to do respondent's job well). Of all the variables that make up the job-skill factor this is the one that seem closest to the original concept of job-specialization and the one used in the empirical literature (see Tam 2000; Tomaskovic-Dvey and Skaggs 2002; Polavieja 2008; 2009). Moreover, this job-learning time variable has the further advantage of maximizing the number of observations in our dataset, as it is not restricted to the sample of married and cohabiting respondents. The estimates obtained using different specifications and definitions of the dependent variable are compared in the Appendix (see tables A2 and A3). They are practically identical.

FINDINGS

The results of fitting a random-intercept estimation of equation [7] above to the ESS data are shown in the first two columns of table 2. The first column presents the parameter coefficients for a model where the reference category of the sex dummy is being a woman. The second column presents the estimated coefficients for all main-effect terms using the alternative coding of sex, that is, when the reference category is coded as being a man. This presentation allows a full interpretation of all the interactions. For instance, a sex-schooling interaction has been found that was not part of the theoretical discussion and hence constitutes a deviation from expression [7]. This interaction suggests that schooling has a significantly larger effect for women's skill investments than for men's. The estimated coefficient for women is 0.086, whilst for

men is 0.018 less, that is, 0.068. This latter estimate for men together with its significance level is presented in the second column of the table. The schooling-sex interaction is an interesting finding but does not seem detrimental to our theory. In fact all the results obtained seem fully in line with the model predictions.

First, we observe, as expected, that men score higher on the job-skill factor even after controlling for individual and distributional variables. Secondly, we observe that both the sex-role attitudinal scale, which can be interpreted as tapping on respondents' pro-family orientations, as well as the so-called social ambition index, which measures respondents taste for social success, are significantly correlated with the degree of job-specific skills. Pro-family attitudes are negatively correlated with job-skill investments, whilst social ambition shows a positive correlation, and this for men and women alike—sex-interaction effects have been tested and rejected. But perhaps most importantly, findings are consistent with the existence of both distributional inference and maternal informational effects.

As expected, both the degree of visibility of professional women in respondents' region of residence and the proportion of cooperative men seem to exert a positive and significant influence on women's skill investments. Yet—also as expected—they have no significant impact for men. These findings are fully in line with the idea that women draw on macro-level distributions of relevant outcomes to inform their own skill-investment choices. In regions where women are underrepresented in jobs requiring high job-skill investments and where there are few cooperative men to draw on, women seem more likely to choose jobs with lower skill requirements. These findings hold even after controlling for women's individual characteristics, including schooling, age

and preference heterogeneity, as well as for the region-industry skill-demand and the region-industry level of unemployment. They are also robust to alternative specifications including using fixed-effects, treating regions as level-two units (see table A2 in Appendix) or using job-learning time²¹ as an alternative dependent variable (see table A3 in Appendix). We therefore interpret these findings as evidence of macro-level informational effects.

Further evidence consistent with this informational process are the findings that having a mother who was employed as a professional when the respondent was 14 increases individuals' job-skill factor scores and that this effect is significantly larger for women. The estimates of this "maternal" effect are net of respondents' own education and preferences and also of the father's educational level. Admittedly, this interaction could be capturing other possible mechanisms apart from informational processes that cannot be properly controlled for, the most likely of which could be personal networks. Unfortunately, network effects cannot be estimated using ESS data. Without ruling out the possibility of other causal effects, the idea that mothers' employment experiences can be a crucial source of information guiding daughters' skill-investment decisions seems, however, most plausible. This idea has been theorized as Bayesian learning in the economic literature (Breen and García-Penalosa 2002). The maternal effect

²¹ Findings are practically identical regardless of the specification used, with the sole exception of the effect that the proportion of cooperative men seems to have for male respondents when job-learning time is used as dependent variable (see table A3 in Appendix). In this case we also find that the relative proportion of cooperative men in respondents' regions is significantly associated with higher levels of job-learning time for women. Yet in this case the presence of cooperative men seems to be also significantly associated with lower levels of job-learning time for male respondents. This we only find when using job-learning time alone as a dependent variable, since in the rest of the specifications fitted to the ESS the presence of cooperative men in the region has no significant impact at all for male respondents' levels of job-specialization.

interaction has also been found in all alternative specifications of the model (see tables A2 and A3 in the Appendix).

[Table 2 about here]

The last two columns of table 2 present the results of introducing two further variables to the previous model: respondents' supply of housework²² and parental status. Housework shows a negative correlation with job-skill scores for both men and women alike—an interaction effect has been tested and rejected—, whilst having children is negatively associated with women's job skill investments but positively associated with men's. Yet it must be noted that these are highly endogenous variables as women might choose particular spouses having in mind a particular job choice and/or they might choose particular jobs on the basis of their previously-taken fertility decisions. Endogeneity precludes any clear interpretation in terms of causal effects and hence the first specification is preferred.

CONCLUSIONS

Differences in job-specific skills can account for a substantial part of the gender wage-gap (see Tam 1997; Tomaskovic-Devey 2002; Polavieja 2008; 2009). Hence it is crucial to understand the determinants of such differences. This paper has presented a

²² Individual housework supply is measured using information on the total amount of housework time supplied at respondents' homes, as well as on respondents' own contribution to this total. The ESS defines total housework as the number of hours devoted in a typical weekday by all members of the household to domestic tasks such as cooking, washing, cleaning, shopping, property maintenance and the like, not including childcare nor leisure activities.

theoretical model that treats supply-side allocation decisions as socially-influenced investment choices on different tenure-earnings profiles. Jobs that require high-skill investments show steep returns to tenure but offer comparatively lower returns at the early stages. For simplicity, it has been assumed the standard human capital argument according to which earnings should be lower during the training period in jobs requiring high skill-investments. Yet it must be noted that even if nominal wages are not lower at low values of tenure in jobs requiring high skill investments, wages per effort should, since it is obvious that training requires effort (Polavieja 2009). Hence the existence of lower nominal wages during training in high-skilled jobs is not essential for the model, although it simplifies it. Different tenure-earning profiles (or different tenure-earning/effort profiles) imply that, for each level of schooling, the decision to invest in job-specific skills will be a function of expected tenure. Women's higher risks of employment disruption are thus seen as central to the explanation of gender differences in job-skill investments. Under this light, understanding the sources of variation in women's assessments of their expected tenure becomes crucial.

Expected tenure has been modeled as a function of individual characteristics, including attitudes and preferences, but also of the informational structure in which actors are embedded. Introducing the informational structure in the individual skill-investment decision constitutes a theoretical innovation. It has been argued that individuals draw information from both the past experiences of their closest reference groups as well as from the current societal distribution of relevant outcomes. These informational effects have been modeled using retrospective data on the occupations of respondents' mothers as well as regional-level information on both the proportion of women in jobs requiring high skill investments and the proportion of cooperative men. Random-intercept and

fixed-effect models fitted to alternative definitions of the dependent variable show that these three contextual variables exert a significant impact on European women's probabilities to invest in specific-skills and this net of several controls, including unusually exhaustive information on individual preference heterogeneity.

These findings suggest that the informational structure plays a significant role in job-allocation decisions. This is an important finding that can help us explain why job-specialization investments continue to be patterned by gender even in the face of marked attitudinal convergence (see, e.g., Fogli and Veldkamp 2007). To the extent that prospective tenure assessments play a key role in the evaluation of skill-investment risks, macro-level distributions are meant to exert a significant influence on individuals' belief formation. The effect of these distributions on individual choices illustrates the power of example. It is because individuals draw on what others have done before them that history matters.

Some of the informational spill-over effects of macro-level structures over micro-level choices considered in this study could also be interpreted as role-modeling. This implies that this framework is not necessarily irreconcilable with socialization approaches if we consider that socialization occurs through interactional processes of the kind described here (see also: Ridgeway 1997; Ridgeway and Erickson 2000). In other words, women's degree of visibility in highly-specialized jobs and maternal experiences provide examples to other women. Yet in our model such examples do not necessarily have to materialize in any given gender attitude, value or trait. All that is required is that they affect women's prospective tenure evaluations and this is enough for gender inequality to perpetuate even in the context of a substantial decline in both gender

traditionalism and purposeful discrimination. Hence far from diluting gender barriers into “voluntary” choices, our model highlights the structural character of gender inequality as expressed in the unequal distribution of perceived opportunities and risks.

Future research could extend this model in two interrelated directions: First, by looking at the impact of larger institutional effects on job-skill investment decisions; and secondly by incorporating employers’ behavior to the theoretical framework. The former direction would allow us to test for possible public-policy, welfare-regime and production-regime effects, along the lines of recent contributions (see, e.g., Chang 2000; Estevez-Abe 2005; Mandel and Semyonov 2005; Polavieja 2009; Stier and Lewin-Epstein 2001; Tåhlin 2007); whilst the latter avenue would complement the theoretical perspective proposed here by incorporating the demand-side. This latter task will be facilitated by the consideration that employers also make assessments on their workers’ prospective tenure in a context of highly imperfect information and hence they will be similarly likely to draw on distributional inference as a means to inform their skill-investment choices.²³

²³ Addressing the problem of the formation of job-disruption expectations from the point of view of employers will also provide a clear connection between the model presented here and the classic economic theories of statistical discrimination (see Arrow 1973; Phelps 1972).

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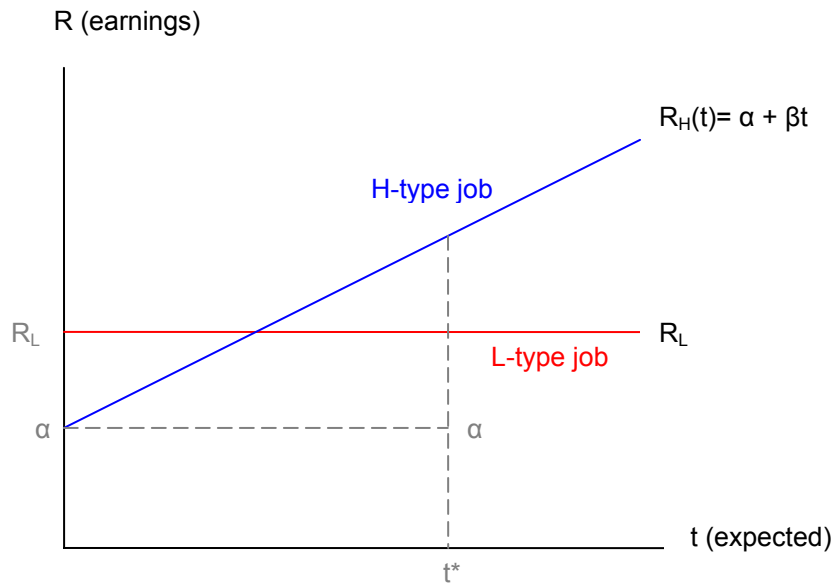
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FIGURES

Figure 1. Compensation profiles over tenure for high-specialization (H) and low-specialization (L) jobs



TABLES

Table 1. Description of key variables. Respondents in Paid Work. ESS (2004)

Variable	Description	N	Mean or %	Standard deviation
Job-skill Factor	Scores of Maximum-Likelihood Factor Analysis on several indicators of the skill-content of respondent's job	13,202	0.006	0.842
Sex	Sex of employed respondents	16,556		
	Male	8,938	54.0%	
	Female	7,618	46.0%	
Age		16,506	42.2	11.5
Schooling	Years of schooling completed	16,449	12.8	3.7
Ambition Index	Index of social ambition. It is a 6-interval scale ranging from -3=less ambitious to 3=more ambitious	16,574	-0.22	0.83
Sex-role attitudes (familialism)	Index of (traditional) gender role attitudes. 21-interval scale ranging from 0=less traditional to 20=more traditional	16,574	8.87	3.03
Mother Professional when R 14	Respondent's mother had a professional occupation when respondent was 14			
	No	14,446	87.2%	
	Yes	2,128	12.8%	
P Cooperative Men in Region	P of men with lower than tertiary education ⁽¹⁾ who do half or more of the household in respondent's region of residence	16,574	0.052	0.038
Regional Gender-Gap in Prof.	(Proportion of professionals amongst employed men in respondent's region) – (Proportion of professionals amongst employed women in respondent's region)	16,574	0.074	0.069
Industry-Region Skill Demand	Average score in job-skill factor in respondents' industry at respondent's region of residence	16,360	-0.04	0.55
Industry-Region Unemployment	Average rate of unemployment in respondents' industry at respondent's region of residence	16,574	0.08	0.10

Notes: ⁽¹⁾ Except for the UK, where cooperative men refer to all educational levels since the ESS UK-sample does not allow detailed educational level distinctions.

Source: European Social Survey, Second Round, First-Available Countries (2004).

Table 2. Random-Intercept Regressions on Job-Skill Factor, ESS (2004)

<i>Input variables</i>	<i>PREFERRED MODEL</i>		<i>+ ENDOGENOUS VARIABLES</i>	
	<i>Sex coded female = ref.</i>	<i>Sex coded male = ref.</i>	<i>Sex coded female = ref.</i>	<i>Sex coded male = ref.</i>
	b	Sig.	b	Sig.
Sex	0.448**** (0.047)		0.363**** (0.049)	
Age	0.019**** (0.004)		0.020**** (0.004)	
Age ²	0.0002**** (0.00004)		-0.0002**** (0.00004)	
Years of Schooling	0.086**** (0.003)	0.068****	0.085**** (0.003)	0.069****
Years of Schooling*Sex	-0.018**** (0.003)		-0.017**** (0.003)	
Ambition Index	0.092**** (0.007)		0.091**** (0.007)	
Sex-role attitudes (familialism)	-0.017**** (0.002)		-0.017**** (0.002)	
Regional Gender-Gap in Professionals	-0.237* (0.131)	0.14 ^{n.s.}	-0.259** (0.131)	0.16 ^{n.s.}
Reg. Gender Gap in Professionals*Sex	0.377** (0.162)		0.414** (0.162)	
P Cooperative Men in Region	0.531** (0.229)	-0.32 ^{n.s.}	0.513** (0.229)	-0.26 ^{n.s.}
P Cooperative Men in Region*Sex	-0.860**** (0.298)		-0.776**** (0.298)	
Mother Professional when R was 14	0.135**** (0.024)	0.07****	0.129**** (0.024)	0.07****
Mother Professional*Sex	-0.065** (0.034)		-0.057* (0.034)	
Industry-Region Skill Demand	0.631**** (0.016)		0.630**** (0.016)	
Industry-Region Unemployment Level	-0.115* (0.063)		-0.102* (0.063)	
Housework Supply			-0.020**** (0.004)	
Dependent Children			-0.035** (0.018)	0.05****
Dependent Children*Sex			0.087**** (0.023)	
constant	-1.916**** (0.094)		-1.861**** (0.097)	
<i>N of observations =</i>	12,567		12,567	
<i>N of groups =</i>	19		19	
<i>Log likelihood =</i>	-11903.884		-11883.399	
<i>sigma_u</i>	0.103**** (0.018)		0.104**** (0.018)	
<i>sigma_e</i>	0.622**** (0.004)		0.621**** (0.004)	
<i>Likelihood-ratio test of sigma_u=0</i>	213.52****		214.86****	

Notes: All models control for marital status, size of the firm, firm's activity, unionization*sex and father's educational level when respondent was 14.

**** significance ≤ 0.001 ; *** significance ≤ 0.01 ; ** significance ≤ 0.05 ; * significance ≤ 0.1 .

Source: Calculated by the author from European Social Survey, Second Round, First-Available Countries (2004).

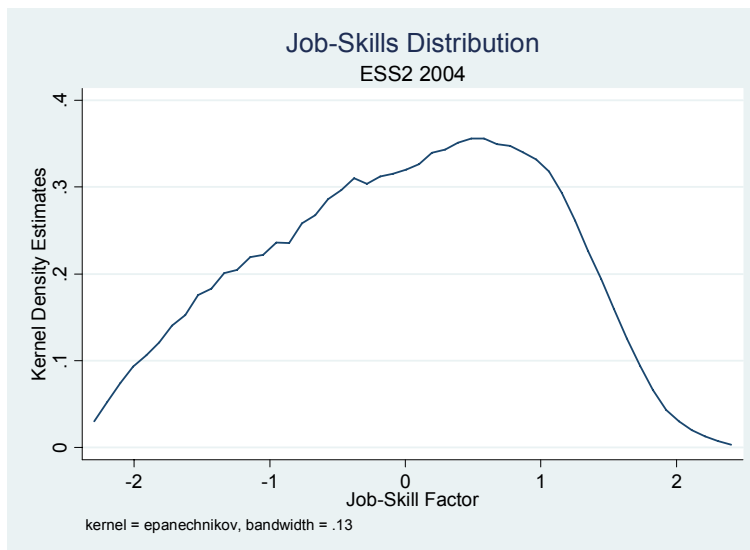
APPENDIX

Table A1. Maximum Likelihood Factor Analysis on the Skill-Content of Jobs, ESS (2004)

(Maximum likelihood factors; 1 factor retained)				
Factor	Variance	Difference	Proportion	Cumulative
1	1.47961		1.0000	1.0000
Test: 1 vs. no factors. Chi2(4) = 8464.46, Prob > chi2 = 0.0000				
Test: 1 vs. more factors. Chi2(2) = 77.52, Prob > chi2 = 0.0000				
			Factor Loadings	
Variable	Description	1	Uniqueness	
learning	Degree of agreement with: <i>"my job requires that I keep learning new things"</i> . 4-interval Likert Scale	0.65102	0.57623	
svpr	Self-assessed time required to learn to do respondents' jobs well for someone with the right qualification. 8-interval Likert Scale	0.55507	0.69186	
skille	Has Rs' attended a job-skill training course in the last 12 months?	0.53628	0.71237	
jobedu	Self-assessed evaluation of the number of years of post-compulsory education needed for the job.	0.67829	0.53997	
N= 13, 214				
log likelihood = -38.767207				

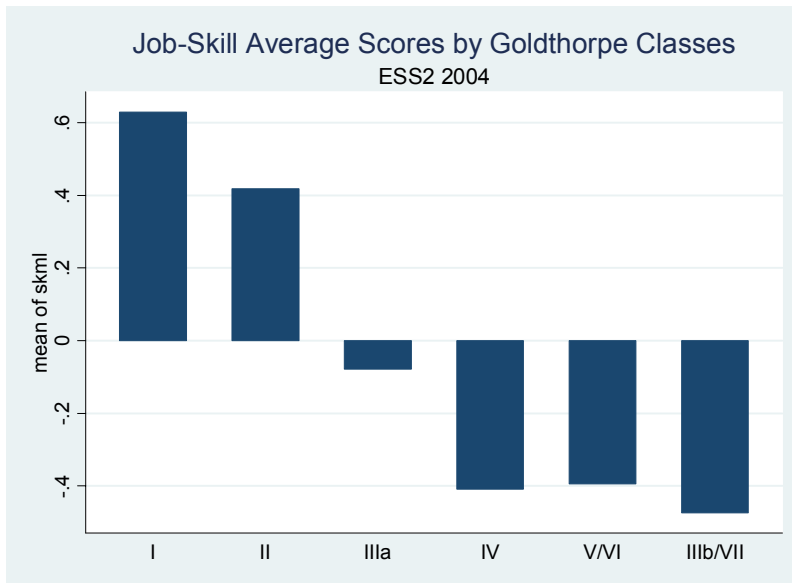
Source: ESS, First-Available Countries (2004).

Figure A1. The Density Function of the Job-Skill Factor, ESS (2004)



Source: ESS, First-Available Countries (2004).

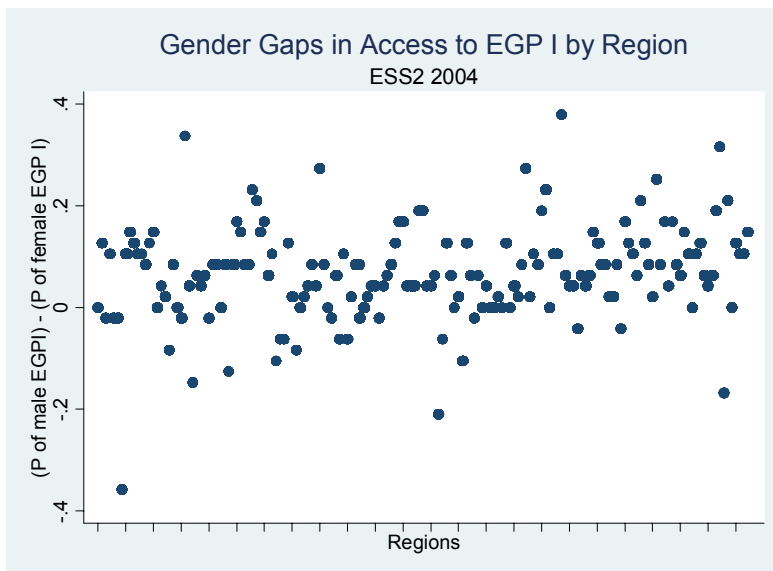
Figure A2. Job-Skill Factor Scores by Class, ESS (2004)



Notes: I: Higher-grade professionals, administrators and managers; II: Lowe-grade professionals, administrators and managers and higher-grade technicians; IIIa: Higher-grade routine non-manual employees; IV: Small proprietors and employers and self-employed workers; V/VI: Lower-grade technicians, skilled manual workers and supervisors of manual workers; IIIb/VII: Unskilled service, manual and agricultural workers.

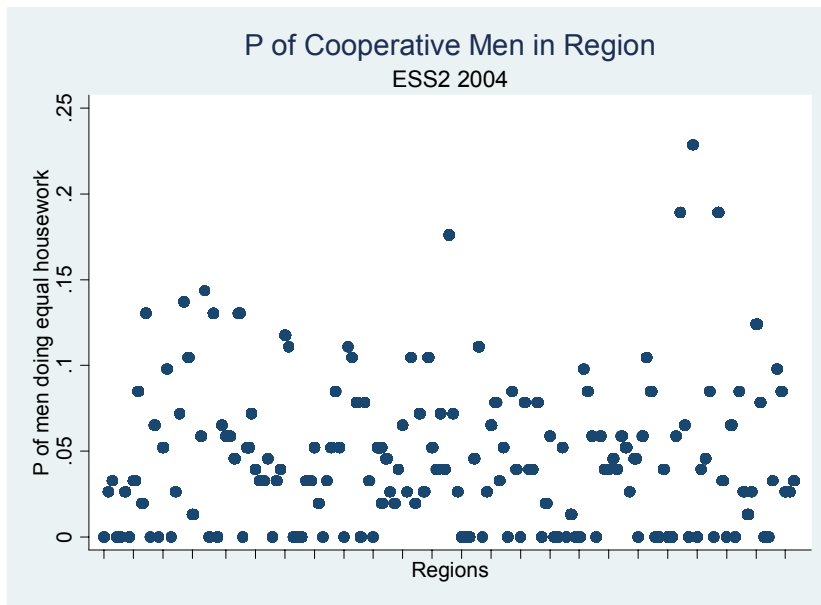
Source: ESS, First-Available Countries (2004).

Figure A3. The Regional Visibility of High-Skilled Women, ESS (2004)



Source: ESS, First-Available Countries (2004).

Figure A4. The Regional Distribution of Cooperative Men, ESS (2004)



Source: ESS, First-Available Countries (2004).