Education and Intergenerational Social Mobility in Europe and the United States

EDITED BY
RICHARD **BREEN**
AND WALTER **MÜLLER**

EDUCATION AND INTERGENERATIONAL SOCIAL MOBILITY IN EUROPE AND THE UNITED STATES

CHAPTER ONE

Introduction

Social Mobility and Education in the Twentieth Century

Richard Breen
Walter Müller

It is not only sociologists who care about social mobility. From novels and films that chart the rise and fall of individuals and families to everyday expressions such as "from rags to riches" and "following in father's footsteps," interest in social mobility is widespread. And, in recent years, it has risen to the top of the policy agenda. Rates of mobility lower than had been thought and apparently declining rates of mobility have helped to drive these concerns. The solution is often thought to lie in education. Securing a good education is widely seen as the key to improving an individual's mobility chances, while governments promote reforms of education as a means of equalizing opportunities for mobility among people from different social backgrounds. This book is about the role of education in shaping rates and patterns of intergenerational social mobility among men and women during the twentieth century.

For most of human history, mobility must have been rare. With a relatively simple division of labour, there were few occupations between which people could move. Children of hunter-gatherers became hunter-gatherers themselves; children of peasant labourers grew into peasant labourers. In the vastly more complex societies that have emerged since the Industrial Revolution, mobility has been common, thanks to more differentiated occupational structures and periods of rapid structural change. During the nineteenth and twentieth centuries, in what we now call the developed countries of Europe and North America, there were massive shifts in employment away from agriculture and towards manufacturing and, later, to service and white-collar jobs. These changes greatly reduced the likelihood of people remaining in the same occupation or class as their parents. At

much the same time, but particularly in the middle years of the twentieth century, educational systems were expanded, labour markets were reformed, and welfare state provisions were introduced and expanded: all these should have reduced the dependence of class destinations on class origins. Coming to occupy a place in the class structure on the basis of who you were and the connections your family possessed should have given way to selection and allocation on the basis of what you had achieved and could be expected to accomplish. In sociological terms, *ascription*, as the principle of success or failure, should have been replaced by *achievement*. We shall investigate whether this was so, and examine the degree to which it happened in different countries and at different times.

ABSOLUTE AND RELATIVE MOBILITY

The study of social mobility concerns the relationship between the class position a person occupies (their class destination) and the class position in which they were brought up (their class origins): mobility occurs when origins and destinations differ. In keeping with most sociological research on mobility, we distinguish two aspects. *Absolute* mobility refers to the observed patterns of movement between origins and destinations. The simplest measure of absolute mobility is the proportion of people who are in a destination that differs from their origin: this is the overall mobility rate. Within absolute mobility we can separate upward from downward moves, and we can ask whether these are more common among people from one class origin compared with another.

Relative mobility, or social fluidity, deals with the strength of the relationship between origins and destinations. Measures of relative mobility capture the degree to which a person's destination depends on their origin. Complete social fluidity—also known as perfect mobility—would hold if destinations were independent of origins. As far as we know, no society has ever come close to this situation, but there is plenty of evidence that countries differ in how strongly the class position of one's family influences the class one comes to occupy. Sweden is widely regarded as a country with high fluidity, in which origins exert less influence on destinations than they do in countries such as Germany or France. But this does not imply that Sweden must have greater rates of absolute mobility: the two aspects of mobility, absolute and relative, vary independently. And, indeed, there is

very little difference between Sweden, Germany, and France in their overall mobility rates.

Our first goal is to document changes in absolute and relative mobility, and we do this by comparing cohorts of people born throughout the twentieth century. But our main aim is to relate changes in mobility to changes in education. From the point of view of society as a whole, a more educated population promotes economic growth and national prosperity. From the individual point of view, education is widely agreed to be the key to getting a good job and securing favourable life chances. In the countries of Europe and North America, the twentieth century was a period of growth in education. In broad terms, at its beginning, the majority of children left school with only primary education; by its end 30 per cent or more of young people were acquiring university degrees. It was also the case (though there is debate about this among sociologists) that the education people attained came to depend less on their social origins. Thus, the twentieth century saw both *educational expansion* and *educational equalization*. Our central question is: Were these developments associated with changes in social mobility and social fluidity?

SOCIAL MOBILITY AND POLICY

For many years, notwithstanding its popularity as a topic of sociological research, intergenerational mobility was not a subject of widespread public concern. But over the past twenty years it has risen close to the top of the policy agenda, at least in the UK and US. In the UK the policy concern has been driven by the belief that rates of mobility are declining, to the disadvantage of children from poorer backgrounds whose path to a better future is obstructed. In the US the concern about mobility has been prompted by the finding that, contrary to popular belief, rather than the US being one of the most intergenerationally mobile societies in the developed world it is, in fact, among the least mobile (when measures of intergenerational income or earnings mobility are used) as well as being one of the most unequal.[1] These concerns were summarised by US president Barack Obama, speaking in 2013:

> The problem is that alongside increased inequality, we've seen diminished levels of upward mobility in recent years. A child born in the top 20 percent

> has about a 2-in-3 chance of staying at or near the top. A child born into the bottom 20 percent has a less than 1-in-20 shot at making it to the top. He's 10 times likelier to stay where he is. In fact, statistics show not only that our levels of income inequality rank near countries like Jamaica and Argentina, but that it is harder today for a child born here in America to improve her station in life than it is for children in most of our wealthy allies—countries like Canada or Germany or France. They have greater mobility than we do, not less.[2]

In the UK and the US the promotion of greater social mobility has entered the manifestos of political parties.[3] In 2010, the then British prime minister Gordon Brown said: "Social mobility will be our theme for the coming election and the coming parliamentary term. Social mobility will be our focus, not instead of social justice, but because social mobility is modern social justice."[4]

A favoured mechanism for addressing these concerns is education, and in both the US and the UK various policies have been proposed with the avowed aim of equalizing the chances of intergenerational mobility. But whether they will succeed is not clear, not least because studies have come to conflicting conclusions. While many authors report evidence that changes in education affect intergenerational mobility (for example, Blanden, Gregg, and Machin 2005; Causa and Johansson 2010; Mayer and Lopoo 2008) others are sceptical (Goldthorpe 2007). Research on the impact of the raising of the school leaving age in England and Wales in 1972 showed that, although it led to an increase in the average number of years of schooling completed, it had no discernible effect on intergenerational mobility (Buscha and Sturgis 2015). A US study (Rauscher 2016), focusing on the introduction of compulsory schooling laws in the US in the nineteenth century, also failed to find a positive impact on mobility. On the other hand, Betthäuser (2017) found that increasing the school leaving age in Germany promoted greater intergenerational mobility.

If we want to understand what drives rates of intergenerational mobility and what determines how strongly a person's mobility chances are tied to their social background, examining what has happened in the past is a good place to start. And that is what we do in this book. The countries we deal with are sufficiently similar to make comparisons between them sensible, but they are also sufficiently different for us to be able to gain some idea of how variations in the timing and extent of educational change

might have had differential impacts on mobility. Considered together they should allow us to draw some conclusions about if, and how, educational developments that took place during the twentieth century were related to subsequent changes in mobility, and in doing so may help to inform us about how much education can do to promote greater social fluidity.

CHANGE IN SOCIAL FLUIDITY[5]

Sociological studies of trends in social fluidity have reached conflicting conclusions. The major cleavage is between those authors who find no trend over time in the association between class destinations and class origins and those who see a steady reduction in the degree to which a person's own class position depends on the class position of his or her parents. The latter is associated with modernisation theory: as societies develop, the forces of competition drive institutions to steadily become more meritocratic (see, for example, Ganzeboom, Luijkx, and Treiman 1989 and Treiman 1970).[6] The proponents of the rival view—sometimes called "trendless fluctuation"—claim that the modernisation argument neglects the degree to which those in advantaged positions can secure similarly advantaged positions for their children, despite the forces of modernisation (Erikson and Goldthorpe 1992; Goldthorpe 2000, chapter 11).

The great majority of previous studies of trends, no matter which side of the debate they support, have taken a period approach. This means that they have drawn comparisons of the mobility of the whole population at different points in time. In contrast, we compare the mobility of people depending on when they were born; in other words, we compare birth cohorts. For the most part, the cohorts we use identify people born in the first quarter of the century, and then people born in ten-year intervals up to the mid-1970s. Because we deal with men and women aged between 35 and 70 (the exact range differs slightly between countries) and because, for most countries, the latest data we have come from surveys undertaken in the first decade of the twenty-first century, we cannot observe mobility among people born after about 1975.

In earlier work, to which many of the authors represented here also contributed, we adopted the period perspective, comparing social mobility in twelve European countries in the 1970s, 1980s, and 1990s. But we now believe that there is a compelling reason to prefer the birth cohort approach.

Simply, change in social fluidity is a cohort phenomenon. As Müller and Pollak (2004: 96) explain:

> Educational reforms, educational expansion or changing competition on the labour market among groups with different qualification levels will affect mainly cohorts which are in school, pursuing higher education or making the transition from school to work, when the respective changes take place. In contrast, these effects may remain largely without consequences . . . for cohorts which had already settled in the labour market. Similarly, dramatic historical events, like World War II . . . may have different impacts on the social opportunities of different cohorts and particularly affect members of cohorts which are in a susceptible stage of their life course.

Müller and Pollak (2004) show that period changes in fluidity in Germany in the last decades of the twentieth century can be explained as the result of cohort replacement: that is, older, less fluid cohorts exiting the labour market and being replaced by younger, more socially fluid cohorts. Using data on cohorts born between 1912 and 1974, Breen and Jonsson (2007) find the same result for Sweden, leading them to propose that "changes in fluidity are normally and mainly—though not exclusively—driven by cohort-related, rather than period-related, factors" (2007: 1777). And they go on to show that educational change, in the form of both expansion and equalization, drove the change in social fluidity over birth cohorts of Swedish men and women.

EDUCATIONAL CHANGE

If we believe that educational change causes, or is, at any rate, associated with, changes in mobility and fluidity, it must be the case that education has changed. And while there is no debate about the expansion of educational provision and the increase in overall attainment over the twentieth century, sociologists have disagreed about whether there has been a trend towards greater equalization. The point at issue here is whether, and to what extent, the association between class origins and educational attainment weakened. To put it another way: did educational fluidity increase or not?

In the late 1990s, most sociologists would have answered no. A number of analyses of single countries and a major comparative study (Shavit and Blossfeld 1993) covering thirteen developed countries gave support to the thesis of "persistent inequality." This is the view that, during the twenti-

eth century, despite dramatic educational expansion (and in contrast to the marked reduction in gender differences in attainment), there remained "a persistently high degree of class inequality of educational attainment that can change only under rather exceptional circumstances" (Breen et al. 2009: 1476). But since then beliefs have shifted, driven both by the publication of single-country studies that overturned previous findings about a lack of change (for example, Shavit and Westerbeek 1998 who deal with the Italian case) and a large cross-national study (Breen et al. 2009, 2010) that found strong evidence that the association between class origins and educational attainment had declined over birth cohorts born in the twentieth century in Sweden, the Netherlands, Britain, Germany, and France (and somewhat weaker evidence for declines in Italy, Ireland, and Poland).

ORIGINS, EDUCATION, AND DESTINATION

There are many studies by sociologists and other social scientists into the role of education in intergenerational mobility. Often the relationships between origins, education, and destinations are displayed in what is called "the OED triangle," as shown in Figure 1.1. Destinations, *D*, depend on education, *E*, and origins, *O*, while education depends on origins. Social fluidity between origins and destinations thus depends on an indirect relationship between *O* and *D* via *E*, shown by the paths *a* and *c* (that is, education affects destination, but education itself depends on social origins), and a direct relationship between *O* and *D*, path *b* (even when we consider people with the same level of education, people from more advantaged origins have a greater likelihood of being found in more advantaged destinations). Previous analyses of these relationships have overwhelmingly focused on one particular time point, so the main issue of interest has been how much of the overall relationship between origins and destinations is mediated through education, or, equally, how much the direct effect of origins on destinations weakens when we control for education. The motivation behind this inquiry is that, in a meritocratic society, to the extent that class origins shape destinations, this should be through educational attainment, not least because any remaining direct relationship between origins and destinations may be indicative of a continuing role for ascription in the labour market.

Analyses addressing this question are agreed that education is the strongest mediator of the origin–destination relationship that we know of,

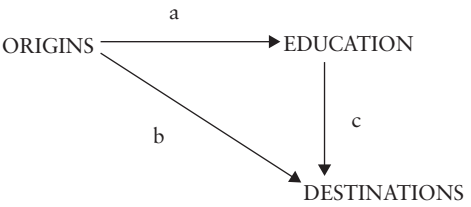

Figure 1.1 The OED triangle

but that it often accounts for only a small share of the total relationship between origins and destinations. Blau and Duncan (1967) found that respondent's education explained about 35 per cent of the correlation between father's and son's socioeconomic status. Using data on Swedish men, Mood, Jonsson, and Bihagen (2012) found that education could account for about one-third of the correlation between father's and son's personal income, but, even so, it was much more important than measures of cognitive ability, personality traits, or physical features.[7]

Our concern is not with the relative size of the direct and indirect associations between origins and destinations, or even with how this has changed, but with how any changes in education have affected the association between origins and destinations. But from Figure 1.1 we can see that change in any of the paths could affect overall social fluidity. If the relationship between origins and education were to weaken (this is what we earlier called *equalization of education*), this would reduce the strength of path *a* and would, all else equal, lead to a reduction in the association between *O* and *D* and thus an increase in social fluidity. The same would happen if path *c* declined in strength: this would occur if education became less strongly associated with class destinations. Such a change seems, at first sight, somewhat unlikely, especially in view of the increasing earnings returns to education that have been seen in several countries in recent decades. However, we are concerned with a much longer time span. Furthermore, whether education becomes less or more strongly associated with class outcomes will depend on the balance of supply and demand: in other words, the rate of growth in the number of people with higher qualifications and the rate of growth in the number of positions that require such qualifications (see, for example, Goldin and Katz 2008 for an analysis of this balance over the twentieth century in the US). Some studies have re-

ported a decline in the strength of the education–destination association (Hartog 2000; Gangl 2003b; Barone and Ortiz 2011).

The third path, *b*, represents the association between origins and destinations among people with the same level of education. Once again, if this association (in this case the association between *O* and *D* among people with the same level of education) were to weaken, we should expect to see an increase in social fluidity. This path represents a "residual" relationship because it captures every way in which origins and destinations are related, except through measured education. So, although we might speculate on what exactly it represents (characteristics of the respondents themselves, such as their abilities and aptitudes in so far as these are not captured in their educational attainments, or things like access to favourable social networks, regional location, discrimination, or direct inheritance of farms or businesses) we cannot say with any certainty exactly what this path represents nor, as a consequence, why it might have grown or weakened in strength.

These three paths represent avenues through which change in the relationships between *O*, *E*, and *D* might change social fluidity. Of these, path *a*, linking *O* to *E*, deals with how changes in the origin–education association affect fluidity. Educational expansion might have an effect on path *c*, if it leads to an oversupply of people with a particular level of education, relative to the positions open to them. But expansion itself can influence social fluidity in another way too, one that is not shown in Figure 1.1.

A number of studies, dating back to Hout (1988), have shown that the strength of the association between origins and destinations—social fluidity, in other words—differs between people with different levels of education. This finding has been reported not only for the US but also for Sweden, France, and Germany, among others. In all these countries the pattern is similar: among those with higher levels of education, the association between origins and destinations is weaker. This means that, as educational attainment increases, a growing share of the population comes to have higher levels of education and so a growing share of the population has origins that are less strongly related to their destinations. Social fluidity can therefore be changed by what Breen and Jonsson (2007) termed a "compositional effect," which occurs when two conditions are met: social fluidity is higher among those with higher levels of education, and education expands to increase the share of the population with these levels of education.

COMPARISONS

We focus on eight developed countries: the United States, Sweden, Germany, France, the Netherlands, Italy, Spain, and Switzerland. They provide a sample of different kinds of developed economies and societies, varying in what are sometimes called their welfare and production regimes. The United States is the archetypal liberal welfare regime, with limited social welfare provisions (compared with many European countries) and relatively lightly regulated markets. Sweden, on the other hand, is the classic example of a social democratic state, with extensive social welfare and regulated labour markets. The other countries in our sample are usually classified together as continental welfare regimes, which are "conservative and strongly 'corporatist' . . . [and in which] rights . . . were attached to class and status" (Esping-Andersen 1990: 27). But this grouping is in fact quite diverse. Germany, the Netherlands, and Switzerland are part of what Hall and Soskice (2003) call "coordinated market economies." Of particular importance, from our perspective, is that, in all three countries, vocational training is a significant part of the educational system. In Germany and Switzerland this takes the form of the dual system of vocational training in which young people in vocational education divide their week between school (*Berufsschule*) and working for a company as an apprentice. In the Netherlands vocational training is largely school based. In both cases, however, this vocational emphasis helps to ensure a close match between the skills acquired in education and those required by employers, in contrast to, say, the United States, where education tends instead to impart general, nonspecific skills. But the dual system is lacking in France, Italy, and Spain. Indeed, Italy and Spain are often classed (together with Portugal and Greece) as having a distinctive form of "familial" welfare regime, in which state support is limited and families are asked to bear more of the burden of providing for their members.

In terms of education and how it changed over the twentieth century, we can divide our countries in yet different ways. For example, while the US, Spain, and the Netherlands expanded tertiary education (albeit at different times during the century), this strategy was not pursued to anything like the same extent in Germany or Italy, though for reasons that are quite different. In Germany such tertiary expansion has to a large extent been at the technical or vocational level—in *Fachhochschulen*—but in Italy there

have been no such developments. Thus, our countries differ in many ways, and so we expect the broad distinctions between liberal, conservative, and social democratic welfare regimes, or between liberal and coordinated market economies that are used in much comparative work in sociology, to be of limited value in accounting for any differences we might observe.

The reason for carrying out analyses involving eight countries, rather than focusing on a single one, must be found in what we can learn from a comparative perspective. The comparisons we draw in this volume are not between countries in their levels of mobility and fluidity but in their trends. In other words, we shall be asking whether changes in social fluidity during the twentieth century followed similar or different patterns, whether they occurred at much the same time, and, crucially, whether changes in education—in both expansion and equalisation—were associated with them.

To answer these questions we need to ensure that the class classifications used in each country are, if not exactly the same, then sufficiently similar. In all countries, we have employed the principles of the widely used Erikson Goldthorpe class schema (Erikson and Goldthorpe 1992; Goldthorpe 2000) to allocate respondents and their parents to classes.[8] In five countries (Germany, France, Sweden, the Netherlands, and Switzerland) the same class classification is used. Elsewhere we lack the information to make all of the distinctions. If necessary, however, the classifications for all the countries, except perhaps the US, could be aggregated into the same as that used for Spain, and this would permit more direct comparisons.

Table 1.1 shows the classes (denoted by Roman numerals) as they are defined in the German, French, Swedish, Dutch, and Swiss analyses. The other countries differ from this in mostly minor ways.[9] Classes I and II are sometimes referred to as the higher and lower service, or "salariat," classes, and together they are known as the service class or salariat.

When a person is not currently working, the convention is to assign them the occupation, and therefore the class, of the job they held most recently. For people currently in the labour market and unemployed or recently retired, this is unproblematic, but difficulties can arise if someone has not held a job for a very long time. Most often in our data this is true of women, some of whom may have left the labour force on marriage or the birth of a child. In cases like this they might have held their last job ten, twenty, or more years ago, and this will be unreliable as a guide to their current class position. To address this we limited our analyses of women to

TABLE 1.1
The Erikson-Goldthorpe class schema as used in Germany, France, Sweden, the Netherlands, and Switzerland

Class designation	*Description*
I	Higher-grade professionals, administrators and officials; managers in large industrial establishments; large proprietors
II	Lower-grade professionals, administrators and officials; higher-grade technicians; managers in small industrial establishments; supervisors of nonmanual employees
IIIa	Routine nonmanual employees, higher-grade (administration and commerce)
IVab	Small proprietors, artisans, etc., with or without employees
IVc	Farmers and smallholders; other self-employed workers in primary production
V&VI	Lower-grade technicians; supervisors of manual workers; skilled manual workers
VIIab/IIIb	Semi- and unskilled manual workers and routine nonmanual employees, lower-grade (sales and services)

those who, in the surveys, reported themselves as being in the labour force, either in a job or recently unemployed. But this solution introduces a further problem of selection. During much of the twentieth century women's participation in the paid labour force during their lives tended to be sporadic: often they would leave the labour force at marriage or the birth of a first child, perhaps returning many years later. But more recently women have tended to remain in the labour force during the years of child bearing and rearing a family. But these changes have occurred at different times in the countries we consider. Swedish women have had continuous labour force attachment for some time, whereas in Germany and Italy it is both more recent and less widespread. All of this means that by dealing only with women currently in the labour force we will be looking at differently selected samples of women at different times and in different countries. This will make the interpretation of trends within countries and differences in trends between countries particularly problematic.

To measure education we use the CASMIN (Comparative Analysis of Social Mobility in Industrial Nations) schema developed by Walter Müller and colleagues (Müller et al. 1989). This seeks to capture the salient distinctions within the educational systems of different countries in a way that allows for international comparisons. The full schema is shown in Table 1.2,

TABLE 1.2

The CASMIN educational classification

1a*	*Inadequately completed elementary education*
1b*	*Completed (compulsory) elementary education*. This corresponds to the "social minimum" of education that individuals are expected to have obtained in a society. This level of education is mostly of a general nature and generally can be obtained by following without selective procedures the least demanding courses of education up until the legally fixed age of compulsory schooling.
1c*	*(Compulsory) elementary education and basic vocational qualification*. These are qualifications that go beyond the compulsory minimum and (in what is beyond 1b) provide mainly basic vocational qualifications.
2a*	*Secondary, intermediate vocational qualification or intermediate general qualification* and *vocational qualification*. This category includes all types of programs in which general intermediate schooling is joined by additional vocational training, or in which qualifications of largely practical, vocational components have been obtained that go clearly beyond the basic level.
2b*	*Secondary, intermediate general qualification*. This includes educational tracks at the intermediate level that are part of *general* education or are academically oriented.
2c_gen*	*Full general maturity certificates*. This category consists in successful passing those exams that mark the completion of secondary schooling (e.g. the *Abitur*, Maturity, *baccalauréat*, A-level exams) and that are obtained in tracks with a general, academic orientation.
2c_voc*	*Full vocational maturity certificate or general maturity certificate* and *vocational qualification*. This category includes either maturity certificates obtained via vocational secondary education (e.g., *maturità* obtained in *istituti tecnici* in Italy) or maturity-level certificates from general tracks that are supplemented by additional vocational qualifications (e.g., in Germany: passing the *Abitur* plus completing an apprenticeship).
3a	*Lower tertiary education*. This category is generally characterized by a shorter length of study at the tertiary level and more practically oriented study programs (e.g., technical college diplomas, social worker or nonuniversity teaching certificates).
3b	*Higher tertiary education*. This corresponds with upper-level tertiary degrees including the successful completion (with examination) of a traditional, academically oriented university education.

*The distinction between elementary, intermediate, and full secondary education is to be understood in the following way. Full secondary qualifications consist of successful passing of those exams that mark the completion of secondary schooling and, in general, provide access to tertiary education. Intermediate secondary education (2a, 2b) relates to certificates between elementary and full secondary education. In making the distinction between elementary and intermediate secondary education, which in some cases is not clear-cut, essentially all those courses and certificates that go beyond the elementary level are ascribed to the intermediate level, be it through education in selective schools, the length of education that clearly extends beyond the compulsory years of education, or through passing exams that are clearly above the elementary level.

though in all cases we use a collapsed version of the nine categories shown there. The most commonly used is the five-category version applied in Sweden, the Netherlands, and Switzerland. This is

1abc (compulsory education with or without basic vocational),
2ab (secondary intermediate education, vocational and general),
2c (full secondary education),
3a (lower tertiary education), and
3b (higher tertiary)

In many educational systems, completion of 2ab is associated with completion of lower secondary education to the minimum school leaving age, while 3a can mean either vocational tertiary education or shorter tertiary education (such as an associate's degree in the US).[10]

BIRTH COHORTS

The data we use come from numerous surveys carried out in our eight countries over a forty-year period starting in the early 1970s. The details can be found in each country chapter. Information on birth cohorts was extracted from these surveys. Table 1.3, which is taken from the French chapter (Vallet, this volume) illustrates how this was done. In this case, the data come from surveys carried out in 1970, 1977, 1985, 1993, and 2003 and the birth cohorts are made up of people born 1906–24, 1925–34, 1935–44, 1945–54, 1955–64, and 1965–73 who were aged between 30 and 64 at the time they were interviewed. The body of Table 1.3 shows the surveys in which members of these cohorts are observed and their age at the time. Thus the oldest cohort is observed in the data in 1970, 1977, and 1985 and always at older ages. In contrast the youngest cohort is only observed in the 2003 data when its members are in their thirties. The middle cohorts are observed in more surveys and across a wider age range. It is important to realise that when the same birth cohort is represented in different surveys, we do not, except by chance, observe the same people on more than one occasion. For this we would need panel data that tracks individuals over their lives. We do not have panel data: the data we use come from separate surveys, and so a given birth cohort is observed in more than one survey in the sense that the surveys each contain samples (of different people) from that birth cohort.

TABLE 1.3
Surveys, cohorts, and ages in the French data

Cohort (C) / Survey (S)	*1970*	*1977*	*1985*	*1993*	*2003*
1906–24	46–64	53–64	61–64	—	—
1925–34	36–45	43–52	51–60	59–64	—
1935–44	30–35	33–42	41–50	49–58	59–64
1945–54	—	30–32	31–40	39–48	49–58
1955–64	—	—	30	30–38	39–48
1965–73	—	—	—	—	30–38

SOURCE: Vallet: this volume, Table 5.1

The birth dates defining cohorts in the French chapter are used in all the other countries, subject to the limitations of their data. The oldest birth cohort spans a large period of time because we have information on fewer people born in the early decades of the century. Otherwise, we chose ten-year birth cohorts in order to use the same (or similar) definitions of cohorts in each country while having sufficient observations of each cohort to be able to make precise estimates.[11]

For reasons discussed earlier, we analyse change over birth cohorts rather than periods. But one disadvantage of this is that, as a cohort ages, its members may change their class position. This is an age effect. If one ignores it, there is a danger of confounding cohort and age effects. This can be seen in Table 1.3. If we were to find a difference in social fluidity between, say, the oldest and the second-youngest French cohorts, this might be because the latter is observed at younger ages (30 to 48) than the former (46–64): in other words, an age, rather than a cohort, effect.

Two solutions are possible. One is to restrict analyses only to outcomes that do not vary by age, such as educational attainment. In most countries, the acquisition of formal educational qualifications after the age of 30 is very unusual (in some cases this is true at a somewhat earlier age) so, if we analyse the educational attainment of people aged 30 and above, age effects are unlikely to confound cohort differences. In studies of class mobility, 35 has often been taken as the age of "occupational maturity," after which changes in class position become unlikely (Erikson and Goldthorpe 1992: 72; Goldthorpe 1980: 51–52, 69–71). This is not to say that people do not change jobs after this age, but if they do, the job changes they make rarely take them across class boundaries. If this is so, analysing only individuals above 35 will reduce the risk of age effects

being present. This is done for all countries in this study, with the exceptions of France and Italy where the lower age limit is 30. The other solution is to include age in our models of change. Thus we look at change over birth cohorts while simultaneously controlling for differences in age. All the authors have pursued this strategy. Only in France were any important age effects been found.[12]

The data for each country, then, consists of multidimensional tables that cross-classify origins, education, destinations, and birth cohort. We use separate tables for men and women. In some analyses, we also distinguish age groups or periods (measured as the year or five-year interval in which each survey was carried out). For most countries (the exceptions have been noted above) we have seven origin and destination classes, five educational categories, and six birth cohorts.

Table 1.4 summarizes the forgoing discussion by showing the age ranges and definitions of birth cohorts, classes, and education used in the eight countries analysed in this volume.

The core of this volume is eight chapters, dealing with education and social mobility in the twentieth century in each of Germany, France, Italy, Sweden, the Netherlands, Spain, Switzerland, and the US. Several chapters have appendixes, which go into greater detail about mostly technical matters. They are available at https://www.nuffield.ox.ac.uk/people/sites/breen-research-pages/.

The chapters do not follow a common format, but many of the methods and analytical strategies used in them are common. To avoid excessive repetition, these are presented in the next chapter. But every chapter addresses the following five questions:

(1) How did the social mobility of men and women change during the twentieth century?
(2) Did social fluidity change, and, if so, when?
(3) Did the link between social origins and education weaken or not?
(4) Is there greater social fluidity among people with higher levels of education?
(5) How, if at all, were educational equalization and expansion associated with changes in social fluidity?

The final chapter draws together their findings, provides an overview of the most important trends, and offers some conclusions about the role played

TABLE 1.4

Age ranges, cohorts, classes, and educational categories

	Ages	*Cohorts*	*1*	*2*	*3*	*4*	*5*	*6*
Germany	35–64*	6	1915–24	1925–34	1935–44	1945–54	1955–64	1965–75
France	30–64	6	1906–24	1925–34	1935–44	1945–54	1955–64	1965–73
Italy	30–65	6	1908–24	1925–34	1935–44	1945–54	1955–64	1965–74
Sweden	35–70	6	1906–24	1925–34	1935–44	1945–54	1955–64	1965–72
Netherlands	35–70	6	1908–24	1925–34	1935–44	1945–54	1955–64	1965–74
Spain	35–70	5	1910–24	1925–36	1937–48	1949–60	1961–71	—
Switzerland	35–65	4	1912–44	1945–54	1955–64	1965–74	—	—
US	35-64	6	1908–21	1922–33	1934–45	1946–57	1958–69	1970–79

*For women the age range is 35–39, cohort 1 is born 1917–1925 and cohorts 1, 2 and 3 are combined in log-linear models.

	Classes	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Germany	7	I	II	IIIa	IVab	IVc	V + VI	VIIab/IIIb
France	7	I	II	IIIa	IVab	IVc	V + VI	VIIab/IIIb
Italy	7	I	II	III	IVab	IVc	V + VI + VIIa	VIIb
Sweden	7	I	II	IIIa	IVab	IVc	V + VI	VIIab/IIIb
Netherlands	7	I	II	IIIa	IVab	IVc	V + VI	VIIab/IIIb
Spain	6	I + II	III	IVab	IVc	V + VI + VIIa	VIIb	—
Switzerland	7	I	II	IIIa	IVab	IVc	V + VI	VIIab/IIIb
US men	6	I	II	III	IV	V + VI	VIIab	—
US women	6	I	II	IIIa	IV	V + VI	VIIab/IIIb	—

	Education categories	*1*	*2*	*3*	*4*	*5*	*6*
Germany	6	1ab	1c	2ab	2c	3a	3b
France	6	1ab	1c	2ab	2c	3a	3b
Italy	4	primary	lower secondary	upper secondary	university	—	—
Sweden	5	1abc	2ab	2c	3a	3b	—
Netherlands	5	1abc	2ab	2c	3a	3b	—
Spain	4	1a	1bc	2abc	3ab	—	—
Switzerland	5	1abc	2a	2bc	3a	3b	—
US	5	< high school	high school	some college	BA	> BA	—

by education in social mobility, and especially the relationship between educational change and changes in social fluidity.

NOTES

1. But when mobility is measured in class terms, the US does not seem to be a particularly rigid society (Beller and Hout 2006a; Breen, Mood and Jonsson 2016).

2. https://obamawhitehouse.archives.gov/the-press-office/2013/12/04/remarks-president-economic-mobility

3. Mobility has been a political issue in other countries too, but not to the same extent as in the US and UK. In November 2005, the German chancellor Angela Merkel, in her first government policy declaration, stated, "In this country, origins must not be allowed to determine young people's future" (Herkunft darf in diesem Land nicht die Zukunft der jungen Menschen bestimmen). Before his election as the French president in 2017, Emmanuel Macron was quoted as saying, "We need to invent a new growth model. To be fair and sustainable, it must be environmentally friendly and increase social mobility." (https://www.ft.com/content/3691a448-fa1d-11e6-9516-2d969e0d3b65).

4. http://www.mynewsdesk.com/uk/news/labour-party-gordon-brown-speaks-to-fabian-new-year-conference-2550

5. Breen and Jonsson (2005) provide an exhaustive review of work on social mobility and educational inequality. See also Torche (2015).

6. For example, Ganzeboom and De Graaf (1984) predicted that, based on trends between 1954 and 1977, the Netherlands would reach perfect mobility by 2023 (see also Ganzeboom and Luijkx 2004: 345).

7. These studies, and many others, assume a linear relationship between continuous measure of origins and destinations (such as income). This means that the relationship between the two, and the strength of the role of education, can be captured by single numbers that apply to the whole population being studied. The categorical approach used in studies of class mobility, however, has allowed sociologists to see how the role of education can differ, depending on the class origins and destinations in question (for example, Breen and Karlson 2014). This proves to be quite variable. For entry into some classes, and for some class origins, almost all the link between origins and destinations is mediated through education: for others, education mediates very little of it.

8. A person's occupation determines their class. The principles that underlie the Erikson-Goldthorpe class schema, and thus the manner in which occupations are placed in classes, are set out in Erikson and Goldthorpe 1992, chapter 2; Goldthorpe 2000, chapter 10; and Breen 2005. Class origins are based on the respondent's report of his or her parents' occupation when he or she was around the age of 15. In this volume we use father's class to measure origins because many of the surveys we use, some of which date back to the early 1970s, did not ask

questions about mother's occupation. People's answers to questions about their father's occupation are very reliable when aggregated into classes, as Breen and Jonsson (1997) showed. This means that long-term studies of intergenerational class mobility are feasible whereas similar studies using income are not, because respondents' reports of their parents' incomes or earnings when they themselves were a teenager are likely to be highly unreliable.

9. In Italy, the third class combines IIIa and IIIb and so includes lower-grade routine nonmanual employees in sales and services. Furthermore, the sixth class is made up not only of lower-grade technicians, supervisors of manual workers, and skilled manual workers but also semi- and unskilled manual workers not in agriculture (who are shown in the seventh class in Table 1.1): that is, it combines classes V, VI, and VIIa. As a result, the seventh class in Italy is made up only of agricultural workers (VIIb). The class classification for Spain is the same as for Italy but with the further difference that classes I and II cannot be distinguished. Thus in Spain we have six, rather than seven, classes. For the US the classifications for men and women differ slightly. For men, the third class is made up of IIIa and IIIb, as in Italy and Spain, so the lowest class comprises VIIa and VIIb (semi- and unskilled manual workers). But the major difference between the US and elsewhere is that farmers and small proprietors are placed together in a common class IV. For women in the US, class IIIb is moved from the third class and placed with VIIa and b. As with Spain, in the US we identify six classes.

10. In the German and French chapters a further distinction is made between 1ab (minimum or less than minimum general education) and 1c (elementary education with vocational training). In Italy and Spain it was not possible to make all the distinctions, and in these cases we use four categories. For Italy these are Primary/Lower Secondary/Higher Secondary/Tertiary and for Spain None or less than Primary/Primary or Lower Secondary/Upper Secondary/Tertiary.

11. Germany, Sweden, Italy, and the Netherlands use almost exactly the same cohorts as in France, except for slight differences in the age of the oldest cases (for example, the oldest cohort covers those born 1915–24 in Germany and 1908–24 in Sweden) and of the youngest cases (the youngest cohort includes those born in 1965–75 in Germany and 1965–74 in Italy and the Netherlands). In Switzerland we have only four cohorts. Because the Swiss surveys contain fewer people born in the first half of the twentieth century, the first three cohorts are combined into one, giving one large cohort born 1912–44; then we have cohorts born 1945–54, 1955–64, and 1965–74. For Spain we have five cohorts: 1910–24, 1925–36, 1937–48, 1949–60, and 1961–71. For the US we have six cohorts but defined slightly differently: 1908–21, 1922–33, 1934–45, 1946–57, 1958–69, 1970–79.

12. The same issue arises with period. If social fluidity changed over time for everyone (so that, in the French case, for example, fluidity was greater in 1985 than in 1970) this would be a "period effect." If we failed to take it into account, we might mistake it for change over cohorts. The authors of the country chapters also checked to make sure that this was not the case.