FROM SCHOOL TO WORK

A Comparative Study of Educational Qualifications and Occupational Destinations

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CLARENDON PRESS · OXFORD
1998

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The Institutional Embeddedness of the Stratification Process

A Comparative Study of Qualifications and Occupations in Thirteen Countries

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INTRODUCTION

Education is the single most important determinant of occupational success in industrialized societies. Employers rely on educational credentials when selecting individuals for specific work tasks, and individuals, accordingly, invest in education in order to improve their competitive advantage on the labour market. It is evident, that both individual investments in education and the use made by employers of qualifications, affect the pattern of association that we observe between education and labour-market outcomes. But it is far from clear how precisely this association is generated in various countries. There are large differences between countries in the way education is organized. Indeed, educational systems differ greatly cross-nationally. We therefore start from the premiss that the role of education in occupational attainment varies between societies. In some, education is valued for the specific vocational skills it represents, in others, for equipping workers with a level of general knowledge, while in others still, education is valued for sorting students by their scholastic ability or learning potential. The main objective of this book then, is to identify systematic differences among countries, in the relationship between education and occupational outcomes, and to relate them to their institutional contexts.

The book thus focuses on a specific aspect of the broader issue of social stratification and mobility in industrial societies. Education is a crucial intervening link between the social background of individuals and their later class destination (Carlsson 1958; Blau and Duncan 1967). From earlier research we know, that among the several processes generating the inter-generational transmission of advantage, the link between education

and occupational destination varies most across countries. Using the CASMIN data-set, Müller and his colleagues compared nine European countries in terms of the absolute magnitude of the relationship between social origin, educational attainment, and later class destination (Müller et al. 1989). They found only small differences between these countries in the extent to which social origins affect educational attainment or occupational destination, but large differences in the effect of schooling on occupational class (see also Erikson and Goldthorpe 1992: ch. 8). What then are the reasons for the apparent international variation in the association between educational qualifications and occupational destinations? Which factors account for stronger or weaker associations between education and jobs?

Theories vary in the way they conceptualize the link between education and occupational outcome, in their understanding of the role of credentials in sorting, selecting, and placing of workers for jobs, and in the importance they attach to the institutional embeddedness of these processes—the latter being particularly important in understanding cross-national variations in stratification and mobility. In this chapter we develop several hypotheses regarding the specific ways in which the characteristics of educational systems affect the relationship between educational credentials and the occupational outcomes of individuals. The hypotheses are then tested in a comparative analysis of the results from thirteen national case studies reported in this volume. We begin, in the next section with a brief review of some of the major theoretical arguments regarding national similarities and differences in the pattern and magnitude of the association between education and occupational attainment. We then formulate the major hypotheses of the study, describe its method, data, and variables, and proceed to a presentation of our results. We conclude with an evaluation of the hypotheses, a discussion of the findings, and some suggestions for future research.

PREVIOUS RESEARCH ON THE INSTITUTIONAL CONTEXT OF THE PROCESS

There is little comparative research on national differences and similarities in the relationship between educational qualifications and occupational allocation as this field of research is much less developed, both theoretically and empirically, than comparative research on educational attainment (Blossfeld and Shavit 1993; Müller and Karle 1993; Erikson and Jonsson 1996*b*; Breen and Goldthorpe 1996). One excellent example of institutionally sensitive research on the transition from school to work, however, is Rosenbaum and Kariya's (1989) comparative study of Japan and the USA (see also Kariya's chapter in this volume). The school-to-work transition process in Japan differs from that of most other countries in that there are strong institutional linkages between school and universities on the one hand, and firms on the other. Schools and universities recommend students to specific employers with whom they cooperate, and these relationships have important consequences on the qualitative nature of the school-to-work transition. School performance, for example, is an important predictor of occupational attainment among Japanese high-school graduates entering the labour market.[1]

Societies vary in the institutional arrangements that constrain the school-to-work transition (Kerckhoff 1995). That is, in the structure of educational institutions, the differentiation of school tracks, curricula, and diplomas, regulatory rules established by the state, employer recruitment and promotion practices, formal entry rules for specific occupations, in particular the professions, semi-professions, and civil service jobs, and the role of collective actors, such as unions and professional organizations, in shaping education, training, and guidelines for the recruitment and promotion of personnel.

The institutional framework existing at a given time in a particular society largely depends on solutions found in the past for the general problem of training and employment. It also depends on how conflicting interests have been reconciled in the past. Particular solutions used in the past may, however, generate new problems which call, in turn, for new solutions. Societal idiosyncrasies may thus evolve and persist over time despite convergence in other aspects of the social structure. In a recent historical study comparing France, Germany, and Britain, Müller (1994) investigated the process by which the feudal order of stratification, and the systems of social control and production were transformed into modern patterns involving markets, bureaucracies, and professions. He found that different traditions have evolved regarding the use of education in allocating people to jobs. In Britain, the Crown relied on the loyalty of the nobility and on the expertise available in society at large, and did not develop a system of professional training for the civil service and the professions until the twentieth century. As a consequence, British education is decentralized, and organized on local, and even private bases, and has often developed through grass-root initiatives. In France, by contrast, with the destruction of the *ancien régime*—under which public offices could be bought, sold, and inherited—by the Revolution, a new recruitment principle was introduced for the higher levels of public administration. A new type of educational institution, the *grandes écoles*, were created to select and train personnel to be used by the enlightened and rational state, and still largely serve this function today. The German states (Prussia, in particular) with their early development of state bureaucracies, established specific educational entry requirements for the different levels of the administrative hierarchy. These were implemented according to the principle 'no office without a proper examination'

(W. Fischer and Lundgreen 1975). To this day, the links between education and jobs in Britain, France, and Germany seem to mirror these historical roots: the association is weakest in Britain, strong in France in the allocation to the service class, and strongest in Germany throughout the occupational hierarchy.

Two Types of Institutional Contexts: Qualificational vs. *Organizational Space*

The exemplary study by Maurice, Sellier, and Silvestre (1982) was among the first to develop a general theoretical framework for the study of the links between educational qualifications and labour-market outcomes. Conducting a detailed analysis of work organization, job recruitment, and mobility patterns in French and German enterprises, they developed a theory of societal effects, arguing that the way in which qualifications are 'produced' in the educational system and their subsequent use by employers, lead to complex system-specific relationships between qualifications and jobs. They describe Germany as a system patterned along a *qualificational space*, while France is patterned in an *organizational space*. In Germany, vocational qualifications are used by employers to organize jobs and to allocate persons among them, whilst in France, education is less closely related to the workplace and vocational skills are mainly obtained on the job. Since organization-specific skills are often not recognized by other employers, the association between education and jobs tends to be looser in France than in Germany.[2]

The hypothesis, that firms adapt the organization of work, personnel recruitment policies, and training programmes, to the output of the educational system, can be extended to other countries where the educational system focuses on general education, such as in Ireland and the USA, and work-related skills are taught on the job. In such cases, skills tend to be firm-specific. By contrast, where the educational system produces vocationally relevant skills, firms tend to adapt the production process to the available skill pool. Consequently, in such countries, the organization of work is similar across firms, and workers can move more easily between organizations, and are less likely to experience a devaluation of their human-capital investments by shifting between employers.

General vs. *Specific Vocational Education*

The distinction between organizational and qualificational space is closely related to the debate on the pros and cons of vocational education. Virtually all educational systems differentiate between academic and vocational education. Some scholars hold that this differentiation increases the inequality of educational and occupational attainment, with working-class students being disproportionately placed in vocational programmes which teach useless skills and label their students as dull and unmotivated (see e.g. Shavit 1990*a*). Others suggest that vocational education enhances the occupational chances of working-class students, and that vocational qualifications facilitate both finding employment and attaining skilled, rather than unskilled, jobs (Arum and Shavit 1995; Blossfeld 1994; Müller et al. 1989).

The curricula of vocational programmes differ in the mix of general and vocationally-specific components. General skills include literacy, arithmetic, general cognitive skills (such as understanding and processing information, reasoning on logical grounds), and basic cultural and communication abilities. Specific skills are more instrumental to particular functional tasks and include skills such as accounting, computer programming, childcare, the mastery of specific crafts, tools, or machinery.[3] Skills vary according to their transferability and utility for various work tasks and employers. General skills are usually perfectly transferable between occupations, while the transferability of specific skills is more limited.

Most educational systems offer a mix of general and specific skills. Some offer primarily general education (e.g. Ireland), others (e.g. Sweden) also offer transferable vocational skills under broad headings, such as metalwork, and teach basic principles whilst avoiding specialization, and yet others offer more specialized skills for particular occupations. These last are the systems which offer vocational training for hundreds of occupational titles, as, for example, in the apprenticeship systems in German-speaking countries, where the teaching of occupation-specific skills is coordinated between vocational schools and the workplace in what is known as the dual system. In the Netherlands too, a large number of occupational specializations are taught in specific school tracks. In such systems, the occupations specialized for would not just be carpenter, but cabinet maker or construction carpenter; and not just mechanic, but industrial machine mechanic, car mechanic, or lorry mechanic.

Where the occupation-specific component of vocational education is large, graduates have few transferable skills, and can only cash-in on them by transforming them into the corresponding occupations in the labour market. Viewed from the demand-side, where job applicants are endowed with specific skills employers are likely to hire them for corresponding occupations where they can be 'up and running' immediately, rather than engage in expensive on-the-job training. Consequently, we would expect that where education is occupationally-specific, workers with vocational qualifications are more likely to be found in skilled, rather than unskilled, occupations.[4] By contrast, where education has a weak component of skill-specificity, vocational qualifications are less likely to affect this outcome.

By contrast, in countries, where vocational education tends to be general rather than specific, workers require on-the-job training before they can be useful to employers. In such countries, job allocation follows Thurow's (1976) *job queue* model, which assumes that most skills necessary for job performance are obtained on the job. Educational qualifications are not valued for the skills they represent but for the indirect information they provide about job applicants insofar as credentials give employers an indication of the intelligence (trainability), work habits, and discipline of job applicants. Viewed from this perspective, vocational education may be a handicap rather than an asset. Moreover, vocational education is less prestigious than academic education. The more successful students tend to attend the academic programmes, whereas the less successful turn to vocational education. Thus, having attended a vocational programme of education constitutes a signal that the job applicant is neither bright nor disciplined.

A related issue is the involvement of employers and trade unions in the organization of vocational training. The greater their involvement in defining curricula, setting standards, testing, and so forth, the more likely the programmes are to be relevant to employers' skill needs. This is quite apart from the fact that employers are more likely to rely on qualifications which they themselves award. Perhaps the greatest involvement of employers takes place in traditional apprenticeships, where they are directly responsible for training. Whether qualifications obtained via apprenticeships are generally recognized, however, will depend on the extent to which they are carried out under agreed and generally accepted standards. A clear distinction could be made in this respect, between the German and the British apprenticeship systems.

Standardization and Stratification

In her influential comparative study of school-to-work transitions in Germany, Norway, and the USA, Allmendinger (1989*b*) proposes a typology of educational systems based on two dimensions: the *standardization of educational provisions*, and the *stratification of educational opportunity*. Standardization refers to 'the degree to which the quality of education meets the same standards nationwide. Variables such as teachers' training, school budgets, curricula and the uniformity of school-leaving examinations are relevant in measuring standardization.' Stratification refers to the extent and form of tracking at the secondary educational level. Where stratification is high, e.g. in Germany, Switzerland, and the Netherlands, students are separated early on into tracks which differ greatly in the curricula and in the odds that students would continue to the tertiary level. In these countries there is also little or no mobility between tracks. By contrast, in less stratified countries (e.g. the USA and Ireland), tracking begins at a later age, the curricula of the various tracks are somewhat similar, there is more inter-track mobility and, consequently, smaller differences among tracks in the odds of continuation to tertiary education. Allmendinger argues that the coupling between educational qualifications and occupational attainment is strongest in stratified and highly standardized systems. Where stratification is high, credentials provide detailed signals about the educational achievements of job applicants (i.e. not just 'high-school graduates' but 'graduated from a vocational institute of textiles'). Where they are standardized, employers can rely on credentials to represent skill content reliably. In systems with a low degree of standardization employment decisions are less likely to be based on education because credentials are more ambivalent signals. Breen, Hannan, and O'Leary (1995) have shown that in Ireland—a weakly stratified system—employers rely on success in school because this is tested according to nationally standardized procedures, and thus workers' credentials represent their respective rank in the job queue.

Credential Inflation

Where the job queue is at work, there is a built-in incentive for young people to acquire ever more education in order to stay ahead of the queue. It is argued that as ever larger proportions of the population obtain a credential, the labour-market value of credentials declines. In qualificational spaces, by contrast, the value of a credential does not consist (solely or primarily) in its scarcity and position in the hierarchy of credentials, but rather derives from the specific skills it represents. Furthermore, in such systems there are natural points of exit from the educational process which correspond to specific entry portals into the labour market. Thus, in qualificational spaces we can expect there to be less pressure to attain ever higher credentials. When comparing Switzerland and Germany, two typical qualificational spaces, with the USA and Japan, two organizational countries, we see that in the former only about 10–15 per cent attain tertiary degrees, as compared with over 30 per cent in the latter. Thus, organizational spaces tend to produce an excessive supply of secondary and post-secondary graduates, thereby lowering the value of these credentials in the labour market. By contrast, in occupational spaces, the value of credentials is preserved because it is mediated by *skill* rather than the relative ranking of workers in a more or less *unidimensional* queue.

Clearly, the labour-market prospects of individuals with particular qualifications do not only depend on the number of competitors, with similar or higher qualifications, but also on the market's demand of such qualifications. Furthermore—as argued above—the demand for qualifications may adjust to

their availability on the market. Unfortunately, we do not know how to measure demand for the different qualifications in a manner that is truly independent of their supply. Therefore, we focus solely on the supply side, admittedly a gross simplification, and test the hypothesis that the value of qualifications in the occupational attainment process is related to its scarcity.

Arguments for National Similarities

The arguments cited so far, focus on how national differences in educational institutions and firms can produce differences in the relationship between qualifications and occupations. By contrast, the *neo-institutionalist* approach focuses on the diffusion of similarities. Proponents of this approach (see e.g. J. Meyer, Ramirez, and Soysal 1992) argue that the essential institutional aspects of educational systems are growing increasingly similar across countries. For example, as mass compulsory education becomes increasingly universal, and school systems adopt similar curricula (Benavot et al. 1991). Scholars working in this tradition believe that the shape and content of educational institutions are:

> [c]losely linked to the rise of standardized models of society . . . and to the increasing dominance of standardized models of education as one component of these general models. These modern models of society and education and their interrelation, are similar around the world and generate educational systems and school curricula that are strikingly similar. (Benavot et al. 1991: 86)

Extrapolating from this logic, one would hypothesize that the role of educational qualifications in determining occupational attainment will tend to converge across countries, as the latter move towards common institutional models in the domains of education and work. This hypothesis contradicts the results of the studies discussed earlier, which show interesting national variations in the institutional arrangements of the link between education and labour-force outcomes. It also contradicts the substantial diversity of institutional frameworks reported by the chapters of this volume. Nevertheless, it remains an open empirical question as to whether national institutional differences affect the pattern and magnitude of education's role in occupational allocation or not.

Another perspective predicting convergence is the *industrialization hypothesis* (Treiman 1970). This approach is not sensitive to institutional contexts but, rather, is cast in terms of general societal development. As a result of the rationalization of production, international competition, and the operation of multinational companies, societies are said to converge to a common pattern of occupational stratification (Treiman 1970). More specifically, it is

expected that occupational attainment will grow increasingly dependent on educational qualifications. In the effect of education on occupational prestige, Treiman and Yip (1989) find that the variation among countries is related to the level of industrialization. Contrary to the assumptions of enduring and consequential differences of educational institutions, the industrialization hypothesis anticipates a similar magnitude of association between education and labour-market outcomes among societies of comparable levels of industrialization.

Thus, the two approaches, while arguing from different theoretical perspectives, predict convergence between countries in the processes under study. This prediction can be taken as a convenient null hypothesis against which to test the arguments discussed and developed in the preceding sections of this chapter.

Summary and Hypotheses

In sum then, we distinguish between two ideal-type regimes of school-to-work transitions, which, following Maurice, Sellier, and Silvestre, we label *qualificational* and *organizational spaces*. The qualificational space is characterized by a high rate of *specific vocational education*. More precisely, a large proportion of the graduating cohorts leave the educational system with specific skills and occupational identities. This is in contrast with organizational spaces where education is predominantly *academic* or *general*, and where occupational skills are learnt on the job or in courses taken after leaving school. The educational systems in qualificational spaces tend to be stratified, maintaining a clear distinction between academic and vocational tracks. Organizational spaces, by contrast, can be stratified to varying degrees. Some, like the USA and Ireland, are relatively unstratified, while others, such as Italy and France, maintain distinct tracking at the secondary level but allow graduates of most tracks some form of matriculation diploma and some form of post-secondary education. Another axis along which school-to-work regimes are differentiated is the *standardization* of the school curricula and diploma throughout the national space. In some countries the educational systems are centralized and highly standardized, while in others there are substantial variations between regions and among and within the categories of private and state schools. In addition to these institutional characteristics, countries also differ in the sheer rate of tertiary education. Since, in some countries, the size of the tertiary educational sector depends on explicit state policies to expand or limit education, this variable may also be considered, at least in a wider sense, an aspect of the institutional arrangement of education.

We hypothesize that these variables affect the pattern and strength of the

association between educational qualifications and occupational outcomes as follows:

Hypothesis 1: Across countries, the strength of the association between qualifications on the one hand, and occupational status and class position on the other, is positively related to the *standardization* of educational systems.
Hypothesis 2: Across countries, the strength of the association between qualifications on the one hand, and occupational status and class position on the other, is positively related to the *stratification* of the educational systems.
Hypothesis 3: Across countries, the strength of the association between qualifications on the one hand, and occupational status and class position on the other, is positively related to the *vocational specificity* of the educational systems.
Hypothesis 3a: In particular, where vocational specificity is high, vocational education enhances the odds of entering the labour force in a skilled blue-collar, rather than an unskilled, occupation.
Hypothesis 4: The effects of educational qualifications on occupational outcomes are inversely related to the proportions attaining tertiary qualifications.

The hypotheses concerning the effects of stratification and standardization of educational systems directly follow from the earlier discussion. In stratified educational systems students are sorted early on into different educational tracks which lead to distinct qualifications. In such systems, the differences among qualifications are clear and they are well recognized in the labour market. This should strengthen the role of qualifications in the occupational allocation process. Standardization enhances the comparability of qualifications in the national space and allows employers to rely on them with confidence when recruiting workers. This should appear as a stronger effect of qualifications on occupational outcomes.

With increasing vocational specificity the school-to-work regime adopts the characteristics of a qualificational space and the links between qualifications and occupational destinations should become stronger. Historically, and to the present day, vocational training has concentrated in preparation of skilled manual workers. Thus, vocational qualifications should particularly enhance the chances of access to skilled rather than unskilled manual jobs, especially where the degree of vocational specificity is high. Furthermore, vocational specificity is a particular aspect of stratification. Where the educational system offers very specific vocational curricula they do so in tracks which are distinct from those in which other curricula, academic or vocational, are taught. Therefore, vocational specificity, through its relationship with stratification, affects the association between education and occupational allocation throughout the occupational structure.

Finally, countries vary quite substantially in their rates of tertiary education. Excessive expansion of tertiary education should lower the labour-market value of post-secondary qualifications. It should also depress the occupational prospects of labour-market entrants with secondary or lower qualifications because they would be forced into competition with job candidates who are ahead in the job queue.

These hypotheses will be contrasted against the null hypotheses suggested by the neo-institutionalist and industrialization approaches which would expect to find basic similarities between industrialized countries in the shape and magnitude of the qualification/occupation association.

THE COUNTRIES

Our research design is similar to that employed by Shavit, Blossfeld, and colleagues (1993). We invited scholars from fifteen countries for which we knew appropriate data existed—and where we knew of scholars who could, and would, participate in a cooperative effort of this kind—to analyse the transition from education to first job in their country. Thirteen national case studies were completed and are presented in this volume. Thus, the countries do not constitute a representative sample of all possible institutional contexts of the school-to-work transition, but do exhibit substantial variation along the four institutional dimensions discussed earlier. Some are *qualificational spaces* (Germany, Switzerland, the Netherlands), others are *organizational spaces* (the USA, Australia, Britain, Ireland, and Japan), and yet others are mixed (France, Italy, Israel, Sweden, and Taiwan).

Each chapter includes a description of the institutional features of the educational system and the labour market, together with a report on the statistical analysis of survey data on the association between educational attainment and occupational outcomes.

In Table 1.1.a we classify the countries by the three institutional variables and by the rate of tertiary education among young cohorts. The classification draws on information provided in the individual country chapters, as well as on OECD data (OECD 1995*a*). Column (1) pertains to specific vocational education. A '2' identifies countries in which a large proportion (40 per cent or more) of birth cohorts is typically taught specific vocational skills while in formal education. A '0' identifies countries with very little instruction of specific vocational skills (about 0–15 per cent), and a '1' is assigned to intermediate countries. In column (2), we classify the countries by the degree of standardization of their educational system. The third column classifies the countries by the degree to which their secondary education is stratified.[5] Finally, column (4) reports the cohort proportions who obtain a post-secondary qualification.

TABLE 1.1.a. *Summary of national institutional contexts*

Countries	Vocational specificity of secondary education[a] (1)	National standardization of education[b] (2)	Stratification of secondary education[c] (3)	Per cent with post-secondary qualifications[d] (4)
1. Australia (AUS)	1	0	0	19.00
2. Britain (GB)	1	0	0	18.90
3. France (F)	1	1	1	17.20
4. Germany (D)	2	1	2	15.00
5. Ireland (IRL)	0	1	0	13.00
6. Israel (IL)	1	1	1	33.50
7. Italy (I)	1	1	1	9.00
8. Japan (J)	0	1	0	28.00
9. Netherlands (NL)	2	1	2	23.20
10. Sweden (S)	1	1	0	23.80
11. Switzerland (CH)	2	1	2	22.00
12. Taiwan (TAI)	1	1	1	29.50
13. United States (USA)	0	0	0	25.70

[a] A '2' indicates that some large proportion of secondary qualified workers enter the labour force with occupationally-specific skills. This code is assigned to countries with well-developed apprenticeship programmes and/or school-based training in detailed occupations (Germany, Switzerland, Netherlands). A '0' is assigned to countries in which very few students complete the formal educational system with specific vocational skills. These are countries where vocational programmes are either very small or in which the curriculum is predominantly of a general nature (Ireland, the USA, and Japan). In the remaining countries (France, Israel, Italy, Sweden, and Taiwan) large cohort proportions attend vocational tracks at the secondary level but the programmes are not very specific. For example, in the late 1980s in Israel, over 60 per cent of all twelfth graders in secondary vocational programmes were concentrated in 5 vocational subjects (CBS 1988: 626). Thus, vocational programmes are defined at a general rather than specific level. We also assign Australia and Britain to this category. In both countries, most vocational qualifications are now obtained in post-school apprenticeship and vocational courses rather than in schools. Their specificity is of an intermediate nature.

[b] A '1' in this column indicates that irrespective of the school or region in which they were awarded, qualifications tend to represent the same skill level throughout the national space. A '0' indicates that the qualifications attest to different skills in different school and/or regions. Britain is an ambiguous cases. On the one hand, general secondary qualifications (the CSE, GCSE) are highly standardized there. On the other hand, however, vocational and post-secondary qualifications are very diverse and unstandardized in Britain. We decide to assign Britain a '0' on standardization. In Switzerland, there are considerable differences between the cantons in curricula and the structure of the educational systems. However, the vocational training system has a high degree of standardization throughout the country and the maturity examinations follow national regulations. Furthermore, the Swiss chapter in the book employs data for German cantons where the educational system is more standardized than in the country as a whole.

Japan is assigned a '1' on standardization because although there are large differences between schools in requirements and prestige, the quality of teachers, curriculum, and school facilities are quite homogenous throughout the country.

[c] Stratification of secondary education is coded as follows: a '0' represents prevalence of comprehensive schools which may or may not practise curricular and/or ability-based tracking. A '1' represents a prevalence of between-school tracking such that those on the academic route usually attend separate schools from those on the lower or vocational route. Finally, a '2' represents an extreme form of stratification with very early differentiation among a plurality of programmes. Japan's upper-secondary education is very stratified by 'school quality' but this dimension is orthogonal to our educational classification.

[d] The data reported in this column are taken from the individual chapters. For nine of the thirteen countries (Australia, Britain, France, Ireland, Italy, Japan, the Netherlands, Sweden, and Switzerland) the proportions reported by the authors are similar to those reported independently by the OECD (OECD 1995*b*: 196–7, 1995*a*: 218–19).

For Israel, the high proportion (33.5 per cent) reported by Kraus, Shavit, and Yaish is lower than the Central Bureau of Statistics reported proportion of 25–44 year olds with 13+ years of schooling (Israel, Central Bureau of Statistics 1993: table 22.1). The latter is as high as 38 per cent but includes an unknown number of orthodox Jews who typically continue religious education, full or part-time, throughout their adult life and count it when asked to report on their educational attainment. We prefer the more conservative estimate reported in the volume's Israeli chapter.

The estimate provided by Arum and Hout is lower than that reported by OECD (1995*b*: 196) for the USA, 34.9 per cent. Part of the difference between the two estimates is due to the fact that some of the cohorts studied by Arum and Hout had not completed post-secondary education at the time of interview. Another probable reason for the difference is the more inclusive definition of post-secondary education employed by OECD. We prefer Arum and Hout's more conservative estimate of 25.7 per cent even though this attenuates the negative effect we find for Percent with Post-Secondary Education on the association between qualifications and occupational attainment. When we substitute the OECD value for the USA, the results were similar to those reported in Tables 1.3.b, 1.4.a, 1.4.b, and 1.5.a but the negative effects of percentage with post-secondary education were always larger.

The estimate provided in the chapter on Germany is about 15 per cent. This is much lower than the OECD estimates ranging between 22.4 and 26 per cent. The latter however, include post-secondary apprenticeship programmes which do not correspond to the definition of tertiary qualifications that we apply to other countries. We suspect that, for the same reason, the figure for Switzerland (22 per cent) is also too high. However, since it appears in both the Swiss chapter and the OECD publication we kept it. Any lower value would have accentuated the negative effect of this variable in the regression analyses which are presented below. Finally, the data for Taiwan were compared by Tsai to independent publications of the Taiwanese Ministry of Education (1995) and we trust that the two sources are consistent.

Table 1.1.b cross-tabulates the countries by standardization and stratification. The degree of vocational specificity of secondary education is marked by asterisks. Low specificity is indicated with no asterisk next to the country acronym. One or two asterisks indicate intermediate or high degrees. Assuming our hypotheses to be true—but neglecting the cohort proportions of tertiary qualifications—the table anticipates in which countries we should expect weak or strong effects of education on occupational outcomes. According to their level of standardization and stratification we should

TABLE 1.1.b. *Thirteen countries by level of standardization, stratification, and prevalence of specific vocational education*

Standardization	Stratification		
	Low	Medium	High
High	(1) IRL J S*	(2) F* I* IL* TAI*	(3) D** CH** NL**
Low	(4) AUS* GB* USA	(5)	(6)

Note: asterisks indicate the degree of occupational specificity of vocational education; two asterisks indicate a high level of occupational specificity; one asterisk indicates an intermediate level; no asterisks indicates low level.

expect the weakest effects in the countries in cell (4), the strongest effects in the countries in cell (3), and intermediate effects in the other countries—those in cell (1) should be closer to the bottom, and those in cell (2) closer to the top. The position of a country in the rank-order of effects of education on occupational outcomes should be additionally differentiated according to the number of asterisk assigned to a country.

DATA AND ANALYSIS

The country chapters employ recent, large, and nationally representative data-sets. Most chapters employ data on cohorts of recent entrants into the labour force, men and women in their twenties and thirties. The study captures the relationship of educational qualifications and labour-market outcomes at the point in life when individuals move from education to their first employment. The main reason for this focus is the assumption that at the entry point to working life the relationship between qualifications and work position can be grasped in its purest form. Occupational positions in later stages of the career will depend on many other factors which, if not properly controlled, may disturb the effects of education.[6]

The analysis pursued in the country chapters consists of a common core and freestyle components. The core includes regression analyses of occupational attainment at the first job held after the last qualification was obtained (or a proxy for such a job). In order to grasp occupational attainment in several facets, three kinds of analyses are performed:

- standard occupational attainment regression equations, where the dependent variable is the occupational prestige (or an equivalent scale);

- multinomial logit equations predicting the odds of entering the labour force in different occupational classes;
- multinomial logit equations estimating the odds of being employed, unemployed, or not in the labour force.

The major independent variable in all these regressions is the highest educational qualification obtained, coded in the CASMIN educational schema (described below). The effect of education on occupational attainment is contrasted to factors representing respondents' socio-economic origins. Thus, the regressions also include several variables such as parental education and father's occupational prestige when respondents were in their teens. These components of the analysis are reported separately for men and women.

The freestyle components vary greatly from chapter to chapter, and deal with essential features of the school-to-work transition not captured by the common framework. In this chapter, we focus on the common components of the analysis, referring the reader to the individual chapters for the details of the country-specific analysis. In deciding on the elements of the common core, we hoped to reach a high degree of comparability between the individual studies. In reality, this could not be fully achieved in all instances.

In three of the country chapters (Ireland, the Netherlands, and Sweden) the authors used a proxy measure for first job, and instead of measures for the first job they used measures for the current jobs of respondents early on in their careers. The Dutch study employs a sample of individuals in their first ten years of work life, the Swedish sample consists of individuals aged 25–34, and the Irish sample of individuals aged 24–35. In many cases this will indeed be the first job, and in other cases it will be a job very similar to it. The Swedish and Dutch chapters provide estimates for the potential distortions introduced by these proxy measures for first job which show that they are probably minor. In any case, they are very small when compared to the systematic variations among countries.

Differences also occur between the country studies regarding the control variables used in the analysis. The chapters on ethnically heterogenous countries (the USA, Israel, Australia, and Taiwan) include controls for race or ethnicity in order to purge the estimated effects of education from those which might be due to ethnic stratification. Differences among studies in the controls for social background do not substantially affect the estimated effects of education on first job because the effects of origins, net of education, are always very small or insignificant. Studies included other controls as well, such as age at entry into first job, demand for labour at the time, or ability. We inspected the data in detail and are convinced that none of these additional controls biases the estimated effects of qualifications on

occupational outcomes in the early career or on current labour-force participation and employment.[7]

There are also differences among studies in the measures of occupational prestige or status. While most studies use the best available national prestige scales, Switzerland and Sweden use Treiman's International Occupational Prestige scale, and Australia, France, Taiwan, and the USA use scales of socio-economic status. It is known that the major difference between scales of prestige and of the socio-economic status of occupations concerns the values they assign to farmers. As a consequence the correlation between education and socio-economic status tends to be somewhat higher than the correlation between education and occupational prestige. However, among the cohorts studied in this book the proportion of respondents employed in agriculture is very small, and it is unlikely that the different measures of occupations produced significant differences in the effects of education.

Thus, while there are clear deviations from an ideal comparative design, we are confident that they do not distort or bias the conclusions of the comparative analyses which we report in this chapter.

The Dependent Variables

In the interests of comparability, we adopt existing and well-known conceptualizations of our most important variables. As noted, occupation upon labour-force entry is measured on occupational prestige scales, or their equivalents, which are available for virtually all countries (see e.g. Treiman 1977). Each occupation is assigned a score which represents its social standing or prestige relative to other occupations.

In addition to occupational prestige scores, we measure occupation at labour-force entry by coding it into the familiar EGP class schema (Erikson and Goldthorpe 1992). Some of the contributors to the project employed the seven-class version of EGP reproduced in Table 1.2.a, while others, using smaller data sets, merged categories I and II, and IIIa and IIIb.

A third dependent variable is labour-force status, consisting of the three categories—employed, unemployed, and out of the labour force—and measured at the time of interview, rather than retrospectively for the time of labour-force entry.

The Independent Variable

Our definition of qualifications employs the CASMIN schema (Müller et al. 1989) and is based on two classification criteria: the hierarchical differentiation of general education; and the differentiation between 'general' and

'vocationally-oriented' education. We employ a seven-category version of the schema as shown in Table 1.2.b.

Several of the chapters (see e.g. the Dutch and Swiss contributions) compared the predictive efficiency of the CASMIN educational schema to a linear measure of number of school years completed and show a marked improvement in the fit associated with CASMIN.[8] There are two important

TABLE 1.2.a. *The EGP class schema*

Classes	Includes
I	Higher-grade professionals and administrators, and officials in the public sector
II	Lower-grade professionals, higher-grade technicians, lower-grade administrators and officials, managers in small firms and services and supervisors of while-collar workers
IIIa	Routine non-manual employees in administration and commerce
IIIb	Routine non-manual workers in services
IVabc	Small proprietors and artisans with or without employees, and self-employed farmers
V+VI	Skilled workers, lower-grade technicians, and supervisors of manual workers
VIIab	Unskilled workers including agricultural labourers

TABLE 1.2.b. *The CASMIN educational schema*

Qualification	Description
1ab	This is the social minimum of education. Namely, the minimal level that individuals are expected to have obtained in a society. It generally corresponds to the level of compulsory education
1c	Basic vocational training above and beyond compulsory schooling
2a	Advanced vocational training or secondary programmes in which general intermediate schooling is combined by vocational training
2b	Academic or general tracks at the secondary intermediate level
2c	Full maturity certificates (e.g. the *Abitur*, Matriculation, *Baccalauréat*, A-levels)
3a	Lower-level tertiary degrees, generally of shorter duration and with a vocational orientation (e.g. technical college diplomas, social worker or non-university teaching certificates)
3b	The completion of a traditional, academically-oriented university education

non-linearities in the school-to-work association. First, vocational qualifications have consistent effects, relative to non-vocational qualifications of similar levels, on entering the skilled blue-collar, rather than the unskilled classes. Second, in many countries, higher education is valuable with respect to entering Classes I + II, but is of less (in some cases, even negative) value with regard to placement in other classes.

The CASMIN schema is also useful because, with some adaptations, it is applicable to a wide variety of educational systems. And yet, when applying the schema to concrete national contexts, some adaptations are necessary. In many countries, for example, including Israel, the USA, Taiwan, Japan, Ireland, and Sweden, category 1c either does not exist, or includes very few individuals.[9] Finally, in Japan there is a small category of secondary school graduates who attend post-secondary vocational courses. Ishida labels this category 2d because it neither corresponds exactly to 2a nor to 3a. In order to avoid confusion we have omitted this category in representations of Japan.

COMPARATIVE ANALYSIS

In this section we analyse the results of the common components of the thirteen country chapters. Some chapters do not include all parts of the analysis—for example, the Swedish chapter does not include analysis on unemployment because the data-set used in Sweden does not distinguish between unemployment and not in the labour force—and consequently, the number of countries varies from one part of our analysis to another.

The comparative analysis does not purport to be exhaustive. The country chapters are rich with statistical and contextual information and could feed numerous comparative analysis on such topics as the role of education in inter-generational mobility, gender differences therein, and in the school-to-work transition generally, on the role of vocational education in occupational placement, on ethnic and racial inequalities of educational and occupational opportunity, and much more. But this chapter concentrates on evaluating the plausibility of the hypotheses listed earlier. We analyse the relationship between qualifications on the one hand, and occupational prestige of first job, class of labour-force entry, and labour-force participation and unemployment on the other. In discussing the results comparatively, we concentrate on both the major common threads which emerge from the data and on striking national differences.[10]

Qualifications and Occupational Prestige

Figures 1.1.a and 1.1.b plot the effects of qualifications on standardized occupational scores for twelve countries.[11] For both men and women, the pattern of effects of educational qualifications on occupational prestige at first job is similar across countries. For both gender groups we see that in all countries, secondary qualifications provide access to more prestigious occupations than those at the elementary level. We should also note the familiar upward swing of the curves between secondary and tertiary qualifications (Featherman and Hauser 1978; Kraus and Hodge 1990). This reflects the fact that in all societies, the very prestigious occupations—the professions—are accessed through tertiary, and especially university, education.

Against the backdrop of this overall similarity in their pattern, there are interesting national variations in the magnitude of the effects of qualifications on occupational prestige. This is illustrated in Table 1.3.a which summarizes the difference in standardized prestige between the highest and lowest qualifications. The countries are sorted by the size of the average of the male and female entries. The table indicates that the effect of qualifications on occupational prestige is nearly twice as large in Germany and Switzerland as in Britain, Japan, and the USA. The other countries are located between these extremes. The Netherlands and Australia are close to the top and the remaining countries are within a small distance of one another.

Figure 1.1.c presents the education's effects found for men and women in Table 1.3.a in the form of a scatterplot. In most countries, the pattern of

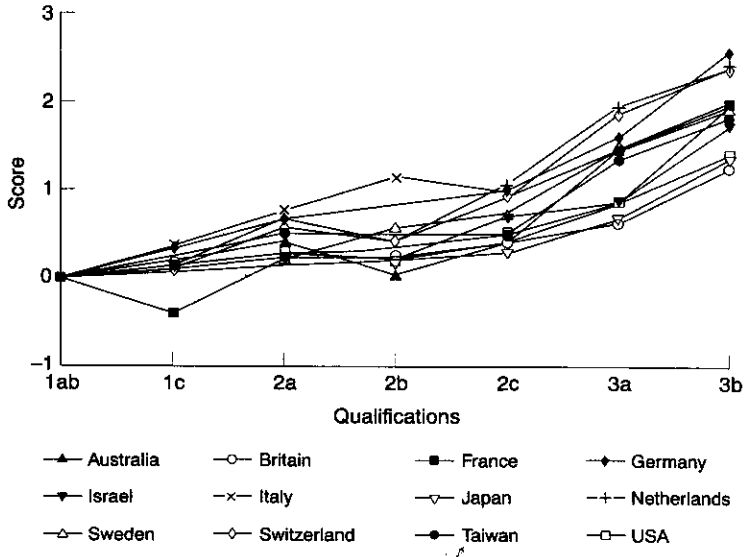

FIG. 1.1a. *OLS regression effects of qualifications on standardized occupation scores: men*

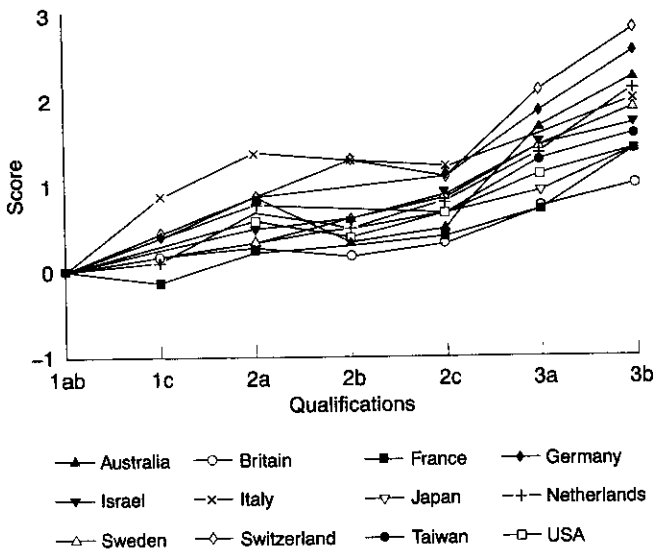

FIG. 1.1b. *OLS regression effects of qualifications on standardized occupation scores: women*

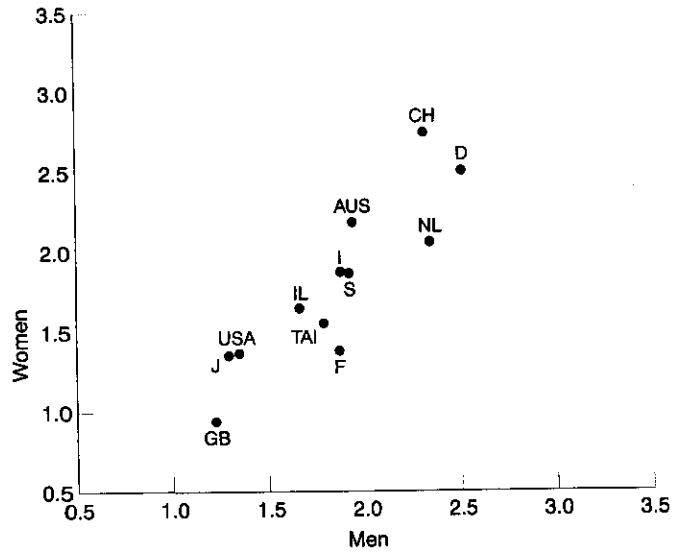

FIG. 1.1c. *Scatter plot of effects of education on standardized prestige scores for men and women*

TABLE 1.3.a. *Differences between highest and lowest qualifications in standardized occupations scores by gender*

Country	Women	Men	Average
Switzerland	2.76	2.33	2.55
Germany	2.51	2.53	2.52
Netherlands	2.07	2.35	2.15
Australia	2.21	1.96	2.08
Italy	1.88	1.89	1.89
Sweden	1.87	1.92	1.89
Israel	1.66	1.67	1.67
Taiwan	1.55	1.80	1.67
France	1.37	1.88	1.63
United States	1.37	1.35	1.36
Japan	1.36	1.30	1.34
Britain	0.97	1.21	1.13

effects of education on occupational prestige is similar for men and women, albeit weaker for women than for men. But the more important finding (reiterated in Figure 1.1.c) is the relative location of the various countries with regard to the magnitude of education's effects. The extreme position of Germany and Switzerland at the top of the list of countries, and the position of Britain, Japan, and the USA at the lower end are clear. This ranking at the extremes corresponds closely to the predictions we have derived from the institutional characteristics of the countries shown in Table 1.1.b. The location of the countries in the corners of the table corresponds to their location in the same corners of the scatterplot.

These country differences in the magnitude of the effect of qualifications on occupational prestige are due to differences among them in the societal-level variables. This is illustrated both in Appendix Figure 1.A and Table 1.3.b. In Figure 1.A, we group the countries by their values on three institutional variables, and compute the group mean effect of each qualification on standardized prestige. The figure shows that the mean effects are generally stronger where the educational systems are more stratified, standardized, and have a high degree of vocational specificity. The differences are most pronounced between countries of different degrees of vocational specificity.

Table 1.3.b reports the standardized effects of four societal-level variables on the magnitude of the effects of qualification on prestige.[12] The estimates are computed in linear regression models in which the dependent variables are the entries from Table 1.3.a for men and women. The independent variables are the four country characteristics shown in Table 1.1.b. In the first

four columns of the table we estimate simple regressions and find their effects to be similar for men and women. As hypothesized, the differences among the countries in the overall value of the effects of qualifications on occupational prestige at first job are positively related to the standardization, vocational specificity, and stratification of education, and, negatively, to the cohort proportions obtaining post-secondary qualifications. The effects of stratification and vocational specificity are stronger than those of the two other characteristics. However, since stratification and vocational specificity and standardization and stratification are highly correlated across countries, we also try to estimate three multiple regressions involving pairs of these three independent variables.[13] For both men and women the effects of stratification or vocational specificity are not affected when standardization is controlled for, but the effects of standardization, net of either of the two other characteristics are much reduced, and are even eliminated. The effects

TABLE 1.3.b. *The effects of university qualifications on prestige regressed on the institutional characteristics of countries, for men and women* (N = 12, t-statistics in parentheses, standardized coefficients)

Institutional variables	1	2	3	4	5	6	7
Men							
Stratification	0.82				0.28	0.82	
	(4.48)				(0.98)	(3.41)	
Standardization		0.49				0.00	0.19
		(1.77)				(0.02	(1.14)
% Post-secondary			–0.34				
			(1.15)				
Specificity of vocational education				0.87	0.64		0.80
				(5.67)	(2.23)		(4.91)
Adjusted R^2	0.63	0.16	0.03	0.74	0.74	0.59	0.75
Women							
Stratification	0.66				0.14	0.72	
	(2.78)				(0.34)	(2.32)	
Standardization		0.32				–0.11	0.06
		(1.09)				(0.36)	(0.24)
% Post-secondary			–0.26				
			(0.85)				
Specificity of vocational education				0.73	0.61		0.71
				(3.38)	(1.46)		(2.90)
Adjusted R^2	0.37	0.02	0.03	0.49	0.44	0.32	0.43

Note: Ireland has been excluded (see note 11).

of stratification also declines markedly when vocational specificity is controlled for, but the effect of vocational specificity is only slightly weakened by controls for stratification. We conclude tentatively, that the association between qualifications and occupations is stronger where educational systems offer a high level of vocational specificity, are stratified, and where the proportion attending tertiary education is low. The effect of stratification appears to be mediated by the prevalence of vocationally-specific training, and it seems questionable as to whether standardization has an effect which is independent of those of the other institutional characteristics considered.

Qualifications and Entry Class

In the country chapters, the relationship between qualifications and labour-force entry class is analysed as a multinomial logit which contrasts the log odds of entering the labour force in classes I, II, IIIa, IIIb, IV, and V + VI, with the odds of entering in the lowest class (i.e. VII). The independent variables in the model are educational qualifications controlling for various indicators of social origins, usually parental education and occupation. In this section, we focus on the effects of qualifications on selected class-of-entry contrasts. We ignore the analysis involving self-employment because in most cases, very few people enter the labour force directly into self-employment.

The Overall Effects of Education on Entry Class: Contrasting the Extreme Classes

Figures 1.2.a and 1.2.b represent the effects of the various qualifications at the extremes of the class structure. This was done by plotting their effects, relative to category 1ab, on the log-odds ratio of entering the labour force in Classes I + II, rather than Class VII.[14] The end-point of the curves on their right represent the effect of education on class placement measured at the extremes of the distribution of education. To facilitate visual inspection of the curves we separate them into two groups. Figure 1.2.a plots the eight countries for which the curves are more or less linear, while Figure 1.2.b includes five countries whose curves are less linear. Within each figure, the curves display substantial variation.

Beginning with the linear curves, the eight countries form two groups: Italy, Germany, Switzerland, and Taiwan; and the USA, Britain, Japan, and Sweden. The overall effect of education on the log-odds ratio of entering the service classes is about twice as large in the first group than in the second. A second important difference between the curves of the two groups is in the effects of lower-level vocational education on the log-odds ratio. In the top group, lower vocational education (1c and/or 2a) enhances the odds of

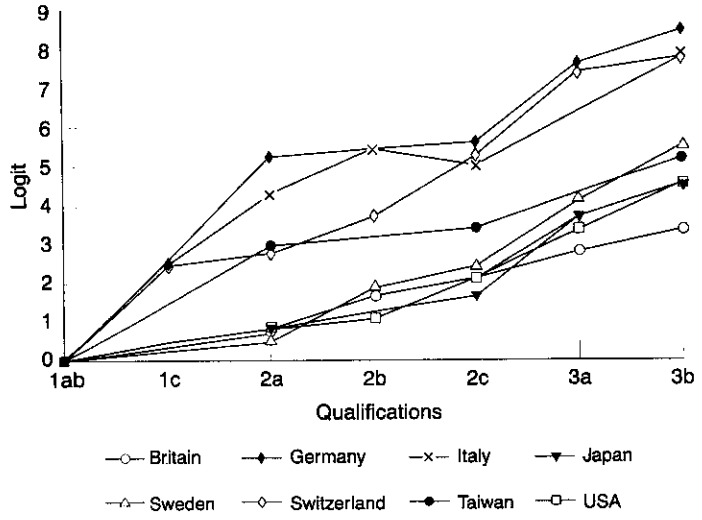

FIG. 1.2.a. *Logit effects contrasting entry Classes I + II (combined) and VII: men (linear curves)*

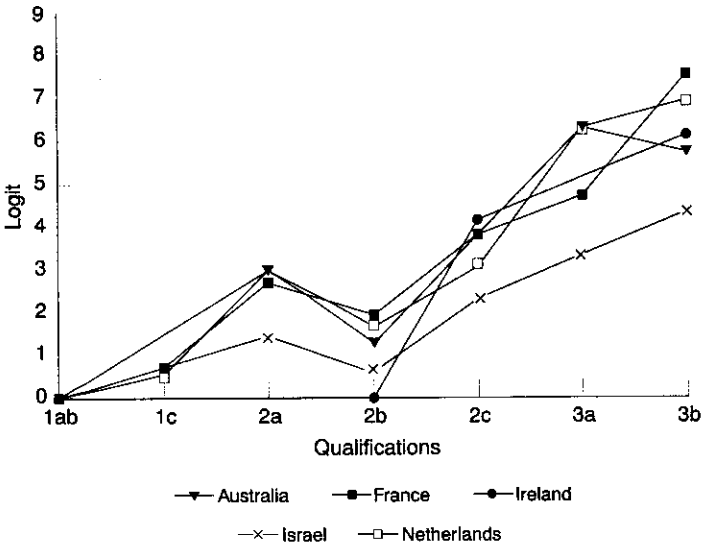

FIG. 1.2.b. *Logit effects contrasting entry Classes I + II (combined) and VII: men (non-linear curves)*

entering Classes I + II rather than the unskilled classes (VII). This is due, as we shall see later, to the benefit of these vocational qualifications for avoiding the unskilled class. The second group of countries (still in the 'linear' group) shares a very low effect of lower vocational education.

It is interesting to note that despite the large differences between the two groups in the effects of lower and secondary education, the slopes of the 2c–3b segments of the curves are generally similar. In other words, the effects of tertiary education on the log-odds ratio contrasting entry into the service classes and the unskilled classes, are more similar, in the two groups of countries, than the effects of elementary and secondary education. It would appear that the differences between the curves of the two groups are primarily due to the different role played by vocational secondary education in the occupational attainment processes. None of the countries in the second group has a sizeable apprenticeship or lower-level vocational programmes of the 1c type. Rather, vocational education in these countries is taught in separate programmes or tracks within schools.

We now turn to Figure 1.2.b and the five irregular curves. The Irish curve is irregular because Whelan and Breen merged qualifications 2a and 2b and imposed an equality constraint on the effects of qualifications 1ab and the combined 2ab. Substantively, this means that in Ireland, these lower qualifications have little value at this segment of the class-allocation process. Thus, Ireland is very similar to the lower group from Figure 1.2.a. In the other four countries, the odds ratio of entering the service, rather than the unskilled class, is higher for graduates of secondary vocational education (2a) than for those with only secondary academic education (2b). But once again, we find that in those three countries where the effects of 2a are largest (Australia, France, and the Netherlands), the overall effect of education is largest and is close to the magnitude of its effect in Germany, Switzerland, and Italy, the top group in the previous figure.

In sum, there are systematic national differences in the pattern and magnitude of the association between men's educational qualifications and their log odds of entering the class structure at the top rather than the bottom. The differences are related to differences among them in the role played by vocational secondary education in class allocation. In countries with a prevalence of specific vocational secondary education, the overall association tends to be stronger than in those with less specific vocational education. The marginal effects of post-secondary education (by which we mean, the difference between the effects of post-secondary and full secondary education) are less variable between countries despite differences among them in the structure of post-secondary educational institutions.

Figure 1.2.c plots the overall effect of qualifications on the log-odds ratio of placement at the extreme classes (I + II vs. VII) for men and women. The

countries with relatively standardized, stratified, and vocationally-specific educational systems (Germany, Switzerland, and the Netherlands) tend to show high effects, and those with relatively unstratified and less standardized (Britain, the USA, and Japan) tend to appear at the bottom-left corner of the plot of the list. The intermediate countries, with regard to stratification, tend to occupy the central part of the figure. In Israel, a relatively standardized and stratified case, men's effects of qualification are lower than we would have expected, but women's effects are in the appropriate range. On the other hand, Ireland shows higher effects, especially for women, than we would have expected given the institutional characteristics of its educational system.

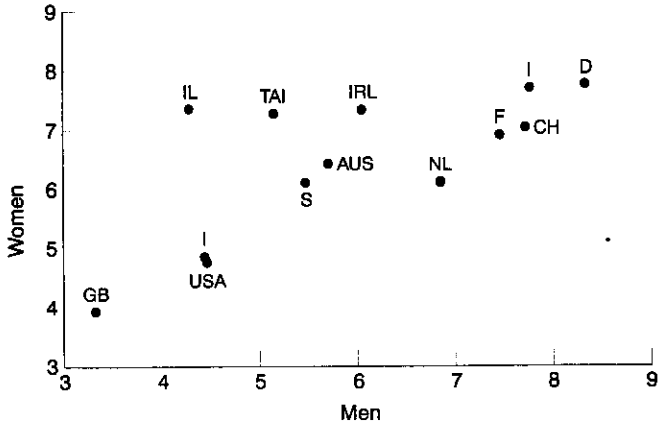

FIG. 1.2.c. *Scatter plot of overall effects of qualifications on the log odds contrasting entry Classes I + II and VII for men and women*

To formalize the analysis, we regress the two sets of effects on the institutional variables and present the results in Table 1.4.a. The results for men corroborate yet again the hypothesis that the magnitude of the association between qualifications and entry class is positively related to stratification, standardization, and the specificity of vocational education, and negatively to the percentage with post-secondary qualifications. As we have done in the analysis of occupational prestige, we also estimate three multiple regressions. Similar to the results of the analysis for prestige, controlling for standardization only slightly affects the estimates for the other institutional characteristics, but the 'net' effects of standardization are substantially reduced. From the equation including stratification and vocational specificity, we see that—contrary to the prestige analysis—stratification 'explains away' vocational specificity.

TABLE 1.4.a. *The effects of university qualifications on the log odds contrasting entry Classes I + II and VII, regressed on the institutional characteristics of countries, for men* (N = 13, t-statistic in parentheses, standardized coefficients)

Institutional variables	1	2	3	4	5	6	7
Stratification	0.71 (3.32)				0.75 (1.77)	0.60 (2.87)	
Standardization		0.51 (1.99)				0.20 (0.76)	0.38 (1.62)
% Post-secondary			−0.59 (2.45)				
Specificity of vocational education				0.59 (2.41)	−0.05 (0.12)		0.42 (2.05)
Adjusted R^2	0.46	0.20	0.29	0.29	0.40	0.43	0.38

TABLE 1.4.b. *The effects of university qualifications on the log odds contrasting entry Classes I + II and IIIb, regressed on the institutional characteristics of countries, for women* (N = 13, t-statistic in parentheses, standardized coefficients)

Institutional variables	1	2	3	4	5	6	7
Stratification	0.61 (2.55)				0.28 (0.60)	0.59 (2.01)	
Standardization		0.35 (1.22)				0.03 (0.11)	0.19 (0.77)
% Post-secondary			−0.27 (0.93)				
Specificity of vocational education				0.63 (2.67)	0.39 (0.86)		0.58 (2.32)
Adjusted R^2	0.32	0.04	0.00	0.34	0.30	0.25	0.31

Whereas for men, the unskilled blue-collar working class is a common destination for unqualified workers, for women it is usually the class of routine non-manual employees in services (IIIb). In Table 1.4.b we repeat the regression analysis but define the dependent variable as the effect of qualification 3b on the log odds contrasting Classes I + II with IIIb.[15] The results are quite similar to the male pattern seen earlier. The only difference is that the 'net' effect of vocational specificity is less affected by controlling for stratification.

In sum, national differences in the overall effects of educational qualifications on the log-odds ratios contrasting entry to the labour force in the top or bottom occupational classes, are systematically related to the four institutional variables under consideration. The effects tend to be larger in societies where the educational systems are stratified and standardized, and where there is a prevalence of specific vocational education. The effects of the prevalence of tertiary education are, as expected, negative. As in the analysis for the prestige outcomes, the effects of standardization appear to be smaller and more attenuated by controls than those of the other characteristics of the educational system.

Thresholds and Hierarchies

So far we have focused on societal differences in the *strength* of the association between educational qualifications and entry class. Another interesting aspect of the problem concerns the *shape* of the association. Most research on occupational attainment, especially some American, Dutch, and Israeli studies (see e.g. Blau and Duncan 1967; and Kraus and Hodge 1990) assume a *hierarchical* effect of education on occupational attainment. According to this model, any additional level of education enhances one's chances of getting ever better jobs in the job market. One cannot, according to this model, get *too much* education. In the context of a multinomial logit model of entry class, this hypothesis would imply that qualifications have positive effects on the log-odds ratios contrasting each entry class against a lower one. We illustrate this hypothesis with data for Germany and Sweden. Figure 1.3. plots the effects of qualifications on the logits contrasting entry Classes I, II, IIIa and IIIb against VII for men and women in the two countries. In both countries, and this is generally true in all others, the effects of education are stronger on contrasts involving the service and the unskilled classes and are weaker on the contrasts between the lower non-manual classes and VII.

Focusing first on the figure for Swedish men, the hierarchical hypothesis seems to be born out by the data: all four curves tend to rise more or less monotonously. The effect of qualifications is strongest on the logit of entering the class structure at the top, but also enhances the odds of entry in the lower non-manual classes. The hypothesis also applies to Swedish women, although university degrees (qualification 3b) do not enhance the odds of entering Class II above and beyond qualification 3a.[16]

The hypothesis does not apply to Germany where education has linear effects on the odds of entering the professional and managerial class (I), but displays a *threshold pattern* with respect to other class contrasts: the odds of entering an occupational class are greatly enhanced by having obtained the necessary qualification, but are not further improved by any additional

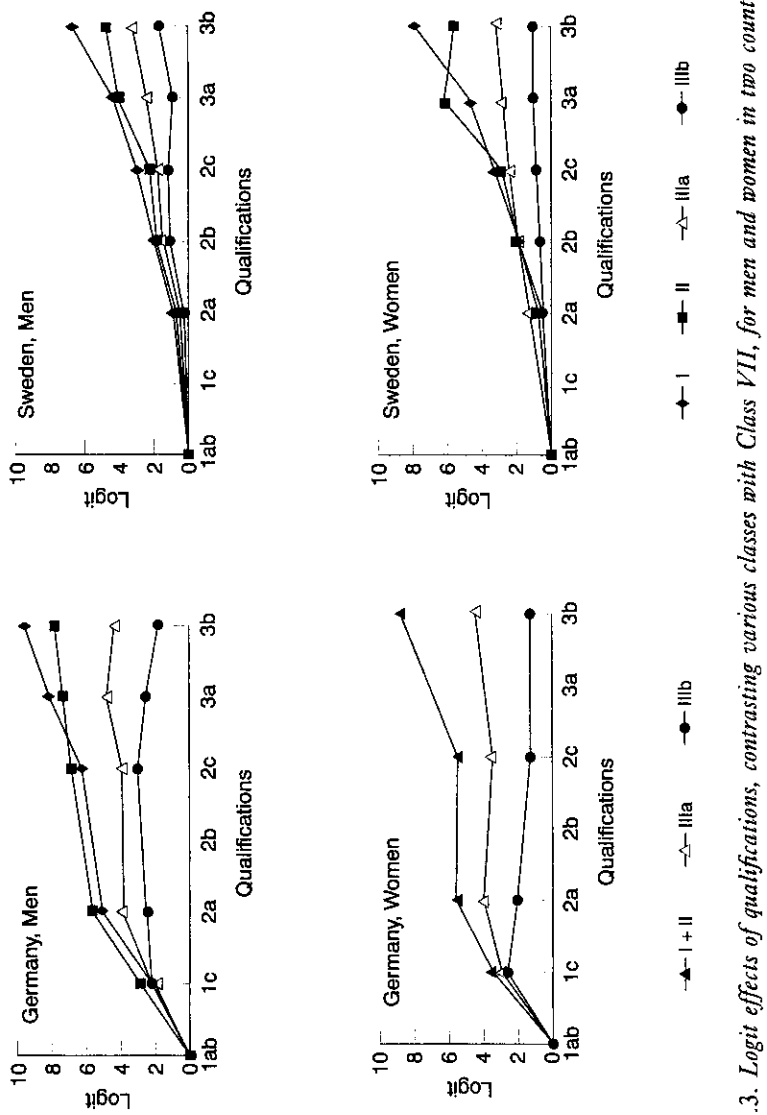

FIG. 1.3. *Logit effects of qualifications, contrasting various classes with Class VII, for men and women in two countries*

education. Entry into Class IIIa, for example, appears to be enhanced by qualifications 1c and 2a, whereas further education is of little additional value in this regard, and even has negative effects in some cases. The threshold pattern holds for both men and women in Germany.

These findings suggest the hypothesis that in countries with a low vocational specificity—as in Sweden—employers evaluate job applicants for general characteristics rather than for specific skills (Thurow 1976). The more education, the greater the attractiveness of the worker. By contrast, where specific skills are the norm—as in Germany—employers seek workers with precisely the appropriate training for the job, and do not value excessive qualifications.

A test of this hypothesis would have involved an inspection of, for example, Figure 1.3. for the remaining countries in the sample and an attempt to relate threshold and hierarchy patterns to vocational specificity. Unfortunately, we cannot test this hypothesis in data for other countries because the chapters for those with bona fide low vocational specificity (the USA, Ireland, and Japan) merged Classes I and II, and Classes IIIa and IIIb. In addition, Ireland and Japan are also countries for which several of the CASMIN educational categories are combined. Thus, rather than push the limits of the data, we opted to leave the true test of the hypothesis to future research.

The Effect of Vocational Education on Entering Skilled Blue-Collar Occupations

This part of the analysis focuses on the relationship between qualifications and the odds ratio of entering the labour force in a skilled or unskilled blue-collar occupation. It has only been carried out for men because in many countries, there are few women in the skilled and unskilled working classes, and the logits which contrast them often produce unstable estimates. We are concerned with three related questions: Does vocational education enhance the odds of employment in a skilled job? Do countries vary in the extent to which it does? Are national differences consistent with the institutional characteristics of their educational system?

For ease of visual inspection, we present the data for men in two figures. Figure 1.4.b includes countries where the effects are generally horizontal and Figure 1.4.a includes those with less regular patterns. We discuss the latter first. In all seven countries, vocational education at the secondary level enhances the odds of employment in skilled jobs relative to both the lowest educational category (1ab), and to general secondary qualifications (2b, 2c). Furthermore, in all cases except Switzerland, post-secondary, non-academic qualifications, which are often vocationally oriented, also have positive

effects on the dependent logit. In Switzerland, qualification 3a prepares men for higher technical occupations and lower-grade professions. It should be noted that it enhances the odds of entering Classes I + II, but is not very relevant to entry into the skilled blue-collar class.[17] Thus, in the group of countries depicted in Figure 1.4.a we find a clear effect of—mainly vocationally oriented—qualifications for obtaining a skilled, rather than an unskilled, working-class job.

The German pattern deserves further comment. First, its effects are

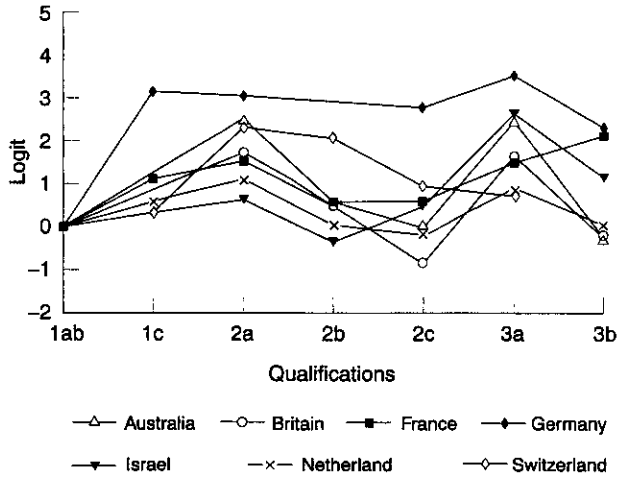

FIG. 1.4.a. *Logit effects contrasting entry Classes V + VI with VII: men (peaking curves)*

strongest. Specifically, there are marked differences between the least qualified and all other workers, because German workers with 1ab qualifications are effectively excluded from any skilled occupation. The curve shows that even qualification 2c enhances the odds of skilled employment. This reflects the fact that many people with 2c continue to obtain vocational qualifications which are not fully identified by the data.

In Figure 1.4.b the pattern is different: all effects are very weak, and the shape of the curves is generally horizontal although, in the USA and Sweden there are minor peaks associated with qualification 3a. Only in Italy, does any qualification above the social minimum, whether vocational or general, appear to help individuals avoid unskilled occupations.[18]

Summarizing these results, we can detect a correspondence between the availability of vocationally specific training in national educational systems

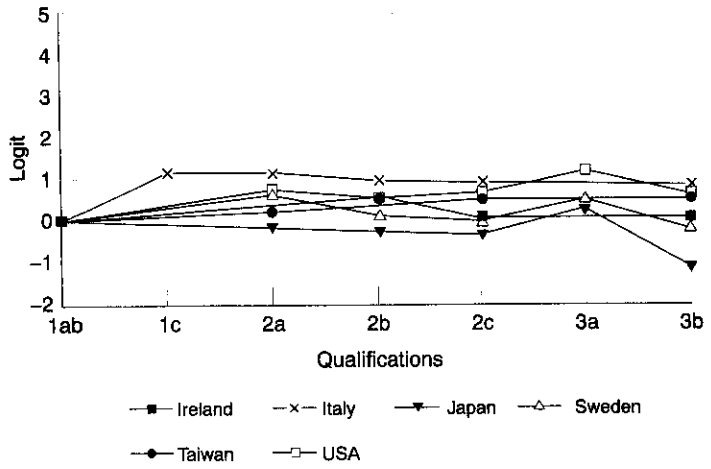

FIG. 1.4.b. *Logit effects contrasting entry Classes V + VI with VII: men (flat curves)*

and the impact of qualifications in allocating workers to skilled, rather than unskilled, positions. All seven countries in Figure 1.4.a, together with Italy (the exception in Figure 1.4.b) have substantial elements of vocationally-specific training (see Table 1.1.b). There are exceptions, however, and we would have expected stronger effects for Sweden and Taiwan given the nature of their vocational education.

In Table 1.5, we regress the effect of qualification 2a (vocational secondary) on the institutional characteristics of the educational system: stratification, standardization, percentage with post-secondary education, and the specificity of vocational education. The univariate equations indicate that in countries where education has a strong occupationally-specific component, vocational secondary education enhances the odds of obtaining a job in the skilled working class. In addition, the prevalence of tertiary education depresses these benefits. The gross effect of stratification is also substantial, however, when vocational specificity is controlled, it becomes negative due to multi-collinearity between these independent variables. The gross effect of standardization is zero and also becomes negative when other variables are controlled for. Thus, whereas the effects of percentage with post-secondary and vocational specificity appear consistent, those of standardization and stratification are unclear.

TABLE 1.5. *The effects of vocational secondary qualifications on the log odds contrasting entry Classes V + VI and VII, regressed on the institutional characteristics of countries for men* (N = 12, t-statistics in parentheses, standardized coefficients)

Institutional variables	1	2	3	4	5	6	7
Stratification	0.41 (1.43)				−0.47 (1.08)	0.83 (2.72)	
Standardization		−0.19 (0.62)				−0.69 (2.27)	−0.51 (2.39)
% Post-secondary			−0.61 (2.43)				
Specificity of vocational education				0.65 (2.73)	1.05 (2.39)		0.84 (3.96)
Adjusted R^2	0.09	−0.06	0.31	0.40	0.38	0.35	0.57

Note: Ireland is excluded.

Qualifications, Labour-Force Participation, and Unemployment

So far, we have discussed the relationship between education and the occupational prestige and class position of respondents' first job. However, restricting the analysis to employment seriously limits the account on the returns to education. This is particularly true for societies with large-scale unemployment. Therefore, we now turn to a discussion of the consequences of education for labour-market participation and unemployment.[19] While we cannot enter into a detailed study of the intricate relationship between education on the one hand, and both unemployment and labour-force participation on the other, some basic findings are of interest.

The labour-force participation rates of men are very high in all the countries studied. The single most important reason for the non-participation of young men is educational attendance. It tends to be most prevalent among persons with a full secondary education (2c) who still move back and forth between work and tertiary education (not shown), less common among graduates of secondary vocational education, fewer of whom continue into further or higher education, and in all countries, women's labour-force participation is more optional in character than that of men (Gallie 1995; Lindbeck 1993). We assume that women's decision to participate involves weighing up the costs and benefits, and comparing expected employment income to the incurred costs of housekeeping. Education enhances women's participation rates because it enhances expected income from employment.

Figure 1.5.a plots the effect of each qualification, relative to the lowest, on women's log-odds ratio of being out of the labour force, rather than employed, at the time of interview. The original logit equations control for social origins and, often, for such other variables as age, region of residence, and ethnicity.[20] For all countries the lines in the figure generally decline from the lowest to the highest level of education, reflecting the tendency of educated women to participate in the labour force at higher rates than less educated ones. In some countries, however, notably France and Italy, the curves are not linear. In particular, secondary vocational qualifications (2a in France and 2a and 2b in Italy) enhance labour-force participation relative to both lower (1a and 1b) and higher qualifications (2c). But beside these exceptions, participation rates increase with the level of education.

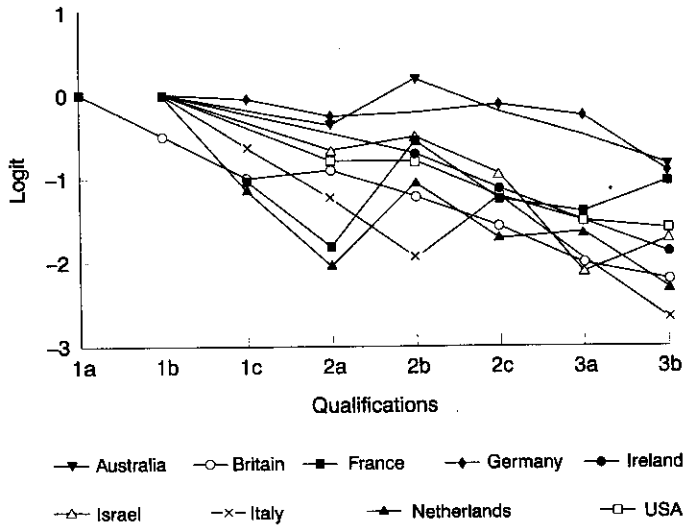

FIG. 1.5.a. *Logit effects of qualifications on labour-force participation: women*

Figure 1.5.b and Figure 1.5.c plot the logit effects of qualifications on men's and women's odds of unemployment. The most general finding is that in all countries represented in these figures, and for both sexes, education tends to reduce the risk of unemployment, and tertiary education is associated with much lower odds of unemployment than the very lowest qualifications. However, as before, the effects of education are not always linear. In several countries the risk of unemployment is lower for those with vocational qualifications than among those with general education of comparable or even higher levels. Among men, the advantages of vocational qualifications appear in all countries with high or intermediate levels of specific vocational secondary education: Australia, Britain, France, Germany, the Netherlands, and Israel. Thus, although academic tracks are more demanding than the vocational programmes, they are associated with higher risks of unemployment. In the USA and Ireland, the two countries in our set of nations with a predominantly academic orientation at the secondary level, general secondary qualifications should not constitute a handicap relative to

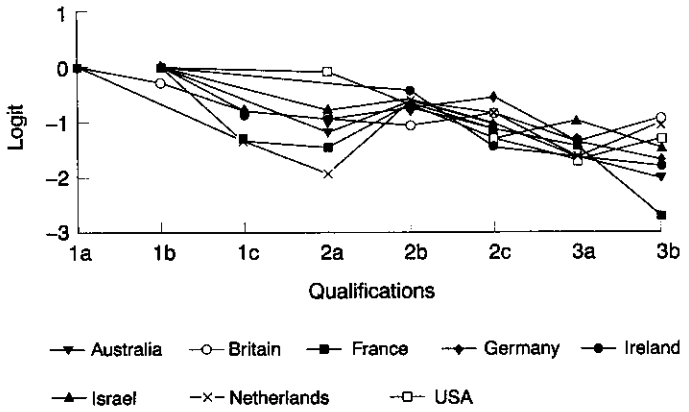

FIG. 1.5.b. *Logit effects of qualifications on unemployment: men*

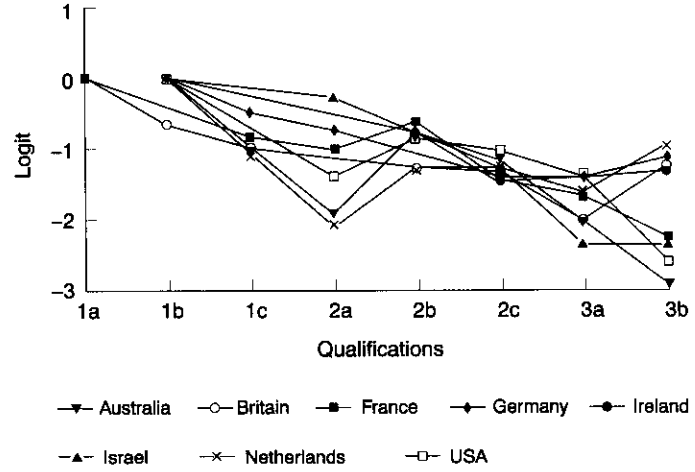

FIG. 1.5.c. *Logit effects of qualifications on unemployment: women*

vocational qualifications. We suspect that employers in these two countries do not expect job applicants to come with ready-made skills. Rather, they are evaluated on the basis of their relative success in a one-dimensional educational hierarchy. A complete secondary education (2c) is considered a valuable credential even without tertiary qualifications. The findings for Ireland and the USA are consistent with these expectations: the effects of secondary education, on the log-odds ratio of unemployment, are more linear than in the other six countries.

For women the effects are, in general, similar to those of men, although they tend to be more linear. In particular, in fewer countries (Australia, the Netherlands, and—in contrast to men—the USA)[21] vocational qualifications reduce women's odds of unemployment relative to general qualifications of similar levels. Thus, women with general qualifications appear to be in a better competitive position relative to those with vocational qualifications in female labour markets.[22]

CONCLUSION

The single most important conclusion of this study is that the effects of education in the occupational attainment process, and its impact on employment chances in the labour force, are indeed systematically conditioned by the respective institutional contexts. Both the magnitude and the shape of the effects vary between countries and this variation is due, to a large extent, to differences in the social organization of education. In this section we summarize our findings by relating them to the main hypotheses of the study. We then highlight several implications of the results, and conclude by suggesting directions for further comparative research on the institutional context of the stratification process.

The *null hypothesis*, which derives from both the neo-institutionalist and industrialization perspectives,[23] suggested little difference between industrialized countries in the magnitude and patterns of association between educational qualifications and labour-force outcomes. The data reveal commonalities but also interesting variations. The commonalities are:

- For both men and women educational qualifications enhance the attainment of prestigious occupations.
- The marginal returns to education at the tertiary level are higher than returns at the lower levels of education.
- Educational qualifications are important determinants of whether one enters the service class or the unskilled working classes, but much less decisive for placement among the intermediate classes.

- In most countries, the odds of becoming a skilled rather than an unskilled worker are determined by whether one has a *vocational* qualification, rather than by the *level* of qualification.
- In all countries the odds of labour-force participation are related to educational attainment, more so for women than for men.
- In all countries, and for both men and women, the risks of unemployment are attenuated by education, especially by tertiary qualifications.

The most *striking differences* between countries are the following:

- The *magnitude* of the effects of qualifications on occupational outcomes vary greatly. When summarizing the prestige regressions we have seen that although the pattern of effects are similar for most countries, in Germany, the Netherlands, and Switzerland the overall effect is twice as large as in Britain, Japan, or the USA. National differences in the effects of qualifications on entry class are even more striking. For example, in Germany, Switzerland, and Italy, university graduates are about 2,000 times as likely as the least qualified, to enter the service class rather than the unskilled working class. In the USA and Israel the comparable odds ratio (for men) is less than 90, and in Britain it is less than 30.
- In some countries, vocational education enhances the odds of becoming a skilled, rather than an unskilled worker, while in others it is of little value when compared to academic education. For example in Germany, Switzerland, Israel, or Australia the odds of becoming a skilled rather than an unskilled worker are ten to thirty times greater for workers with vocational qualifications (2a or 3a) than for those with only general ones. By contrast, in Britain, Sweden, and Ireland the ratio is only two to four times greater.

Thus, we find considerable similarity alongside considerable variation between countries in the pattern of association between education and labour-force outcomes. Does this confirm or challenge the null hypothesis? The similarities mainly relate to the fact that education affects occupational allocation, and is particularly crucial for access to the professions and other service-class jobs. The differences relate to substantial variation in the *magnitude* and to the *shape* of education's effects. The latter is certainly the more relevant aspect of the issue and constitutes a serious challenge to the hypothesis of basic similarities.

The null hypothesis is challenged not just by the substantial variation in pattern and magnitude, which we found, but also by their systematic relationship with the institutional characteristics, as hypothesized.

Stratification, standardization, the occupational specificity of vocational education, and the relative size of the tertiary educational sector—taken as institutional characteristics of educational systems—are clearly related to the

extent to which educational qualifications affect all but one of the occupational outcomes in the set of nations included in this study. The exception is that standardization does not affect the association between qualifications and the odds of entering the skilled working class.

The institutional variables also have substantial 'net' effects in most analyses except the following: the effect of standardization vanishes if either stratification or vocational specificity is controlled, and, in the analysis of access to the skilled working class it even becomes negative. In that analysis vocational specificity is dominant, and net of its effect, the effect of stratification is negative, due to the high multi-collinearities among these variables. Another exception is that for men, the net effect of vocational specificity vanishes (when stratification is controlled) in the contrast between the service class and the unskilled working class. This is surprising, since the case by case analysis reveals that it is intermediate vocational qualifications that play a major role in producing variation across countries. This apparent inconsistency could also be due to the large multi-collinearity among the institutional variables. The data are, however, also consistent with the following substantive interpretation: vocational specificity directly conditions the effect of vocational qualifications on the odds of entering the skilled, rather than the unskilled, working class, but its effect on the odds of entering the upper non-manual classes is indirect, via the stratification of the system.[24]

These findings beg a discerning evaluation of the hypotheses which have guided this comparative analysis. *Hypothesis 1* stated that the strength of association between qualifications, on the one hand, and occupational status and class position, on the other, is positively related to the standardization of the educational system. There is only limited and uncertain support for this hypothesis, since in none of our regressions do we find a positive effect for standardization when either of the other institutional characteristics is controlled. It is more likely that the positive bivariate effects found for standardization are spurious. Indeed, among the countries included in our study, most of those with a highly standardized educational system also have educational systems with an intermediate or high level of stratification and vocational specificity.

One possible reason for the weak effects of standardization may simply be due to the fact that we have only three countries with a low value on this variable. It may also be because, in several countries where the educational systems exhibit standardized curricular requirements, teaching standards, and examinations, there are still large, often informal, variations among various segments of the system. For example, in Japan, the system is nominally centralized and highly standardized but there are differences in implementation between private and public schools. In Israel, despite the highly centralized control of the educational system, there are large differences between Arab, Jewish, religious and secular schools in curricula, teaching practices, and accreditation procedures. Similarly, in Italy, regional differences may render the system less standardized than its centralized control intended it to be. It would appear then, that different educational systems introduce diversity through different backdoors, and that the concept of standardization is less useful than was initially imagined.

Hypothesis 2, relating to the stratification of educational systems, is clearly corroborated when we consider the full range of occupational outcomes. That is, when we study how education affects the placement of individuals on the differentiated ladder of occupational prestige, or how it influences the chances of access to the most advantageous, as opposed to the most disadvantaged class positions. Even net of other institutional characteristics, stratification enhances the magnitude of education's effects on both prestige of first job and entry into the service class. However, when it comes to the relevance of education for obtaining a skilled, rather than an unskilled, working-class position, the crucial factor appears to be the extent of vocational specificity of the educational system. The effects of standardization and stratification are less clear here.

According to *hypothesis 3*, vocational specificity strengthens the association between qualifications and labour-market outcomes, and, in particular, where vocational specificity is high, vocational education enhances the odds of entering the labour force in a skilled blue-collar occupation rather than an unskilled one. The results are consistent with these expectations. The effects of vocational specificity are strong for all outcomes and, in general, the net effects are less reduced by controls than those of any other characteristics. In most of the countries compared in Figures 1.4.a and 1.4.b, vocational qualifications do indeed improve the odds of employment in a skilled, rather than unskilled, working-class job, and, in Table 1.5 we find, that the extent to which this is the case depends systematically on the occupational specificity of vocational education. We also find that in countries, that do not have well-developed institutions of specific vocational training, not only do vocational qualifications matter less (which is not surprising), but also there is no educational alternative that clearly enhances access to a skilled, rather than an unskilled, working-class position. It is only in the countries with distinct vocational qualifications at the secondary level (see Figure 1.4.b) that some other qualifications (often of a tertiary kind) also enhance the chances of obtaining a skilled worker's job. The two sets of countries thus appear to differ in a more general way. In the countries lacking institutions of specific vocational training, the skilled and unskilled working classes are generally much less distinct by education than those with a marked vocational component in their educational systems.

Hypothesis 4 assumes that the effects of educational qualifications on occupational outcomes are inversely related to the cohort proportions attaining post-secondary qualifications. The hypothesis is confirmed in all univariate equations in which it was tested. The larger the national proportion with tertiary education, the weaker the effects of qualifications on occupational prestige, on the log odds of entering the service class, and the weaker the effects of vocational education on the odds of entering the skilled working class. Thus, educational qualifications would seem to play a less important role in labour allocation in countries with a large sector of tertiary education.

In addition to these generally positive conclusions with regard to our institutional hypotheses, the results suggest some additional insights. First, in our set of countries, stratification and vocational specificity are highly correlated. When school systems offer specific programmes, they tend to group students in distinct tracks. The more specific the training, the earlier the differentiation into track, and the higher the barriers to inter-track mobility. The literature on tracking has shown that stratification weakens equality of educational and occupational opportunity because, typically, lower-class students are placed in lower tracks which in turn deliver them to the least privileged classes (see e.g. Shavit 1990*b*). However, our findings suggest that stratification can also perform a positive role: when stratified systems provide occupationally specific vocational training, the credentials it confers are valuable and can enhance the occupational opportunities of students, in particular, by reducing the risk of dropping to the unskilled working class. In such systems, moreover, very few people tend to remain without a marketable qualification. Another aspect of the matter, however, is that in these cases—as, for example, in Germany—the group that remains without qualifications, although small, is likely to be concentrated in the unskilled working class and to encounter strong barriers to occupational advancement.

Second, in addition to the effects of vocational specificity on access to the skilled blue-collar jobs, it plays an important role for entry to the service class. We have seen that national differences in the effects of education on access to the service class is mainly due to differences among them in the structure of secondary education. Most of the countries with strong effects of education on access to the service class also have differentiated systems of secondary education. In most of these cases secondary *vocational* qualifications improve the odds of entry into the service class. Most of the other countries (notably Britain, Japan, Sweden, Britain and the USA) have less differentiated systems of secondary education which do little to enhance the odds of entering a service-class job.[25]

Third, in our set of nations, three represent the highest level of occupational specificity of vocational education: Germany, the Netherlands, and Switzerland. All three are marked by very large proportions of students who

obtain vocationally oriented qualifications at the secondary level. In all three countries training is offered in hundreds of specific occupations. There is, however, a difference among them: in Germany and Switzerland, training is mainly organized according to the dual system of apprenticeships, whereas in the Netherlands most of the training takes place in schools, and apprenticeships are less common. Upon closer inspection of the data we find that in the Netherlands elementary or secondary vocational qualifications (1c and 2a) enhance the odds of obtaining a skilled rather than an unskilled, working-class job much less than in Germany and Switzerland. This is mainly due to the fact that in the Netherlands even workers with only the social minimum of education (1ab qualifications) have relatively good chances of obtaining skilled jobs. The finding is crucial, since it could imply that it is not the occupational specialization of the training that produces strong effects of vocational education, but the specific institutional *form* of the apprenticeship system in Germany and Switzerland (and in Austria, as known from other studies; see e.g. Haller et al. 1985). The Dutch case thus begs further scrutiny: what then, are the institutional or other mechanisms operating in the Netherlands that limit the competitive advantage of vocationally qualified workers over those with no qualifications?

Fourth, the analyses of occupational prestige and of class outcomes produce broadly similar results concerning the relative effects of the educational categories in the countries studied. They also show similar patterns with regard to the effects of the institutional variables. And yet, the analysis of class as an outcome enabled us to reveal interesting non-linearities in the effects of education on occupational outcomes. As noted, vocational education plays an interesting and non-linear role in the occupational attainment process. When a linear model is applied, one cannot detect the advantages associated with vocational education, and is tempted to conclude that this is simply another form of low educational attainment. Education matters differently for different outcomes, and different types of education are relevant for different kinds of outcomes in the class structure. Furthermore, we have suggested that in some countries, qualifications exert a threshold pattern of effects on occupational outcomes. Namely, in some countries, tertiary education does not enhance the odds of placement among the intermediate classes. This is in contrast to countries where 'the more the better' principle applies.

Which Way to Work?

We have pursued the comparative study of the relevance of education for first jobs both from a case-oriented and a variable-oriented perspective. In doing so, we have attempted to be sensitive to national context and yet to

analyse a large number of countries. Thirteen countries represent perhaps the limit of what can be achieved in such an endeavour. And this was only possible because a network of colleagues and friends were willing to cooperate and to adopt common standards of analysis. Such a study cannot replace a project in which an even higher comparative standard can be achieved through the integrated analysis of individual data from several countries, but such studies have to be limited to a smaller number. For our own part, using a larger set of countries, we were able to draw a crude map whose contours are the institutional dimensions we have discussed. We were also able to place the various groups of countries in distinct regions of the map. Such a map should prove useful for future students who might want to add to it additional countries, and enable researchers to gain perspective when focusing on a limited number of cases, or even a single case. One can argue, for example, that Ishida's (1993) finding that Japan, the USA, and Britain display similar patterns of association between education and occupation is better understood in the light of the fact that the three countries occupy a similar location on such a map.

Such an approach has, needless to say, certain limitations. While focusing on the institutional characteristics of educational systems, we ignored many other factors of potential relevance, notably those related to employers, the workplace, and professional and other work organizations and their role in shaping the effects of education on the early work life of individuals. It is to be hoped that future research should answer the challenge thrown down by Kerckhoff (1995), and Hannan, Raffe, and Smyth (1996), and extend analysis in that direction.

Some of the chapters in the volume consider the roles of additional institutional characteristics of both schools and the workplace in their countries. For example, the Japanese chapters discuss the role of social networks among alumni as instruments in job search and placement, and the role of schools in selecting workers for firms. The Israeli contribution refers to the role of vocational training in the course of military service. The French chapter is rich with information on the legal educational requirements of occupations, on national employment policies, and on the institution of *cadres*—a select stratum of professionals and administrators—within French firms. Our attempt at a comparative analysis could not take these diverse institutional factors into account. We refer the reader to the, often fascinating, discussions in the country chapters of the volume.

Another serious limitation of our study derives from choosing first job as the point in career for which we study occupational outcomes of education. It is notoriously difficult to measure the first job in a comparable way. Countries differ in the prevalence of moves between education and employment in the early work life, and in the extent to which the first job sets the

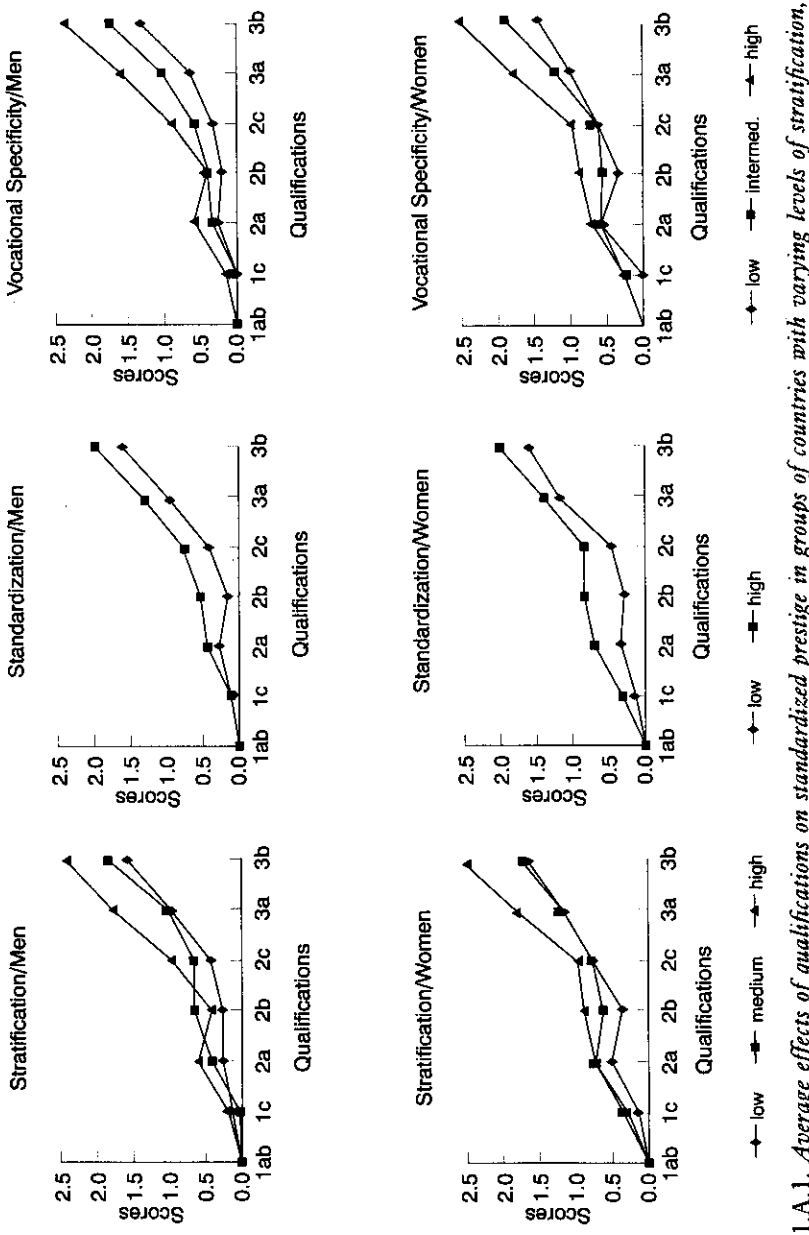

FIG. 1.A.1. *Average effects of qualifications on standardized prestige in groups of countries with varying levels of stratification, standardization, and vocational specificity*

course for later occupational attainment (Erikson and Goldthorpe 1992). In addition, education probably has different effects on occupational outcomes in later stages of the career. Thus, we consider that this project is but a beginning towards a better understanding of how processes of stratification are embedded within particular institutional contexts.

NOTES

For their critical discussion and stimulating suggestions regarding the comparative analysis, we would like to thank Michael Hout, Hiroshi Ishida, Frank Jones, Robert D. Mare, Maurizio Pisati and the fellows of the 1996/1997 NIAS Nucleus, Stratification in Eastern and Western Europe in the 1990s, including Tom DiPrete, Robert Erikson, Harry Ganzeboom, Ruud Luijkx, Don Treiman, and Wout Ultee, as well as the members of the Tel Aviv Workshop on Social Stratification, especially, Haya Stier, Noah Lewin-Epstein, and Moshe Semyonov. We would also like to thank Peter Ucen and Karin Westerbeek for research assistance. Finally, we are grateful to Clare Tame for the excellent work done in editing the numerous versions of this chapter.

1. Ishida (1993) finds that the statistical association between occupation and education is not higher in Japan than in the USA and Britain, suggesting that different institutional mechanisms produce a similar stratification process.
2. This difference is also reported by other comparisons of Germany and France (Haller et al. 1985; König and Müller 1986). The institutional perspective is related to labour-market segmentation theory. It sensitizes us to the existence of two types of segmentation—organizational and occupational—and to their differential consequences for the association between education and occupational outcomes. Similar ideas have been proposed by Marsden (1990), and by Carroll and Mayer (1986). Soskice (1993*b*: 4) shows how the roles played by different systems of vocational training are associated with different modes of economic organization.
3. Human-capital theory (Mincer 1974) employs the term 'specific skills' to refer to firm-specificity. Namely, skills which are only relevant within a specific firm. We use the term to indicate occupational specificity.
4. More precisely, where the occupationally-specific component of training is large, we would expect workers to be found in the occupations for which they have been trained. The occupations which comprise the skilled working-class category (see the discussion on the class schema) are predominantly those kinds of occupations for which training is offered in vocational programmes. By contrast, the occupations grouped under the unskilled working-class category are those for which training is not necessary and, consequently, does not exist in most vocational education systems. Thus, when aggregating occupations into classes of skilled and unskilled occupations, the expectation as formulated here holds true.
5. See the footnotes to the table for details on how countries were assigned to the various categories of vocational specificity, standardization, and stratification.

6. The way in which different education in different countries affects career progression would be an interesting subject for future research.
7. More specifically, the additional controls are as follows. The French chapter controls for year of entry to first job, but this variable has a rather weak effect. The chapter on Switzerland controls for demand for labour at year of entry, a variable which is only very weakly correlated with education. In neither case would these controls largely affect the estimates for the net effect of education. The chapter on Britain controls—in the linear regressions only—for school type and ability. In the models which we use for the comparative purposes (Model 4 of Tables 3.8 and 3.9 in the chapter on Britain) these variables have only weak direct effects on occupational prestige of first job. Therefore their possible attenuation of the net effect of education can again be only very small. Three chapters (Israel, Italy, and Taiwan) control for age at entry to first job. Age at entry to first job may be correlated with the level of education and therefore attenuate the effect estimated for education. In Taiwan the effect estimated for age is very small and statistically insignificant. It will therefore scarcely affect the estimate for education. The Israeli chapter includes both age and year of labour-force entry, two variables which are positively correlated with one another. The effect of age is positive while the effect of year is negative. When both variables are excluded from the analysis, the effects of education on the occupational prestige of first job and on the log-odds of entry class change very little. A similar phenomenon holds for Italy as well.
8. For more details on the CASMIN educational classification and its advantages relative to years of schooling, see Braun and Müller (1997).
9. Additional adaptations are the following: in Taiwan, there is no distinction between general (2b) and full (2c) secondary education, and both are coded 2c. In Germany, category 2b is virtually empty and is collapsed with 2a. The CASMIN classification fits Japan least well: the major form of stratification is between schools, rather than between academic and vocational programmes, and the CASMIN schema is not suited to capture this form of differentiation; there is very little vocational secondary education; and, as in Taiwan, the distinction between 2b and 2c does not apply. Furthermore, there is an ambiguity with regard to the classification of vocational education. Ishida does not use a 2a category because the completion of vocational high school offers a high-school certificate, a matriculation certificate, and some of the respondents were not asked the question on high-school type which is necessary to identify those who had attended vocational high schools. Ishida distinguishes between respondents who completed secondary education without any additional education (2c), and those who completed secondary education but continued on to non-university post-secondary education (2d). Category 2d refers to a lower level of post-secondary education which includes technical training, whereas 3a refers to post-secondary, two-year junior colleges. In presenting the results of the Japanese case, we ignore category 2d as it does not correspond to any of our educational categories. Its effects, however on prestige and on the log-odds of entering Classes I + II and V + VI relative to Class VII (see the respective tables in the chapter by Ishida) are very similar to the effects of Ishida's 3a category. The Italian contributors to the project, Schizzerotto and Cobalti, assigned category 2b to *istituti tecnici*, a higher level of vocational secondary education than the

istituti professionali which are assigned to 2a. In Italy, therefore, category 2b refers to secondary vocational qualifications, in the same way as 2a, and not to general qualifications, as in other countries. Finally, in France, a large proportion (about 20 per cent in the most recent cohorts) do not complete compulsory education (1a), and an additional 5–10 per cent that do, but do not continue further in education (1b). The two categories often have distinct effects on occupational outcomes in France. Thus, rather than merge them into a single category (1ab) we prefer to define 1a (*Certificat d'études primaires*, now abolished or no diploma) as the social minimum of education in France, and recode 1b (*Brevet d'études du Premier Cycle* or *Brevet Elémentaire*) to 2b. The application of the CASMIN schema to the educational categories of the other countries is straightforward and is discussed in detail in the respective chapters.

10. In their chapter on Israel, Kraus, Shavit, and Yaish analyse data separately for Jewish men and women and for Arab men. The patterns of association between qualifications and occupational outcomes are very different for the three groups. Part of the difference is due to the interaction between ethnic discrimination and ethnic enclaves in the Israeli labour market. In the present analysis we only include data for Jews because we are not able to do justice to the important, but complex, issue of ethnic stratification in labour markets.
11. The means and standard deviations of prestige scales vary between countries. To adjust for these variations, we standardized all scales by dividing the coefficients by the national standard deviation of prestige. The figures plot the differences between the standardized coefficients of the various qualifications relative to qualification 1ab. Ireland is excluded from the comparative analysis because the Irish chapter does not include a separate analysis of occupational prestige for men and women.
12. The correlations between the four societal variables (n = 13) are:

	% with Post-Secondary Qualifications	Standardization	Stratification
Standardization	0.02	—	—
Stratification	–0.06	0.52	—
Vocational Specificity	–0.11	0.27	0.85

When computed for the set of twelve countries for which we estimate Table 1.3.b, the correlations are similar.

13. We dare not attempt three-variable regressions with the twelve cases at our disposal.
14. For nine countries, the chapters either included estimates for models which contrast the combined entry Class I + II with Class VII or such models were provided to us directly by the authors. However, for four countries we only had access to estimates from models in which Classes I and II were kept distinct. In such cases, the data shown in the figures are weighted means of the separate coefficients. The means are weighted by the relative sizes of the two classes.
15. For the four countries, in which Classes IIIa and IIIb were merged, the dependent variable is the logit contrasting I + II and IIIab. In unreported analysis in which we regressed, for women, the effects of qualifications on the same class contrast as for men (i.e. I + II/VII), we found that the gross effects were very similar to those of men, but that about half of the net effects were either close to zero or negative.
16. One possible reason for this could be that in Sweden too there are specific matches between particular qualifications and particular occupational positions. A large proportion of Class II positions for women in the Swedish labour market are employed as nurses and kindergarten and primary school teachers. These jobs require a 3a qualification and nothing else. Additional qualifications do not improve the chances of access to these jobs.
17. The effect of qualification 3b on the log-odds ratio cannot be reliably estimated for Switzerland.
18. In the chapter on Ireland, Breen and Whelan find a remarkably strong effect of apprenticeships on the odds of becoming a skilled rather than an unskilled worker. However, apprenticeships are not common in Ireland and very few young people obtain them.
19. Several countries have been excluded from this analysis for various reasons. In Sweden, the database used does not include information on unemployment. In Italy, the coefficient estimates are generally insignificant and erratic, indicating instability. In Taiwan there are also very few unemployed cases in the sample.
20. Whereas, occupation and class of first job were measured in a uniform manner across countries, there are large differences among them in the age to which the measure of labour-force participation and unemployment pertain. In some cases (e.g. Britain, the USA, Ireland, France) these two variables were measured for very early stages of the career (typically for the twenties or early thirties), whereas in others (e.g. Germany, Israel, Italy) they were measured for later in the life course (typically the thirties and forties). Thus, we should expect to find considerable noise and random variation between countries in the relationship between qualifications and labour-force participation and unemployment, and we consequently should not over-interpret differences between countries.
21. In their chapter on the USA, Arum and Hout show that this is particularly due to the relatively good stake that women with vocational training in business and commerce have in the competition for service class and routine non-manual jobs.
22. We assume that education is an asset in the competition for jobs, and that it therefore reduces the risks of (involuntary) unemployment. However, the relationship between education and employment also involves considerations regarding 'reservation wages' (Lindbeck 1993): some people, especially among the more educated, may prefer unemployment rather than accept inadequate jobs, also because accepting a low-paying job may damage their prospects of obtaining better jobs in the future. The 'reservation wage' argument has two implications for the evaluation of our findings. First, we suspect that the negative effect of higher education on the involuntary component of unemployment is even larger than that seen in the data because voluntary unemployment is more common among the highly educated. Second, some of the apparent advantage of vocational relative to academic education may reflect reservation wage considerations among the latter. Namely, those with academic qualifications may be more likely to wait for the right job than vocational graduates.
23. We should add that the analysis in this chapter is not primarily designed to test the industrialization hypothesis for the simple reason that most of the countries included in the volume have all attained a high level of industrialization. What

we can show, however, is that in this set of highly industrialized countries, some differ quite substantially with respect to the association between education and labour-market outcomes. Furthermore, the systematic relationship of the strength of the association with the institutional characteristics does not disappear if we control—insofar as this is possible—industrialization level in our analyses. In analyses not reported here, we have added a measure of industrialization level (in the manner proposed by Erikson and Goldthorpe 1992: 383–4) to the regression equations reported in Tables 1.3–1.5. The results remain essentially unchanged.

24. The conclusions about the relative explanatory power of stratification and vocational specificity are indeterminate because of the multi-collinearity between them. In unreported analyses we estimated the regressions with two alternative definitions of the stratification and vocational specificity variables. First, we constructed an additive index of the two. The estimated effect of the index was slightly higher than the separate effects of its two components, but the effects of the other variable in the equations (standardization) did not change substantially. As a second alternative we created a dummy variable indicating those countries in which the value for vocational specificity differs from the value for stratification. This applies to Australia, Great Britain, and Sweden, which are low in stratification, but intermediate in vocational specificity. Comparing these countries to those which are low in both stratification and vocational specificity (Ireland, Japan, and the USA), we find systematically stronger effects of education in the former concerning two occupational outcomes: occupational prestige of first job and access to the skilled rather than the unskilled working class. Thus, even if we limit the analysis to countries with much less variation on stratification and vocational specificity (all low in stratification and either low or intermediate in vocational specificity), we find systematic effects of vocational specificity. The results of these analyses confirm the findings reported so far. Although we cannot precisely separate the effects of either of these variables, the results show that stratification and vocational specificity, taken together, strongly influence the effects of education on occupational outcomes in the early career.
25. Ireland and Israel are perhaps the most marked exceptions. In Ireland, the system of secondary education has a very low degree of differentiation, but we find a very strong contrast in the odds of obtaining a service-class position between those with an intermediate, and those with a full secondary, education. It may be that the low degree of differentiation is compensated by the very strong standardization of curricula and examination procedures. In Israel, we find a differentiated secondary school system, weak effects of education on Jewish men's odds of entering the service class, but stronger effects on the odds of women and of non-Jewish men. We suspect that in Israel's ethnically stratified occupational structure, the weak effects found for Jewish men reflects a floor effect on their occupational attainment. In other words, the odds that they would enter the service classes are relatively high even for those without tertiary education. Arab men have a greater risk of entering the unskilled working class and, indeed, the effects of education on their class placement are much stronger (see Chapter 7 in this volume).

2

The Transition from School to Work in Australia

FRANK JONES

INTRODUCTION

In their analysis of Australian patterns of status attainment up to the early 1970s, Broom et al. (1980: 41–51) were struck by the problematic nature of the linkage between educational credentials and career beginnings. The extent to which basic education affected the socio-economic status of first job seemed to vary more than any other link in the chain of inheritance of social inequality between the generations and over the life cycle.

> Of the several processes underlying the basic model of status attainment, how successful or unsuccessful men are in converting their educational attainments into initial occupational status seems the most problematic. Immigrants seem disadvantaged in this respect, whereas upper-middle class groups are decidedly advantaged. Urban groups are advantaged compared with those from rural origins. Moreover, the nature of this process has changed. Schooling and first job have become more closely linked since the end of World War II . . . the most vulnerable link [in the chain of status attainment] is entry to the labour force when educational resources are first traded for occupational status. (Broom et al. 1980: 51)

Starting from an entirely different standpoint, the late Paolo Ammassari reached a similar conclusion. Ammassari (1969) was puzzled by the general lack of empirical evidence in support of the widely held view that economic growth in general, and industrialization in particular, should promote upward occupational mobility. In his view, this expectation failed to give adequate weight to the extent to which demographic and educational changes, and changes in values and attitudes associated with the process of industrialization, are conditioned by existing social inequalities.

> To be explicit, it forgets about the inertia of the social system represented by established interests and its intrinsic capacity to develop equilibrating processes that end by transforming what seem to be changes *of* the structure itself into changes *within* the structure. (Ammassari 1969: 48)