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Education & social stratification. Inequality of educational opportunities

Gabriele Ballarino, 10/2024

Education and social stratification I: Inequality of Educational Opportunities

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2. Definition & measurement issues: What do we mean by IEO?
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4. Evidence I: IEO by parental class and education
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1. Education and social stratification

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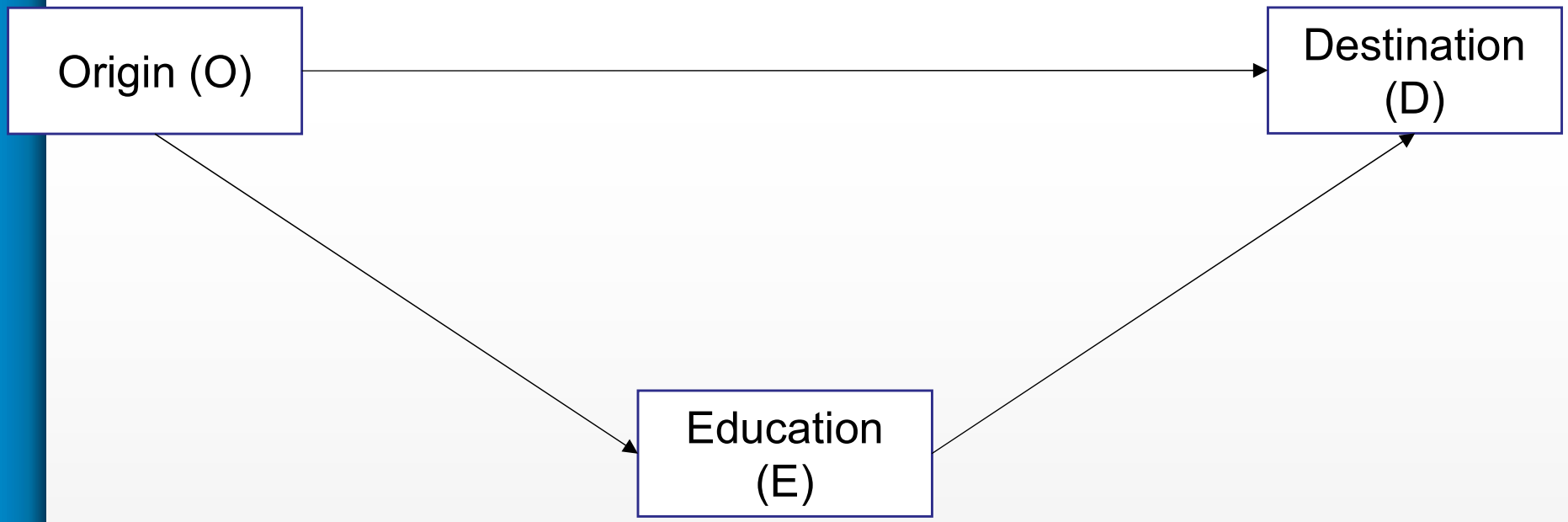
Social stratification in intergenerational perspective: the OED triangle



Blau and Duncan (1967) *The American Occupational Structure*, a landmark of social stratification research and social demography.

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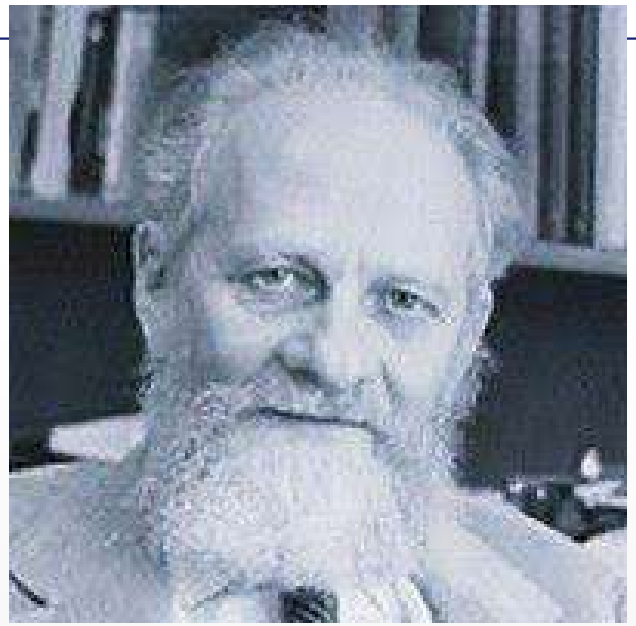
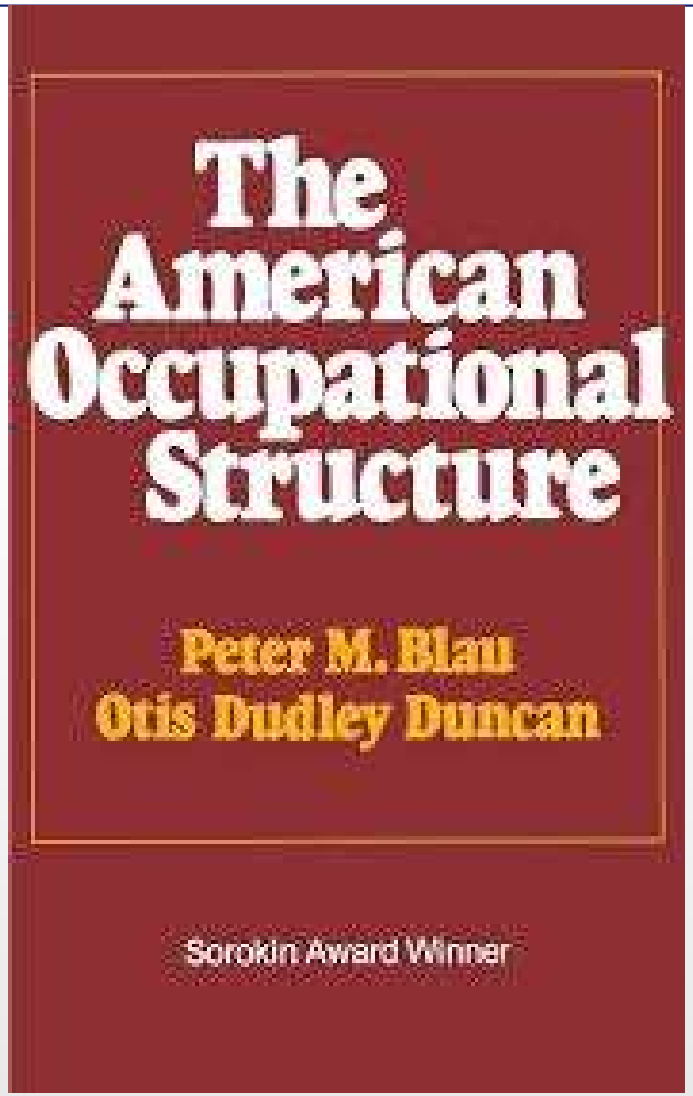
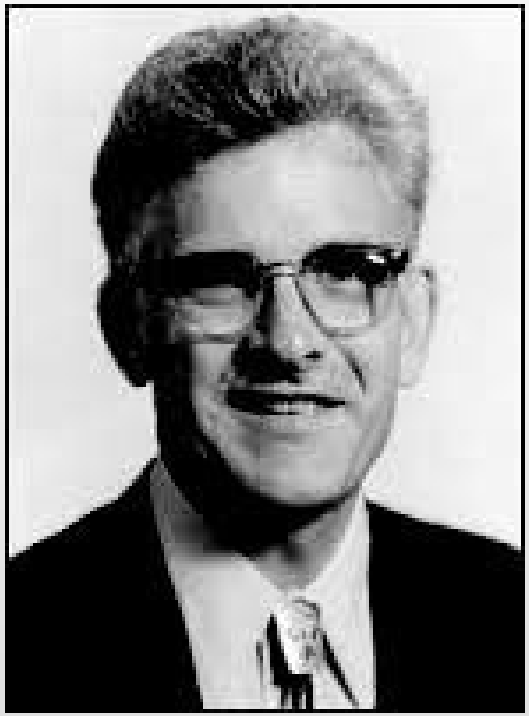
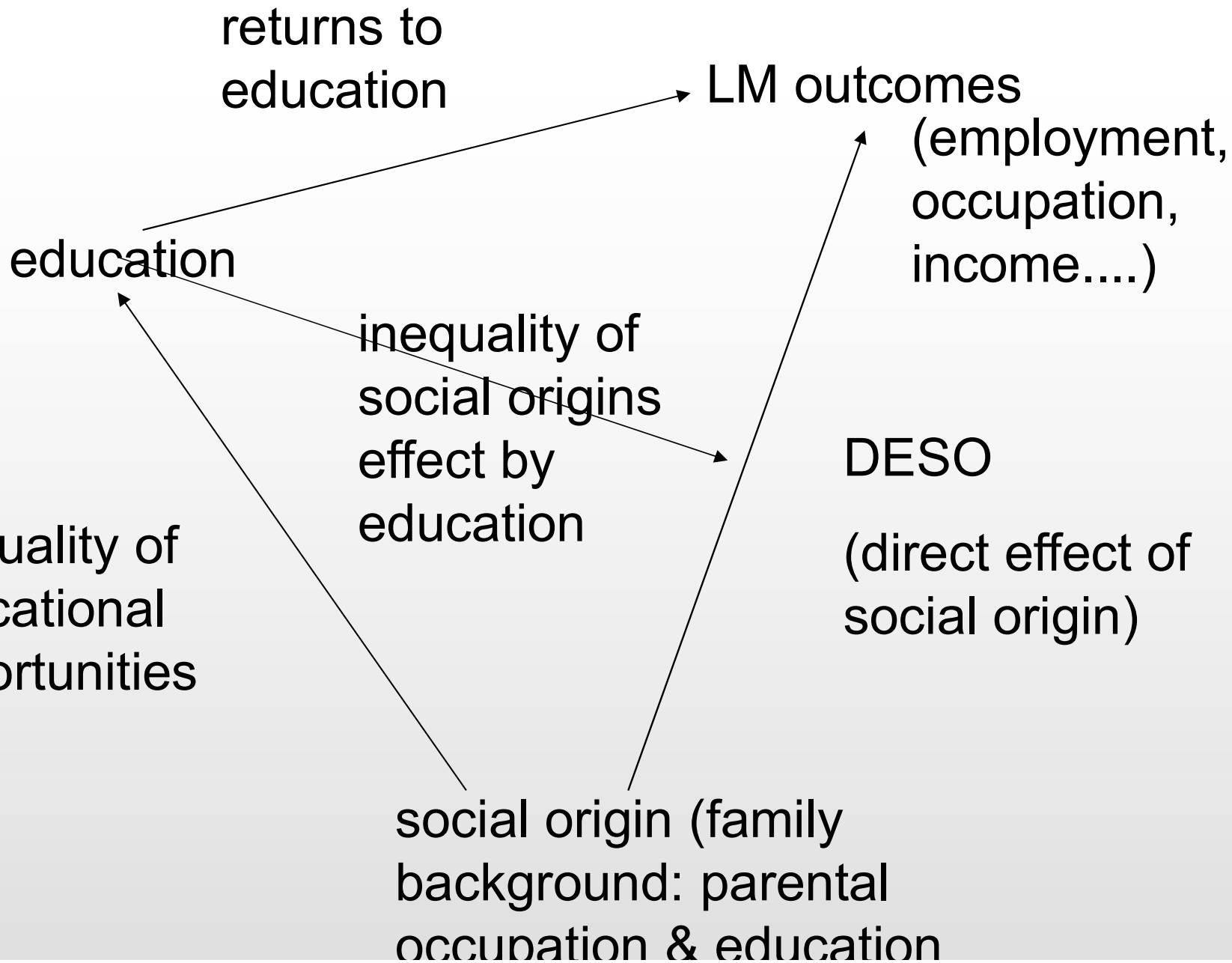
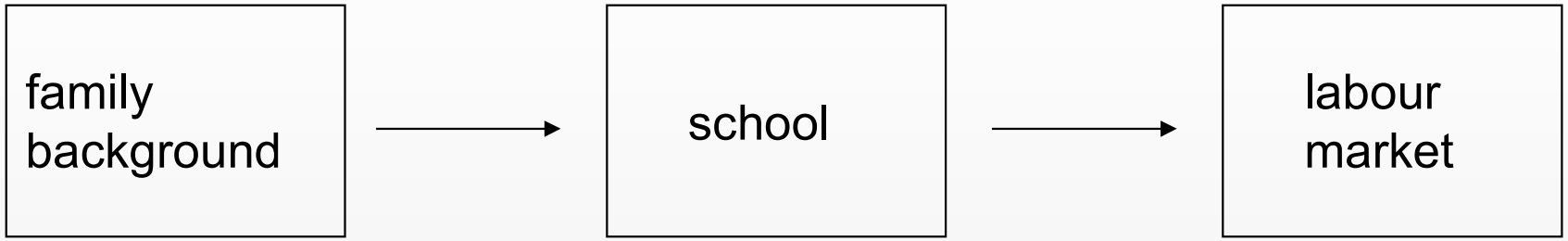






Social stratification: the OED triangle (in detail)





Concerning the relation between education and stratification, we are interested in two transitions (OE and ED).

Both transitions involve a selection process, but ideally, according to the meritocratic principle, we want them to be based on opposite mechanisms.

In the first transition, a *non-discriminatory* principle works, as selection should be governed by *equal opportunities*. To ensure fairness, the OE association (inequality of educational opportunities) should be as low as possible.

In the second transition, a *discriminatory* principle works, as selection should be governed by a *suitability* principle. To ensure fairness, the ED association should be as high as possible, to ensure efficiency, that is a good match between individual skills and requirements of the job.

In a meritocratic context, both school achievement and job allocation should be based on merit, that is on the skills of individuals, not on any other ascribed feature of individuals (race, gender, political orientation, kin, friendship networks ecc.)

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1. Definition & measurement issues: What do we mean by IEO?

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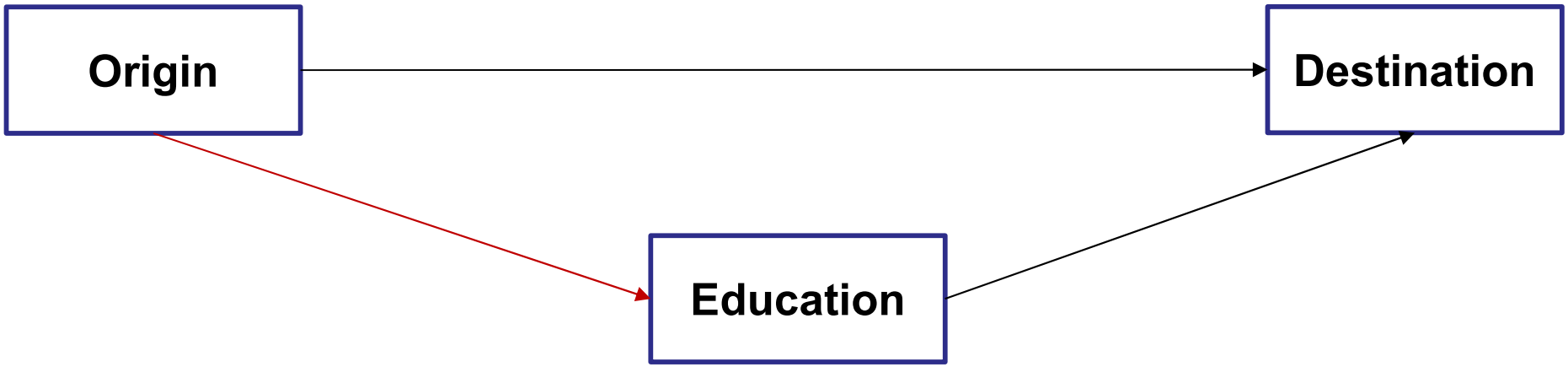

OE: association btw origins & education.
INEQUALITY OF EDUCATIONAL OPPORTUNITIES

We focus on family background, defined by parental occupation or education, and also look at gender, but many other origins might be considered, eg ethnicity, migratory experience, family structure and the like.

Blau and Duncan (1967): O-E-D triangle

1. What is IEO?

There are at least three major meanings to the concept of educational inequality (that is, three different definitions of E as a dependent variable in the OED triangle)

1. Inequality in the distribution of educational attainment
2. Inequality in the distribution of educational outcomes
3. Inequality in the distribution of educational opportunities

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1. Inequality of educational attainment

Inequality in the distribution of educational attainment is what was previously called the vertical stratification of schooling: at the micro level, some individuals go to school for longer, some for shorter spans of time; at the macro level, some countries have a more schooled population, some less.

At the macro (country) level, it is measured by some index of dispersion or of variation of the amount of education achieved by the members of a given population.

Given the fact that school systems have been constantly expanding over time, the study of the changing distribution of education over time (usually measured by year or cohort of birth) amounts to the study of educational expansion.

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Measuring inequality of educational attainment

The amount of education of an individual, and thus the difference therein (dispersion, variation, inequality) can be measured in 2 ways:

1. his/her highest school title attained;
2. the number of years spent in school (the so-called pseudo-years, i.e. the no. of years required to get the highest title attained - otherwise school dropouts would get higher scores).

Years are a metric variable, titles are a categorical variable: the same issues found for the case of the measurement of social position/status concerning socioeconomic scores and social classes apply here as well.

From a theoretical and descriptive point of view, the issue is synthesis vs. detail, from a statistical pov it is linear regression models (OLS) vs. models for categorical variables (logit, probit).

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Measuring inequality of educational attainment

European scholars prefer using the highest title, American ones prefer years. This relates to the different structure of the educational system and to the different legal status of titles.

In Europe they are certified by the state («legal value» of the title, in Italian *valore legale del titolo di studio*), while in the US their value rests only on the awarding institution. So in the US what supposedly matters is having been in school, not having finished it.

Moreover, this dichotomy also involves an argument concerning why education is useful for individuals and populations. According to human capital theory, education is useful since it makes people more productive and thus their wages become higher (market competition). According to credentials theory, education is useful since it provides tickets to access the better occupations.

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Measuring inequality of educational attainment

The key issue is then whether there is a relation btw schooling and skills & productivity. HC theory assumes it exists.

Credentialist theory takes on two positions. The argument, supported by evidence, is that productivity cannot be observed before employment, and that much of the job-related training takes place on the job.

According to a weak version of credentialism, schooling is an indicator not of productivity directly, but of trainability («training begets training») and/or of general sociability (if someone has been through the school system for a number of years, it is likely that he or she will be able to comply with the behavioral requirements of the employing organization).

In economics, this is called signaling theory (Spence 1973): school titles do not directly indicate productivity, but might be used as an indicator of it.

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Measuring inequality of educational attainment

According to a strong version of credentialism (social reproduction theory), school certificates have nothing to do with productivity, are is just a signal of behavioral conformity.

School titles do not relate to skills which make an individual more productive (and profitable for employers), they only certify that the given person is apt for a given type of job.

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Measuring inequality of educational attainment

Empirical analyses gave support to both theories.

In the US some effect of the title has been found, in the 80s, by the so-called sheepskin models in the economics of education. The number of years (not pseudo-years) corresponding to time required for a title shows a stronger effect (there is a jump in wages or employment prob. corresponding to this number).

This supports credentials theory.

However, it has also been shown that even without the attainment of the title, some permanence in school has on average positive effects on occupational returns (wage, occupation etc.). For the Italian case, see Ballarino, Bison & Schadee (2011).

This gives support to human capital theory.

More on this when we will discuss returns to education.

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Measuring inequality of educational attainment

The usual indices used in economics to measure income inequality are typically used (Gini, Theil etc.), although some complications arise when education is measured by means of categories (see Meschi & Scervini 2012, 2014).

The pattern over time of the dispersion of education, measured by school years, is relatively well-known (Hout et al. 1993; Meschi & Scervini 2012, 2014): it is inverted U, similar to the Kuznets curve for income (educational Kuznets curve, see Milanovic for the Kuznets curve for income inequality).

This depends on the expansion of education: when few people are educated, there is no variation and no inequality; when about half of the population is educated, the variation is at its maximum, and then it decreases as education becomes universal.

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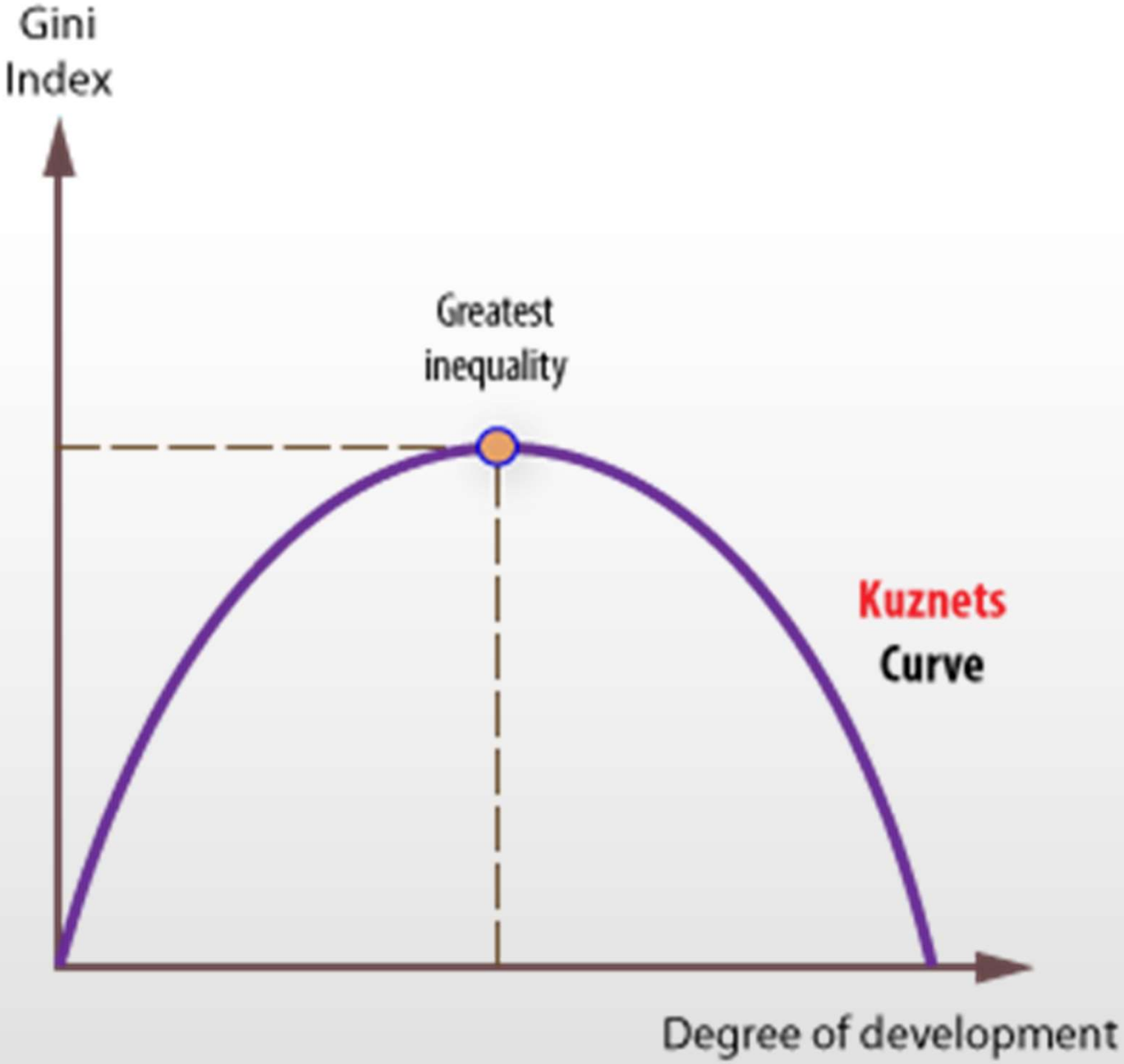
Theoretical Kuznets curve (for any type of inequality)



Measuring inequality of educational attainment

However, recent research (Meschi & Scervini 2011) shows a third part of the curve, corresponding to a stage where tertiary education becomes important but not universal (by definition?)

See the theoretical pattern in the next slide, and the empirical pattern of the SD of years of education by cohort for Italy in the following table.

This is also similar to the pattern of Kuznets «waves» found by Milanovic (2016).

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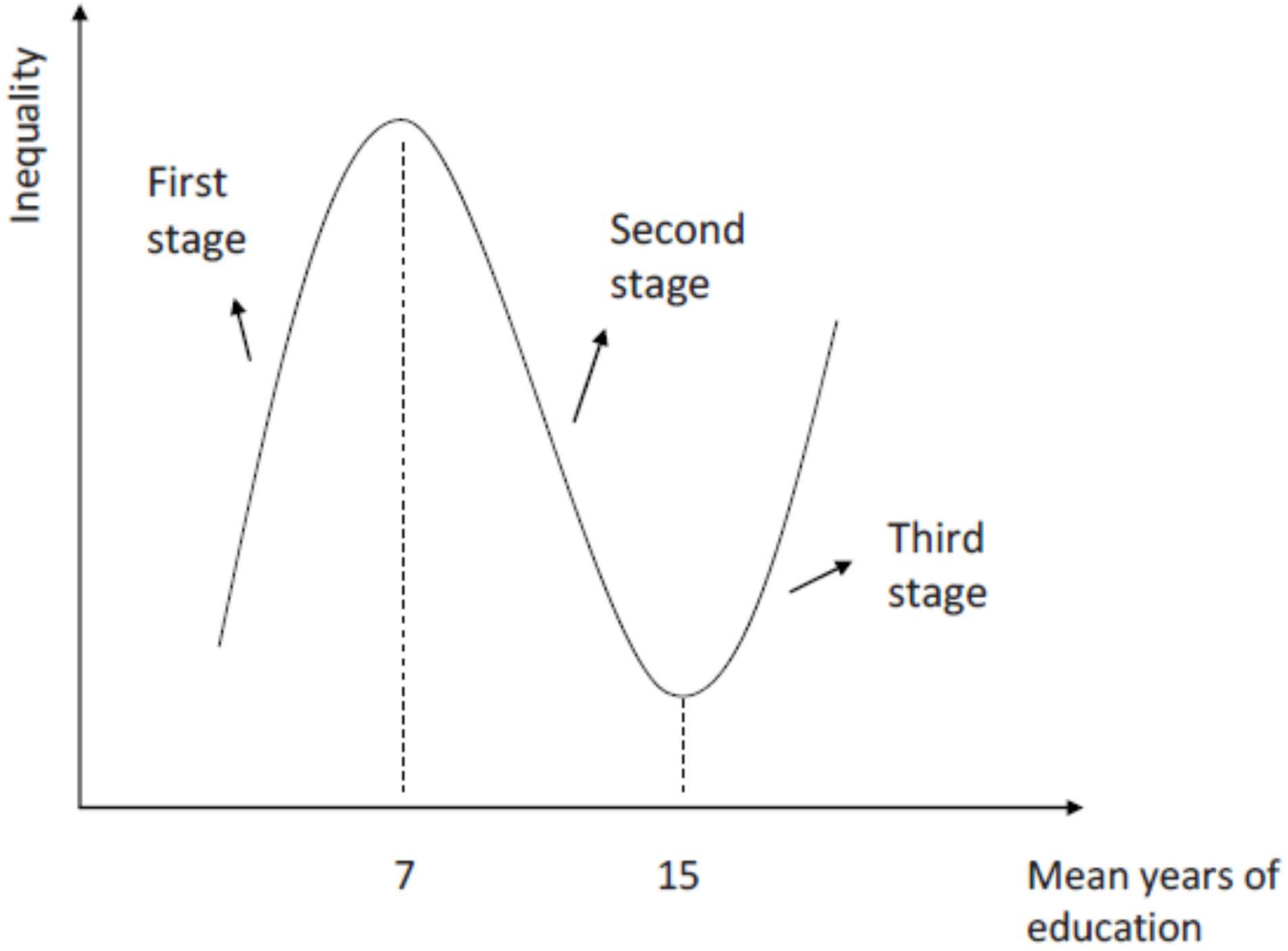
Empirical educational Kuznets curve
(Meschi & Scervini 2012)



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Educational attainment (row %) and years of education (average and standard deviation), by birth cohort.

Source: Ballarino and Panichella (2021)

							years of education	
birth cohort	elementary	junior high	high school	college	total	N	average	SD
30-34	73.6	15.5	7.9	3.1	100.0	7.198	7.53	4.20
35-39	66.6	20.2	9.8	3.4	100.0	8.213	7.87	4.39
40-44	54.3	26.6	14.1	5.0	100.0	8.615	8.57	4.77
45-49	40.8	32.9	18.4	8.0	100.0	10.144	9.60	5.08
50-54	24.1	41.1	24.9	9.9	100.0	10.466	10.52	4.78
55-59	12.8	45.7	31.3	10.1	100.0	11.485	11.07	4.46
60-64	7.0	50.6	33.3	9.0	100.0	12.272	11.13	4.18
65-69	5.0	48.3	36.2	10.6	100.0	11.078	11.53	4.28
70-74	3.5	41.3	39.7	15.5	100.0	6.072	12.42	4.52
75-79	3.4	34.3	44.3	18.1	100.0	2.781	13.09	4.58
total	28.6	37.3	25.4	8.7	100.0	88.324	10.32	4.77

2. Inequality of educational outcomes

Educational outcomes refer to learning and competences (skills). Marks and grades assigned by teachers might also be used, but they are not reliable, since they often include biases.

Besides individual biases, there are different grading standards over schools; subjects (humanities vs sciences); geographical areas (in Italy, N vs S) and teachers' cultures (egalitarians vs meritocrats),

Skills aquired in school are measured by well-known learning tests collected by international random surveys like PISA, PIRLS, TIMMS, IALS-ALL-PIAAC.

These tests have been elaborated in psychometry since the early XX century (IQ tests are actually tests of school learning), and appear to be a better predictor of later outcomes than the simple measures of attainment, which are not very detailed.

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International skills surveys

PIRLS: Progress in International Reading Literacy Study: reading skills, 4° grade (aged about 8 yrs)

TIMMS: Trends in International Mathematics and Science Study: math and science skills, 4° and 8° grade (aged about 9 and 13 yrs).

PISA: Program for International Student Assessment: literacy, math and other skills, 10° grade (aged about 15 yrs). Started in the late 90s.

IALS: International Adult Literacy Survey: literacy, numeracy and text comprehension, all adult population (also **ALL**: adult literacy and life survey).

PIAAC: Programme for the International Assessment of Adult Competencies: skills used in work and in daily life, all adult population.

International skills surveys

In a number of countries such surveys are administered yearly to the whole student population, in order to have a third-party, independent assessment of student learning (output-based standardization).

This custom is typical of de-centralized school systems as the Anglo-saxon ones, but is now spreading all over the world, because of the influence of international tests (PISA in particular) and policies of school decentralization.

INVALSI: Italian yearly survey on the whole student population in grades 2, 8, 10 and 13. Managed by INVALSI, the national institute for school evaluation, created in 1999.

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Inequality of educational outcomes

Survey skills measures are available only from the 90s on, so we cannot follow their pattern over time as in the case of measures of attainment.

However, they are internationally comparable and the school-based surveys (PIRLS, TIMMS and PISA) include information relating to the school (typically collected from the school principal) and to the social background of the students, so they are extensively used by researchers in education. sociology and economics.

At the aggregate level, they are very important for international policy-oriented comparison, and also, in big countries, for within-country comparisons (much work of this type has been done for the Italian case, eg Bratti, Checchi & Filippin 2008).

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Inequality of educational outcomes

At the macro level, this type of data is very important for international policy-oriented comparison, and also, in big countries, for within-country comparisons.

The richness of the data-sets allows to compare the effects of different institutional features of the school system, at all its levels, on the outcomes of the pupils, controlling for many confounders. (this is often done with «multilevel» models). For instance, it is possible to check whether IEO differs over different types of school systems (eg centralized vs. decentralized).

At the individual level, they are widely used to study educational opportunities and their variation across social groups. But not over time.

Moreover, being measure of ability they might be used to control for ability in the OED triangle (see below primary vs. secondary effects).

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3. Inequality of educational opportunities

This is the major interest of sociologists who study education with an interest in social stratification and inequality.

Very generally, in this field we study how the distribution of educational attainment or outcomes differs across different social groups, and how this difference changes over time (intergenerational transmission of education).

Groups of interest include: genders; social groups variously defined by parental occupation (strata or classes), income (in economics), education (intergenerational reproduction of educational inequality); ethnic groups; migrants vs natives; as well as the full set of the intersections among such groups.

In the following I will concentrate on social groups defined by family background, looking in particular at parental occupation and education.

Why do we care for IEO?

There at least three good reasons to study the association between social origins and educational achievement (OE association).

- a *descriptive* one: as education is one of the main predictors of occupation and social position, its determinants are of major sociological importance (see next slide).
- an *ethical* one: the OE association can go against the legitimacy criteria of contemporary social and political systems (see previous slides on the EBM and the EGE arguments).
- an *analytical* one: despite the major progresses of the field, scholars are still divided concerning both the pattern over time of the OE association and the mechanisms who drive it. A scientist wants to know *how things really work*. And this is what makes research on EI - IEO an amazing field.

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Why do we care?

As education is the major determinant of the occupational status of an individual, and thus of her income, the OE association is one of the major structural parameters (in the sense of Blau 1977) of a society.

"education is the main factor in both upward mobility and the reproduction of status from generation to generation" (Hout and DiPrete 2006: 6)

Research shows education to be related to a set of other individual and societal outcomes, such as civicness (Dee 2003); crime (Lochner and Moretti 2004); health and happiness (Hartog and Oosterbeek 1998); social cohesion (Green et al. 2006).

General reviews are provided by Hout (2012) in sociology and by Oreopoulos & Salvanes (2011) in economics.

"Many good things come from education" (Hout 2012)

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Inequality of educational opportunities

The first major question is then whether inequality of educational opportunities (IEO) exists:

Have the offspring of different social groups access to the same school opportunities? is there an association between social origins (family background) and school attainment or outcomes?

Given that in most of the cases this association exists, the second question is whether it changes over time. The time-span was originally defined by the availability of survey data: survey started to get fielded in the mid-20th century, but now in many countries historical data sets are being made available, thus extending our observation window well into the 19th century (not for Italy, unfortunately).

A third question concerns the mechanisms explaining it. Why an OE association exists?

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3. Modernization vs. social reproduction

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Modernization theory

The importance of education as a factor structuring micro social stratification and macro societal outcomes is well-present in the founding fathers of sociology and in positivist social research, before WW2.

For instance, in his comparative work Max Weber compares different types of education as structuring different types of societal arrangements and power relations. Also Comte and Spencer (but not Marx & Engels) underline the importance of education in the development of modern societies. Durkheim's first professorship was in *Science Sociale et Pédagogie.*

Corrado Gini, the Italian statistician who invented the well-known index of inequality, in the 30s collected and analyzed data on IEO in a set of countries.

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Modernization theory

After WW2, modernization theory (MT) systematized much of this work. According to MT, educational inequalities should diminish and finally disappear because of the way modern societies work.

In modern societies, both firms and public institutions are constrained to hire their personnel on the basis of productivity (because of market competition in the case of firms and political competition both internal and international in the case of institutions). The organization who would not select personnel on this basis would lose out to competition. ED gets stronger.

Aware of this, families and individuals try to get as much school as they can, thus producing school expansion.

The school system develops to fulfill these requirements, in order to produce individuals with vast knowledge and well socialized to bureaucracy, and providing them with a certification (school title) of what they have learned, and how (final grades).

Modernization theory

The internal working of the school system has to be meritocratic and inspired by universalistic values, otherwise it would not produce the skills required by the modern socioeconomic system. OE should disappear, provided ability/intelligence are independent from social origin.

However, during the 60s and 70s a number of studies cast doubt on this optimistic picture. In particular, three empirical works changed the way we look at the relation between schooling and inequality: the *Coleman Report* (1966), *The American Occupational Structure* itself (Blau and Duncan 1967) and *Schooling in Capitalist America* (Bowles and Gintis 1976).

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The critical 60s and 70s

First, the results of the so-called *Coleman report* (Coleman et al. 1966), analyzing data of the first great school survey commissioned by the US government to study IEO with a strong policy mission to reduce it, showed the optimism not to be well-founded.

The report showed a strong persistence of both race and family background effects on educational outcomes; the effect of the family on the outcomes were much stronger than that of the school, and other social and socio-psychological variables, such as the ethnic composition of schools and individual locus of control, to be not very relevant.

Second, *The American Occupational Structure* by Blau and Duncan (1967) showed the ED association to be slowly increasing over time, but it also found the OE association to be stable over time, and also a direct effect of family background on occupational destination (OD), controlling for education.

The critical 60s and 70s

Third, *Schooling in Capitalist America*, by Marxist economists Bowles and Gintis (1976), argued that schools mostly socialize individuals to authority, and selects them on the basis of compliance to it.

Correspondence principle: the school system reproduces capitalist society and prepares individuals to it.

1. The hierarchical structure of school reproduces social hierarchy.
2. Compliance and obedience are rewarded in students more than actual knowledge (as shown by research relating personality traits of students and teachers' marks).
3. Reward is external to activity, as it is in society. As workers do work because of the wage, not because they like it, similarly students do study because of the title, not because they like it. Alienation (see Marx 1844).

The critical 60s and 70s

4. Knowledge in schools is fragmented into disciplines, as society is fragmented into social classes and groups because of the social division of labour.
5. Schools are heterogeneous so to prepare students to different social positions. Lower grades and vocational tracks prepare workers, with a teaching & learning process based on passive reception and compliance, while good high schools and colleges prepare managers, professionals and entrepreneurs, based on autonomy, creativity and personal re-elaboration of trasmitted notions. Schooling (teaching & learning) differs according to the social position kids are preparing to.

This work converged with critical pedagogy (Bernstein 1971) and with sociological theories of cultural reproduction (Bourdieu & Passeron 1970) and educational credentialism (Collins 1979) in criticizing the link between schooling and productivity.

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The criticism of schooling

From the 70s on, the optimism of modernization theory gave way to a counter-movement, whose theoretical expectations were often influenced by Marxism, which during the 70s underwent a revival: "Neo-marxism", eg. the "Frankfurt school" (Marcuse, Adorno); the French structuralists and post-structuralists (Althusser; Foucault; Bourdieu); "analytical marxism" in the Anglo-Saxon world (Wright; Roemer; Elster).

Neo-marxism (NM) had a strong political impact on the student movement of 1968. Indeed, one of its key features was a strong critique of schooling, which was seen as a means by which the ruling class holds on to its social and economic power.

According to NM, the proletarian revolution, predicted by Marx and Engels, did not come about in wealthy capitalist countries ("late capitalism") because of ideological consent to the system guaranteed by collaborative trade unions, consumption and – more importantly - culture transmitted in schools.

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Neo-marxism and schooling

Marx & Engels, themselves well-schooled intellectuals, were not fully aware of the importance of schooling as a part of the modern state and society, since their work preceded the diffusion of post-primary schooling.

Wrt schooling, classical Marxism was not different from other modernist and positivist theories (M & E were admirers of Darwin). The socialist movement favoured schooling as a means of emancipation of the working class, and strongly contributed with its political strength to the expansion of schooling.

The cultural origins of the criticism of schooling are to be found in the Romantic movement, who developed a criticism of economic and political modernity, accused of breaking the “organic” original tissue of life and society (eg Rousseau).

Neo-marxism and schooling

Romantic criticism of modernity included both reactionary criticism and the actual observation of the downsides of social modernization and marketization.

The concept of “alienation” is one of the more important in this approach. It was developed by the young Marx (1844, although doubts have been raised on the authenticity of those pages – see Rojahn 1983) in order to denounce the fact that workers, as dependent of an employer who owns the object of their work, are dispossessed of a part of their life, so they are “made other” – the literal meaning of the term.

In this sense, only the abolition of private property and of market relations might reverse this situation.

More widely, by “alienation” Marxists and critical sociologists and activists complain the lack of control on their lives on the part of individuals.

Neo-marxism and schooling

Workers should become their own masters, in order to eliminate alienation. Many perspectives have been proposed to this end, but no one among them managed to be fully satisfying from the point of view of effectiveness. No other property arrangement creates the incentives related to private property.

The division of labour cannot be reversed, as it appears.

Underlying the concept of alienation, moreover, there is the romantic idea of a full, organic relation btw individuals, society and their destiny. An emphatic and hardly empirical idea of happiness is also related to this idea.

Sometimes, a distant past is idealized, when this fullness did actually exist. Often this past is described as communist ("primitive communism" in the old Engels), and counterposed to the dire present. Of course, as we have seen, this idea does not make any historical sense.

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Neo-marxism and schooling

The Soviet union, after some brief flirting with romantic anti-school stances, built a school system whose functioning was not really different from those of capitalist countries, strongly selective and stratified, with a focus on vocational training (Matthews 1982).

On the contrary, Neo-marxism, developed from the 60s on, blended Marx & Engels work with romantic and anti-positivist philosophy and pedagogy (and criticism of quantitative research). Wrt schooling, it had a different stance fro classical Marxism, criticizing modern school as a key means of reproduction of the capitalist exploitations of workers.

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Neo-marxism and schooling

According to French Marxist "structuralist" philosopher L. Althusser (1976), the school system is a "state ideological apparatus" which produces individuals fit for the capitalist socio-economic system. Capitalist relations of production (and exploitation) are the structure, individuals depend on it.

According to this anti-individualist, strongly Durkheimian position, individuals are just produced by social "practices", social activities aimed at reproducing the existing power relations and social hierarchy (eg the economy, the polity, culture). The reproduction of society takes place at a level which is unattainable by individuals.

This is a type of conspiracy theory: what we see is not reality, but is somehow pre-ordained in order for everybody to be fooled.

Moreover, as Durkheimian sociology in general, this theory hypostatizes capitalism (or power, or the state) by personifying something that is just the macro organization and outcome of micro-level behaviour. "Society" does not exist per se.

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Neo-marxism and schooling

Pierre Bourdieu, a French sociologist and philosopher, took forward this position by underscoring the role of intellectuals and of high-brow culture in the reproduction of capitalist society.

He critized Althusser's theory for its macro nature and for its "conspiracy" traits, and maintained that social reproduction is not determined at some macro-level, but it happens by the convergence of a number of individual actions.

However, it is not clear how and why individuals act to fulfill the system's needs. Social structure is divided into "fields" (similar to Althusser's "practices") and inviduals' behave according to what B. calls "habitus".

I am a professor and behave according to my professorial habitus, otherwise other people would not get from mw what they expect. This is similar to classical role theory in social psychology, and does not explain why often people do not behave according to their habitus.

4. Evidence I: IEO by family background

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Evidence

Let us now look at the evidence concerning IEO by family background in Italy. We will also look at it in comparative perspective, and take a brief look at gender inequality.

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The ETM (educational transitions model)

A major innovation in stratification research concerning schooling processes was provided by Robert Mare (1980; 1981), an American sociologist and demographer (1952-2021) who developed the so-called educational transition model (ETM), also called “Mare model”.

In the ETM, school attainment is measured by the highest educational level a person has attained.

From and individual point of view, educational attainment is a process of completing, or not completing, each one of a set of sequential transitions**.** The model builds on the cumulative-sequential character of the modern school system (see Ballarino & Schadee 2010)

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The ETM («Mare model»)

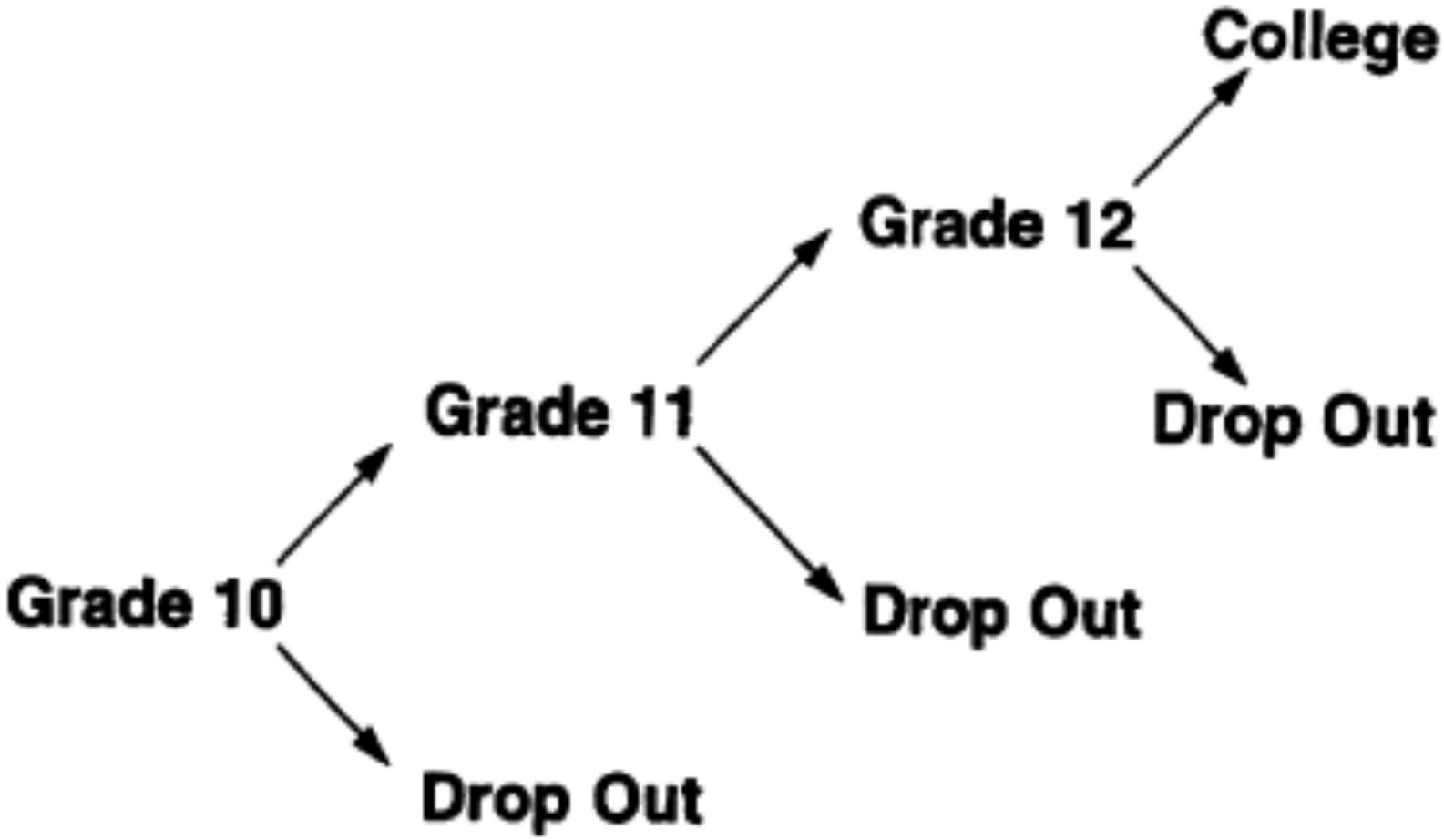

FIG. 1.—Perspective of traditional education transitions analyses

The ETM («Mare model»)

Students in any given grade either continue on to the next grade or level of schooling or end their formal education. Educational attainment is thus analyzed as the cumulation of a sequence of binary choices, btw stopping and continuing school, for each school grade (or, more in the European way, each school level).

Technically, the ETM produces a set of regressions of the probability of making each transition (completing/not completing each grade or level – 0/1 binary variable).

Models might be estimated as linear probability, logit or probit models, and the "population at risk" might be all the population (unconditional models) or just those who graduated from the previous level (conditional models).

Independent variables might be any O in the OED triangle: parental class or education, gender, ethnicity, migration or whichever ascriptive characteristic of interest.

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IEO in Italy

Let us look, now, at IEO in Italy according to the ETM. These are our own analyses (courtesy of dr. Cantalini), on the data from the 2009 Multipurpose survey by Istat (random sample of Italian adult population).

We first estimate Educ = a + b*Class of Origin

Then we estimate Educ = a + b*Parental Education

Then we estimate Educ = a + b*Class of Origin + c*Parental Education

These analyses give us a cross-sectional, static picture. In order to check how IEO changes over time, we will also add cohort of birth to the picture (see below).

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IEO in Italy: education by class of origin

Educ = a + b*Class of Origin

First, we look at the total OE pattern, by regressing the probability of making each of the three school transitions we consider (E: to low sec., upper sec. and tertiary title) on class of origin, for the whole Italian population of 2009 (first slide, models control for gender and geographical area. The fourth model is an Ologit model of education by social class of origin, which is explained below).

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	Conditioned logistic regressions (Mare model)			Ordered logistic regression
	Primary - low sec	Low sec - upper sec	Upper sec - Tertiary	
Social class of origin (ref. Service)				
WhC	-0.02**	-0.06***	-0.17***	-0.67***
	(-0.03 - -0.00)	(-0.08 - -0.04)	(-0.20 - -0.14)	(-0.78 - -0.55)
UPB	-0.07***	-0.22***	-0.27***	-1.47***
	(-0.09 - -0.06)	(-0.25 - -0.20)	(-0.30 - -0.24)	(-1.59 - -1.35)
APB	-0.21***	-0.36***	-0.32***	-2.50***
	(-0.23 - -0.20)	(-0.39 - -0.33)	(-0.36 - -0.28)	(-2.62 - -2.37)
UWC	-0.15***	-0.33***	-0.35***	-2.05***
	(-0.17 - -0.14)	(-0.35 - -0.30)	(-0.38 - -0.32)	(-2.16 - -1.94)
AWC	-0.27***	-0.47***	-0.37***	-2.95***
	(-0.29 - -0.25)	(-0.50 - -0.44)	(-0.41 - -0.33)	(-3.08 - -2.82)
Observations	21,435	17,033	10,540	22,291

Parental social class (occupation) vs parental education

A typical finding in IEO research is that when O is measured by parental education, the OE association is stronger and more stable over cohorts than when O is measured by parental social class – that is, occupation (for Italy, see Ballarino and Schadee 2008).

The interpretation is that parental education indicates parental immaterial resources in terms of skills, abilities, motivation and expertise concerning the school system, while parental social class (which is based on occupation) indicates material parental resources in terms of money and wealth.

Most would agree that the former are more important than the latter for what children's educational attainment is concerned.

In general, btw the two measures there is a strong correlation, as shown in the following slide.

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	Primary or less	Low sec	Upper sec	Tertiary	*Total*
Service	20.2	18.5	27.4	33.9	*1,627*
WhC	28.9	35.3	29.1	6.7	*3,759*
UPB	62.5	29.0	7.7	0.8	*3,229*
APB	91.4	7.2	1.1	0.3	*2,732*
UWC	78.1	19.6	2.0	0.3	*7,673*
AWC	94.2	5.0	0.7	0.1	*2,823*
Total	*66.8*	*20.2*	*9.1*	*4.0*	*21,843*

In this data the rank correlation btw parental social class and parental education is .48, quite high.

This depends on the ED association: those with better education are mostly found in the service class or in the WC, while the primary educated are mostly working in agriculture or in the UWC.

Parental education

Let us substitute parental education to class of origin as a measure of social origin: Educ = a + b*Parental Education

W substitute parental education to parental social class in a set of ETM models of the probability of making each of three transition, showing the average probability for all individuals in the data set, by parental education (next slide).

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Parental education

The empirical patterns are not really different from what seen above for education by social class. Indeed, this depends on the high correlation btw the two variables, which in turn depends on the ED association.

In the regression models there is a small technical difference from the models for social class: in the case of social class, the reference category, set to 0, was the service class, so the distances were negative (disadvantages). Here the reference category are those with primary educated parents, so the distances are positive (advantages). Take this into account when reading the tables and graphs.

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	Conditioned logistic regressions (Mare model)			Ordered logistic regression
	Primary - low sec	Low sec - upper sec	Upper sec - Tertiary	
Parental education (ref. Primary or less)				
Low sec	0.20***	0.23***	0.10***	1.34***
	(0.19 - 0.21)	(0.22 - 0.25)	(0.08 - 0.11)	(1.28 - 1.41)
Upper sec	0.23***	0.41***	0.25***	2.34***
	(0.22 - 0.24)	(0.39 - 0.42)	(0.22 - 0.27)	(2.25 - 2.44)
Tertiary	0.25***	0.46***	0.50***	3.45***
	(0.24 - 0.26)	(0.44 - 0.48)	(0.47 - 0.53)	(3.30 - 3.60)
Observations	22,084	17,469	10,777	23,000

Parental social class (occupation) vs parental education

Now we look at the probabilities of making each transition as predicted by a set of ETM models including both parental social class and education as indicators for social origin (O).

Educ = a + b*Class of Origin + c*Parental Education

We look at the effect of each of the two indicator of parental resources while controlling for the other one.

Multivariate regression: you estimate the association btw an independent variable (here, parental class or education) and a dependent variable (here, own educational achievement), net of other factors included in the model (here, parental education or class). This model simulates for each coefficient a situation where all other independent variables are equal over individuals included in the analysis.

Models control also for geographical area and gender.

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Parental social class (occupation) vs parental education

It is clear that the impact of parental education is stronger than the one of parental social class. Btw the service class and the WC, for instance, there is no difference in the lower and intermediate transition.

To the contrary, those with parents with tertiary education have an advantage wrt to all other parental education groups over all transitions, and the advantage is stronger for the transition to university.

Moreover, if we compare the parameters of this model with those of the previous two models, for class of origin and parental education only, it appears that the parameters for class here are much weaker, while those for parental education decreased, but only to some extent.

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	Conditioned logistic regressions (Mare model)			Ordered logistic regression
	Primary - low sec	Low sec - upper sec	Upper sec - Tertiary	
Social class of origin (ref. Service)				
WhC	0.01	-0.01	-0.06***	-0.17***
	(-0.02 - 0.03)	(-0.04 - 0.03)	(-0.09 - -0.03)	(-0.28 - -0.05)
UPB	-0.00	-0.08***	-0.08***	-0.37***
	(-0.03 - 0.02)	(-0.12 - -0.05)	(-0.12 - -0.05)	(-0.50 - -0.24)
APB	-0.11***	-0.17***	-0.11***	-1.48***
	(-0.14 - -0.09)	(-0.21 - -0.13)	(-0.15 - -0.06)	(-1.61 - -1.34)
UWC	-0.06***	-0.14***	-0.15***	-0.72***
	(-0.08 - -0.03)	(-0.18 - -0.11)	(-0.18 - -0.11)	(-0.84 - -0.60)
AWC	-0.15***	-0.26***	-0.16***	-1.82***
	(-0.18 - -0.13)	(-0.30 - -0.22)	(-0.21 - -0.11)	(-1.96 - -1.68)
Parental education (ref. Primary or less)				
Low sec	0.16***	0.18***	0.07***	1.33***
	(0.15 - 0.17)	(0.16 - 0.19)	(0.05 - 0.09)	(1.26 - 1.40)
Upper sec	0.19***	0.32***	0.18***	2.01***
	(0.17 - 0.20)	(0.30 - 0.35)	(0.15 - 0.21)	(1.91 - 2.12)
Tertiary	0.22***	0.39***	0.40***	2.90***
	(0.20 - 0.23)	(0.36 - 0.42)	(0.35 - 0.44)	(2.73 - 3.06)
Observations	21,037	16,788	10,448	21,843

5. Evidence II: IEO over time

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IEO in Italy

The previous analyses gave us a cross-sectional, static picture. However, we are interested in change over time: according to modernization theory, the OE association should decrease over time, while according to social reproduction theory it should not change over time.

In order to check for this, we add to our models an interaction term between parental class (or education) and cohort of birth. This amounts to check whether and how the association btw parental class (or education) changes by cohort of birth. The equation is:

Educ = a + b*Class of Origin + c*Class of Origin*Cohort of Birth

Technically, it results as a set of identical models (regression equations) for each cohort of birth.

The *persistent inequality* paradigm

The first great comparative international project on IEO was carried out in the second half of the 80s, directed by Y. Shavit and H.-P. Blossfeld (1993), and is one of the main achievements of the third generation of stratification research. The book was titled *Persistent Inequality* and is still important.

The teams involved in the project studied 13 countries with a similar design, using categorical measures of family background (social class) and education (highest educational level achieved). Analyses were based on the ETM approach.

The results showed the OE association to have been stable over time in 11 of the 13 countries studied, the exceptions being Sweden and the Netherlands, where IEO was decreasing.

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The *persistent inequality* paradigm

Indeed, the empirical findings were actually more mixed (Treiman & Ganzeboom 1998).

At the lower educational levels, the OE parameters were decreasing over time in most of the countries, as a consequence of educational expansion.

This did not happen at the upper levels, for which conditional models were estimated.

In the following graphs, estimates for Italy (Multiscope 2009 data) are reported.

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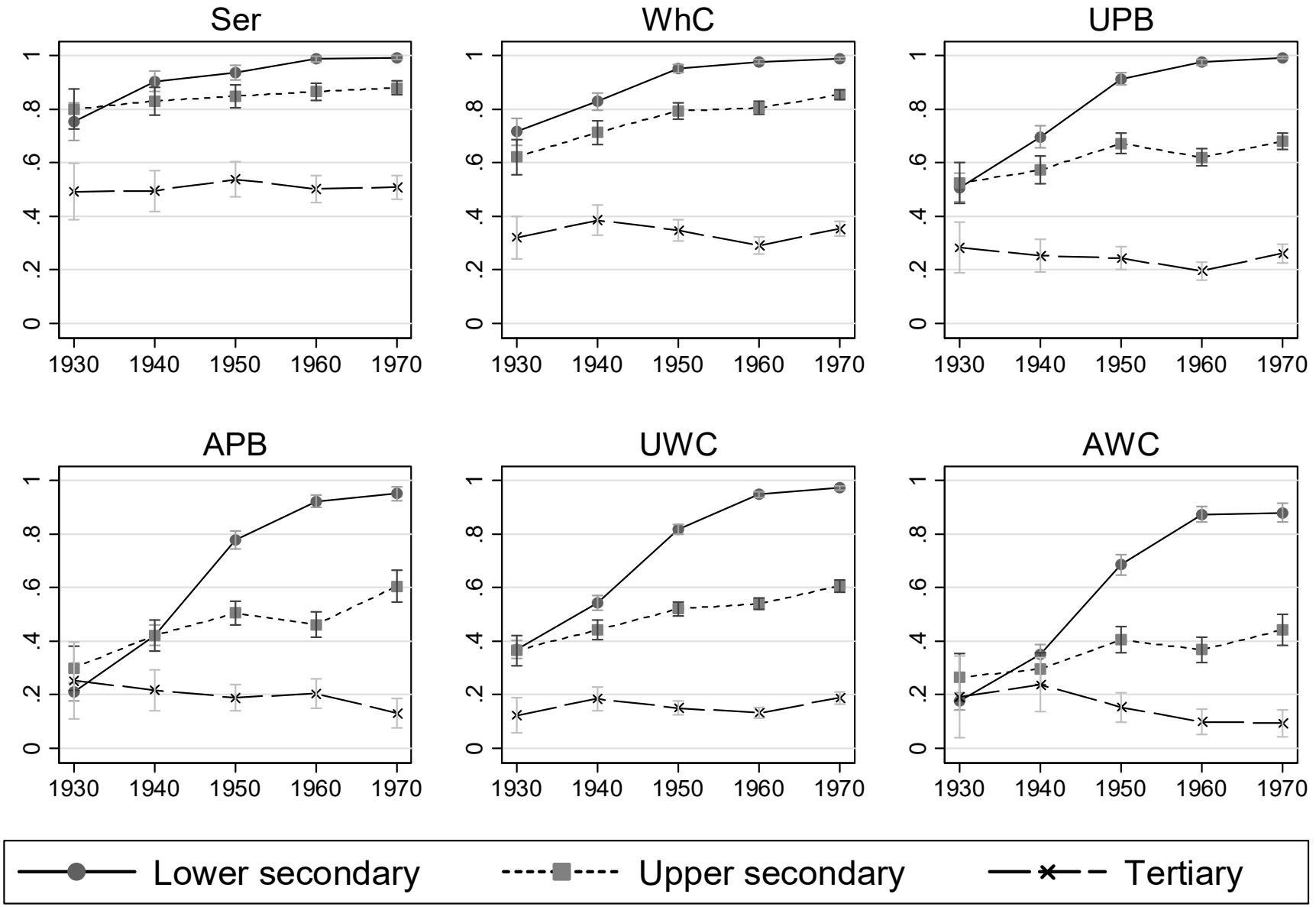
ETM for Italy: predicted probabilities of making 3 educational transitions, by class of origin and cohort of birth



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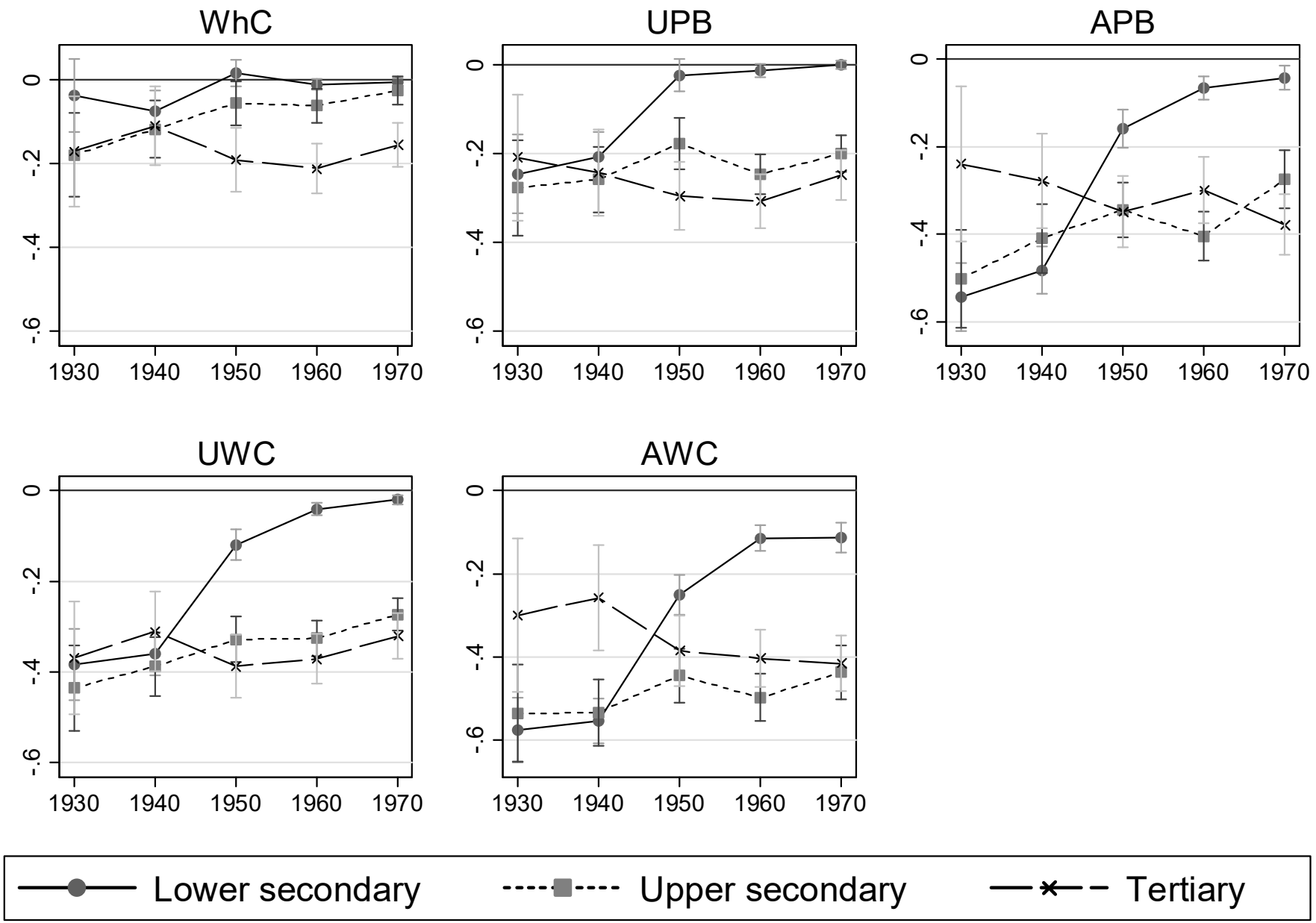
ETM for Italy: class differences in the predicted probabilities of making 3 educational transitions, by cohort of birth



IEO in Italy: interpretation

So the general picture provided by empirical evidence is: IEO decreases in the transition to lower secondary, for all classes and particularly for the agricultural classes, but also in the transition to upper secondary, for some classes. In the transition to tertiary, however, IEO is persistent.

What matters more? It is a matter of interpretation. In terms of numbers, the lower transitions involve more people, so this is more important (see Shavit, Arum and Gamoran 2006).

However, one could also emphasize persistence at the higher levels, as Mare, Blossfeld & Shavit did, and the fact that equalization at the lower level (the changes in the distribution of education) takes place because of the ceiling effect, while the persistence of IEO at the tertiary transition (the allocation of education) is what matters for social inequality.

The *persistent inequality* paradigm

The ETM, by definition, does not produce a single OE parameter whose pattern over time can be taken as a measure of increasing/decreasing selection on competences vs on heritage, so interpretation is important: one has to choice on which transition to focus.

Shavit & Blossfeld (1993) gave more weight to persistent inequality in the higher transitions (to upper sec. and university) than to decreasing inequality in the lower ones (to elementary and low. sec.). But in terms of scale the latter was much stronger than the former, involving more people.

S & B's interpretation was based on Mare's distinction btw **distribution** and **allocation** (see Ballarino & Schadee 2010 for a more detailed discussion).

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The *persistent inequality* paradigm

Distribution is the distribution of education over social classes (or any other group) and its change over time due to educational expansion, while **allocation** are the relative probabilities of different classes to make each educational transition. The distinction is similar to the one between **absolute** and **relative** mobility proposed by Erikson and Goldthorpe (1992), as discussed concerning the mobility table.

Shavit & Blossfeld concluded that the decrease if IEO at the lower school levels was just a function of educational expansion, thus just a matter of distribution (absolute mobility), while allocative inequality persisted because of stability at the higher levels.

This paradigm, however, was challenged in the 2000s.

The cumulative logit model (ordered logit)

The ETM, in fact, provides detailed evidence, but this comes at the expense of synthesis. Moreover, interpretations can always be discussed, depending on the weight one gives to the different measures of OE at the different levels.

Much following work has tried to overcome this limit. The preferred solution has been the substitution of the ETM with models who constrain the estimates of the transition-specific probabilities into a single parameter: the most widely used is the ordered logit model (`ologit` and `gologit` in Stata), also called cumulative or ordinal logit.

These models estimate the probability to make the transition to university taking also the previous transitions into account.

As educational levels can be taken as ordered categories (differently from social classes), this can be done. It has also been done in economics, where the ordered probit is preferred (eg Cameron and Heckman 1998).

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The cumulative logit model (ordered logit)

These “new” (in fact they had been around in psychology since the 40s) models typically show the OE parameters to have been declining over time, contrary to the persistent inequality paradigm.

The main comparative papers were done by Breen, Luijkx, Mueller & Pollack (2009; 2010), who showed inequality to be decreasing over cohorts in all countries they studied (including Italy, although to a lesser extent than other countries).

Systematic empirical comparisons between the ordered logit and the ETM, indeed, have shown results to be wholly consistent across models (Ballarino & Schadee 2010).

The ordered logit gives more weight to the decrease of IEO at the lower levels, while the ETM keeps it separated from stability of IEO at the upper levels. It is then possible to give more interpretative weight to the latter.

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The cumulative logit model (ordered logit)

In the next slide, a cumulative logit model for education by social class (remember our measure of IEO is the distance in education btw classes), by cohort, is shown.

It is estimated (with Ologit) on the 2009 Multiscopo data, and is thus fully comparable to the previous ETMs shown before.

These are not predicted probabilities (although it is possible to calculate them), but, for each class & cohort, the "log odds", that is the logarithm of the ratio btw the % of individuals who did the transition and the % who did not.

The reference category are those with an origin in the service class, so we are measuring an advantage, which clearly decreases over time for the agricultural classes and for the UWC (not for the WC and for the UPB).

So the general picture is not really different from the one provided by the ETM, but it is more synthetic and less detailed.

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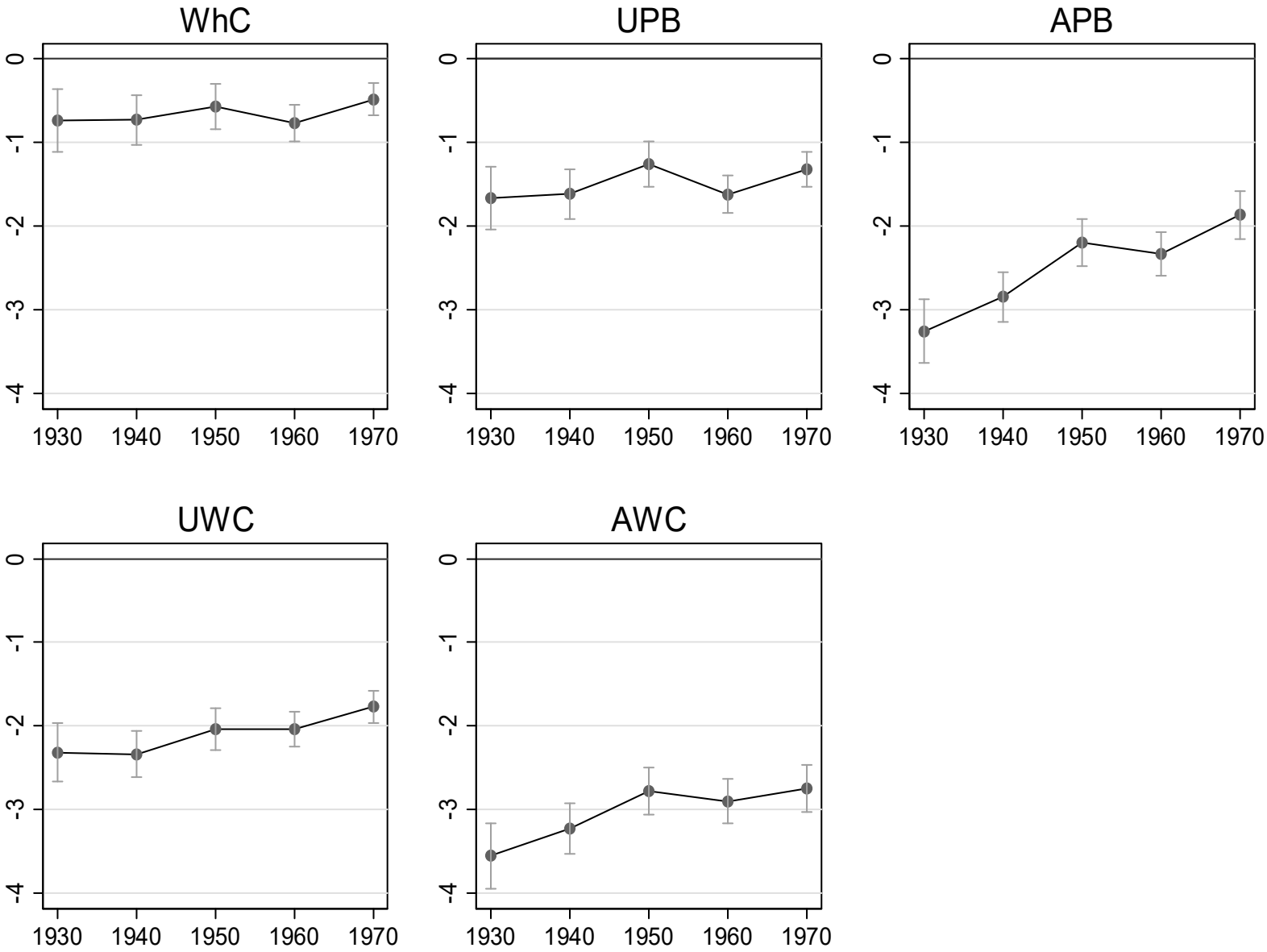
IEO in Italy: class differences in educational attainment, by cohort of birth (Ologit models, individuals with parents in the service class are the reference category)



Most recent analyses

The following analyses use a pooled data set including all of the recent data set including the information needed in order to answer to our questions on IEO.

Data set include: Istat Multiscopo (1998; 2003; 2009); ILFI (1997-2005); IMS (1985); ESS (2002-2018); Eu-Silc (2005; 2011); Sharelife (2008/9).

The first set of models is an ETM and the results refer to parental education, with tertiary education set to 0 (reference category), controlling for parental class.

The second model is an ologit

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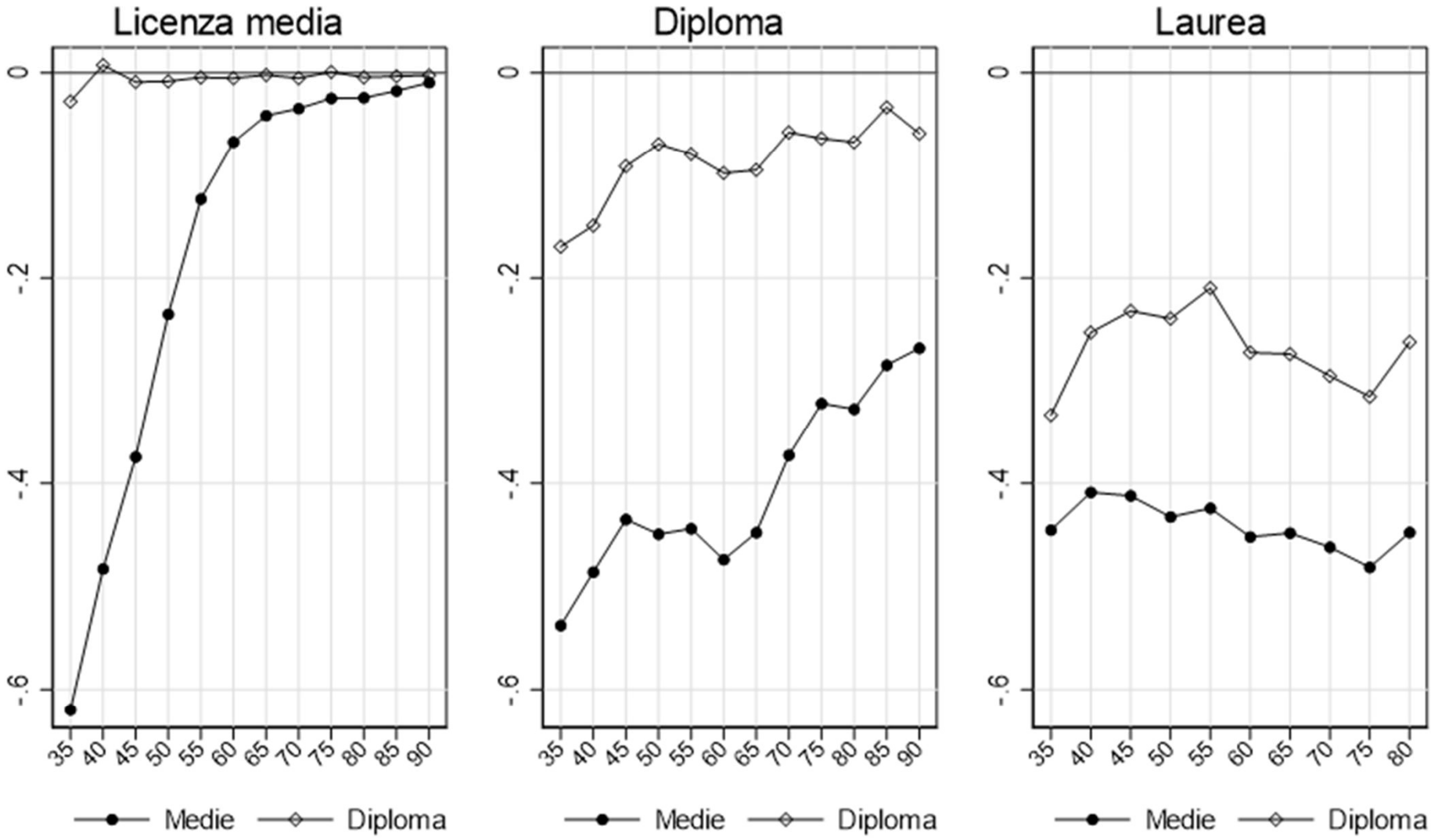
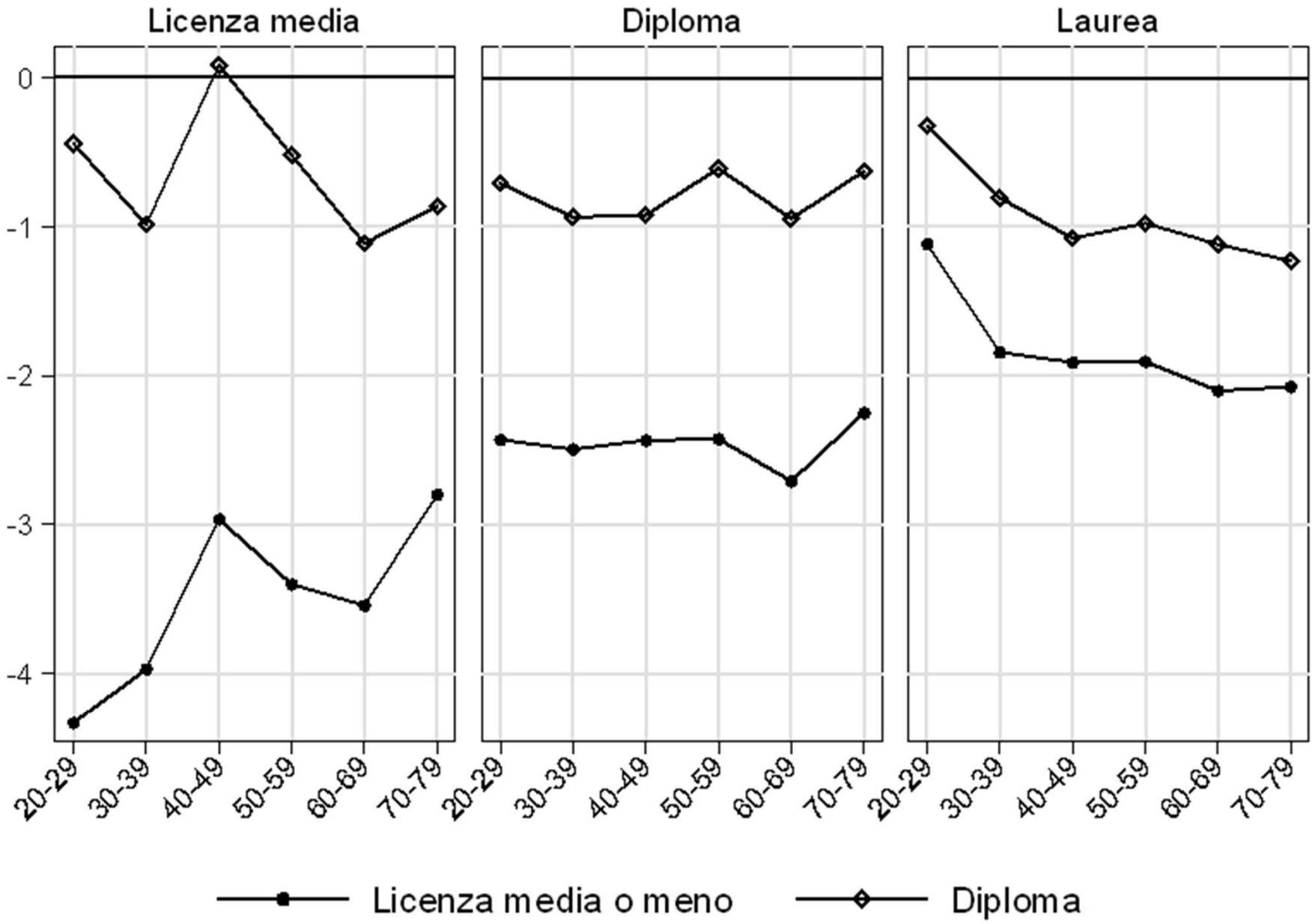
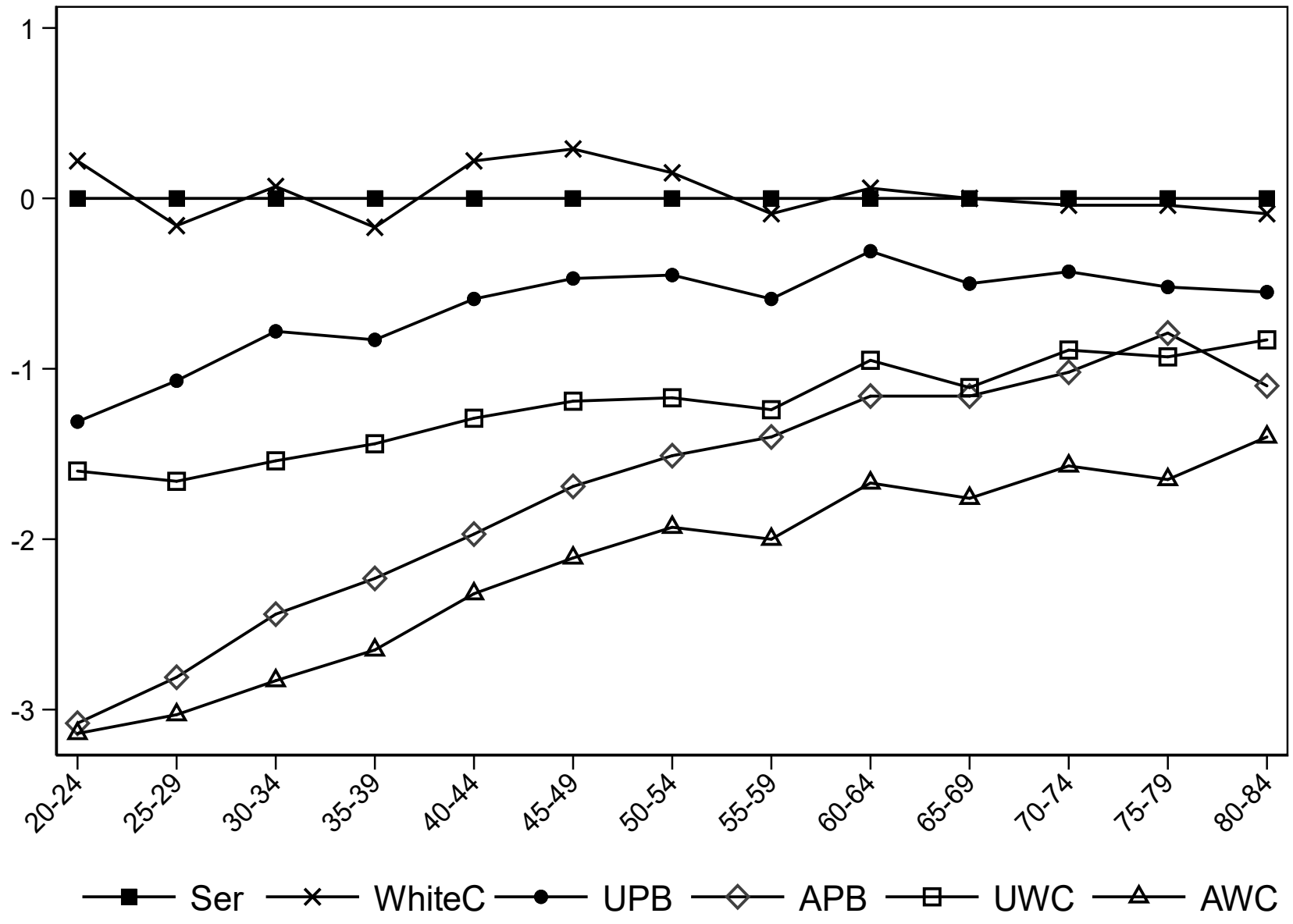
Probability of getting a school degree by parental education, by cohort. Italy (Ballarino & Panichella 2021)



Relative probability of getting a school degree by parental education, by cohort. Italy (Ballarino & Panichella 2021)



Cumulative probability of getting school degrees by parental social class, by cohort. Italy (Ballarino & Panichella 2023)



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IEO in comparative perspective. ETM models

Blossfeld, Blossfeld & Blossfeld (2016) use PIAAC data to estimate a set of Mare models for a number of countries, for people born from 1947 to 1982.

First, they describe the pattern of expansion over time, which has been notable everywhere, with the sole exceptions of the US (transition to tertiary) and the Netherlands (transition to upper secondary).

In those countries participation was already high when our observation window begins.

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School expansion in comparative perspective: Changing participation, cohorts born from 1947 to 1982

		Change at the transition from upper secondary to tertiary education				
		−−	−	0	+	++
Change at the transition from lower to upper secondary education	−−					
	−					
	0				US	
	+				EE, DE	CZ, PL, RU
	++			NL	AT, NO, IT	BE, CA, DK, FI, FR, IE, JP, KR, SK, ES, SE, UK

(Blossfeld, Blossfeld & Blossfeld 2016)

IEO in comparative perspective. ETM models

Second, they compare the probabilities of making the transitions over different parental education. They single out three patterns, for each of which they show results of a country representative of the pattern.

First group, exemplified by the US and including Germany and Slovakia: no change for the transition to upper secondary, increasing inequality for the transition to tertiary.

Second group, exemplified by Poland and including Italy, Sweden, UK, Czechia and Estonia: decreasing inequality for the transition to upper secondary, increasing inequality for the transition to tertiary.

Third group, exemplified by S. Korea and including France, Denmark, the Netherlands, Russia, Japan and others: decreasing inequality for both transitions

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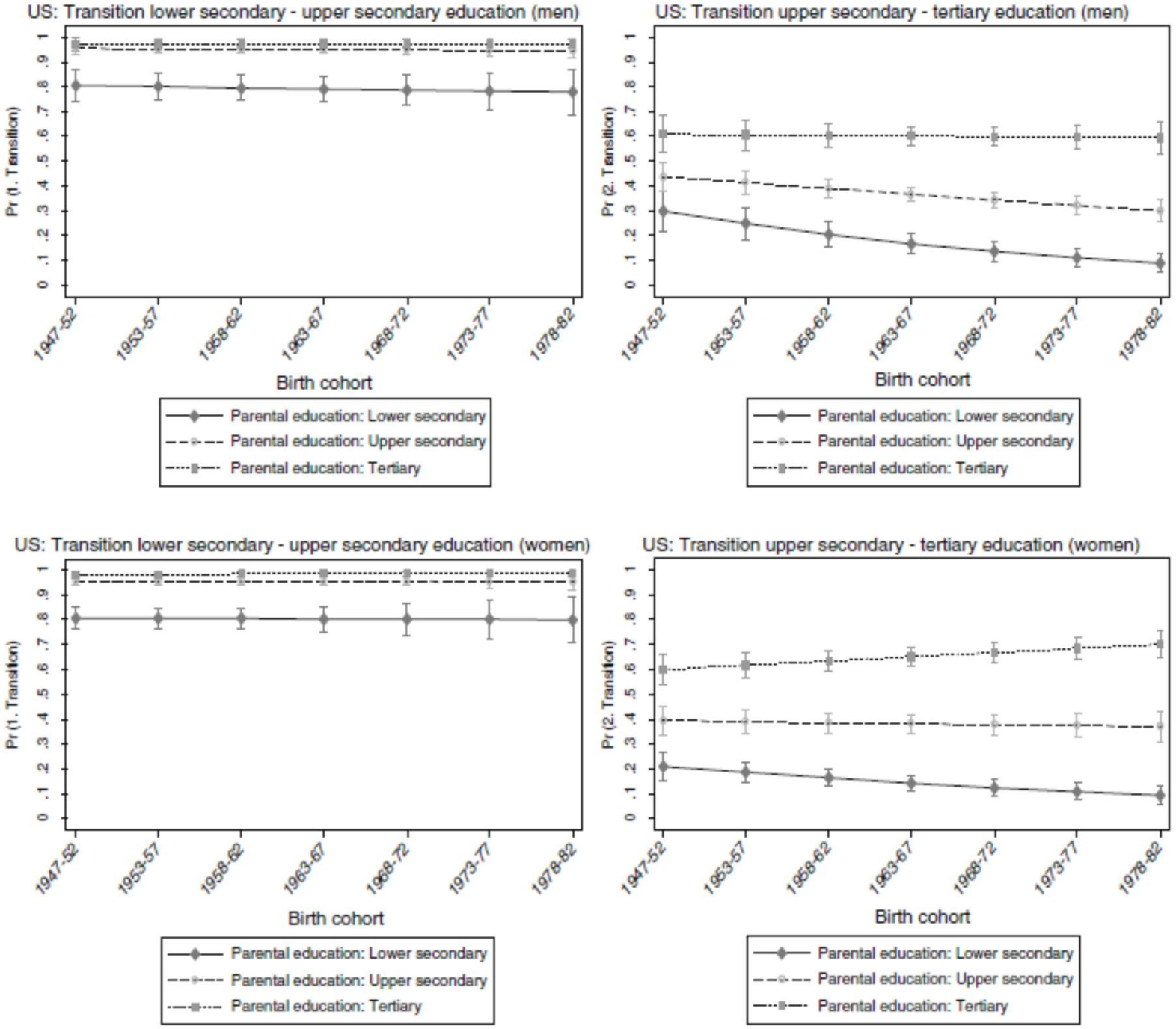

Fig. 2 Predicted transition probabilities (with 95 % confidence intervals) to upper secondary and tertiary education for successive cohorts in the United States (US) (Source: Authors' calculation)

USA

(Blossfeld, Blossfeld & Blossfeld 2016)

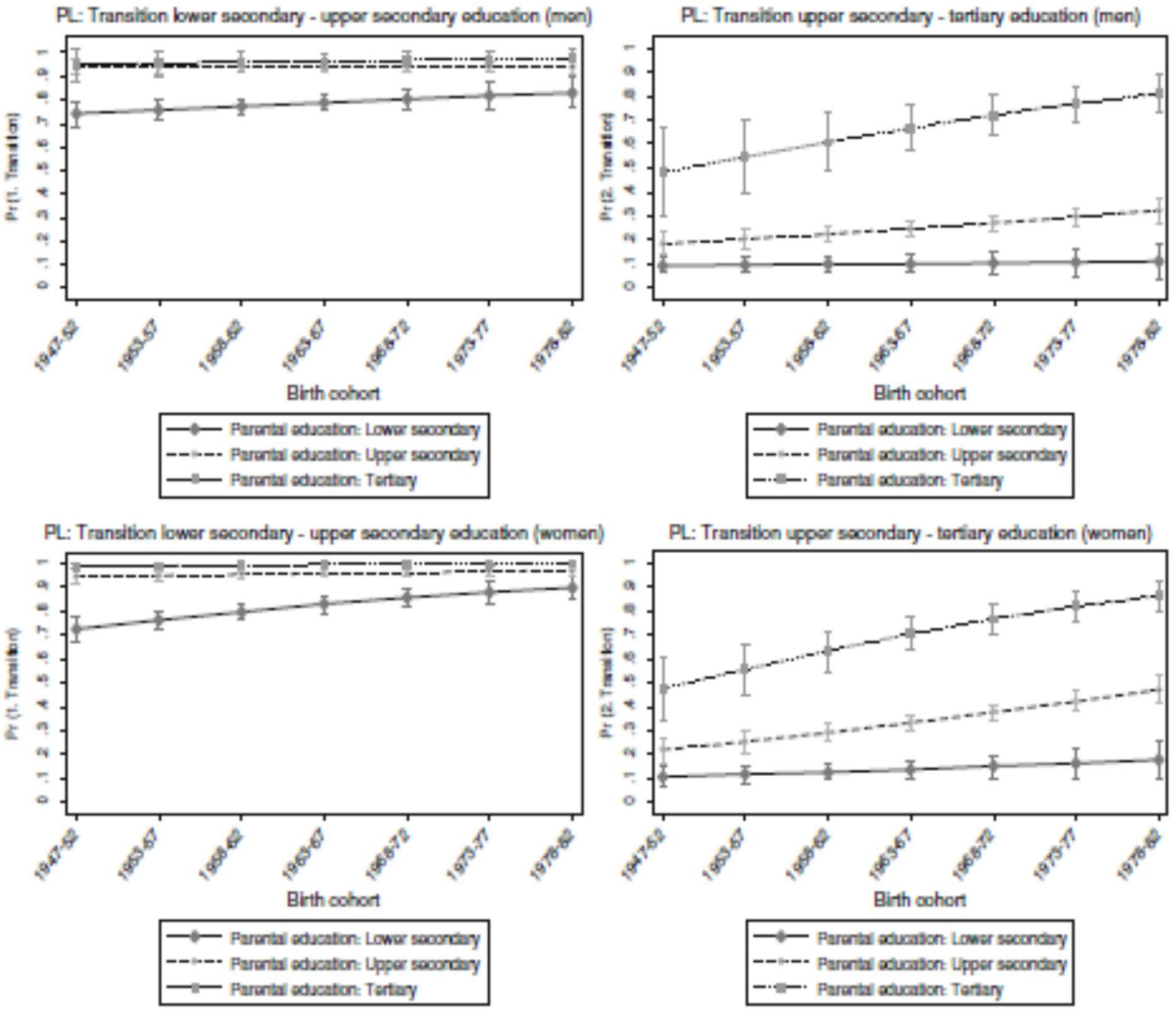

Fig. 3 Predicted transition probabilities (with 95 % confidence intervals) to upper secondary and tertiary education for successive cohorts in Poland (PL) (Source: Authors' calculation)

Poland

(Blossfeld, Blossfeld & Blossfeld 2016)

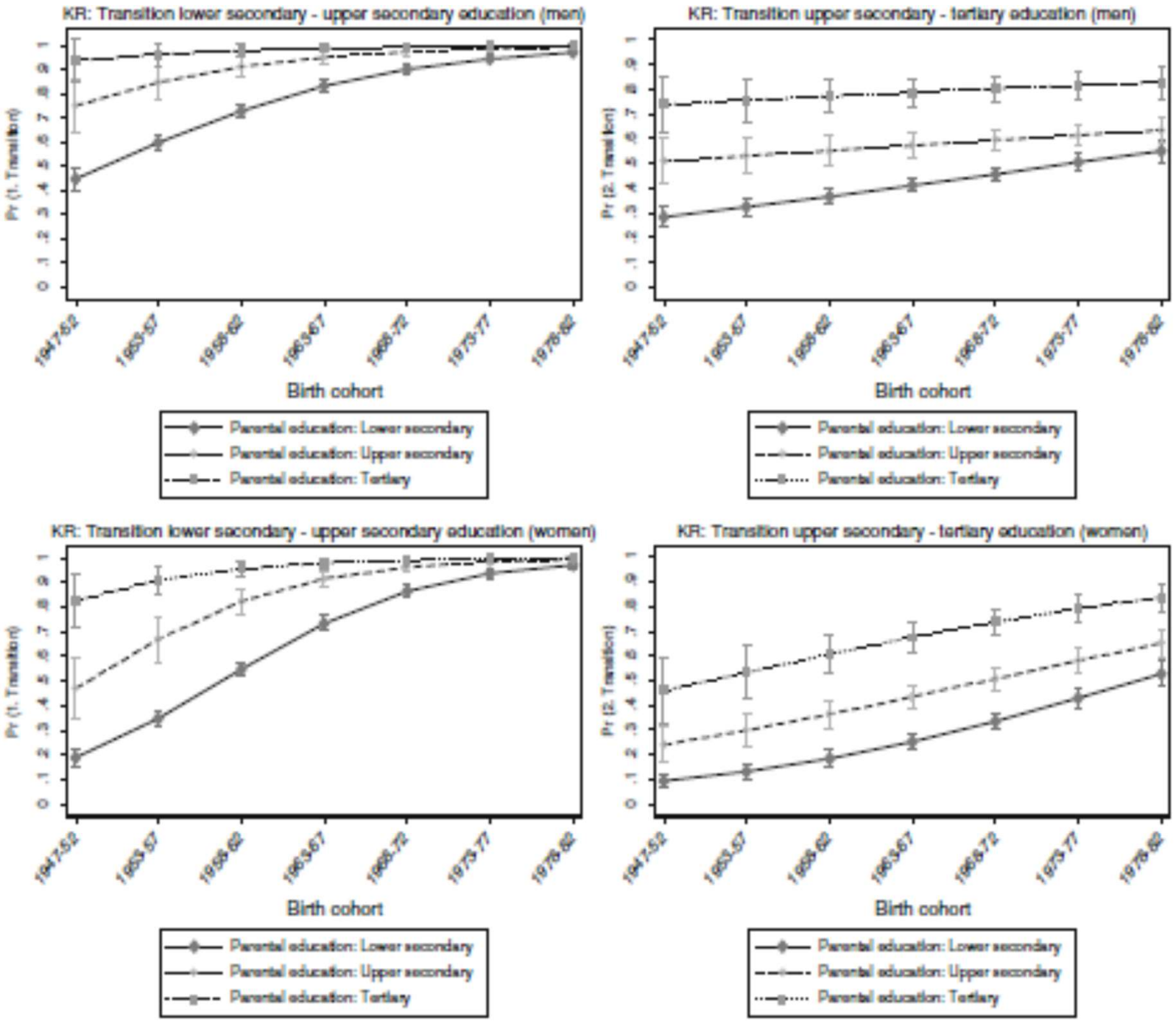

Fig. 4 Predicted transition probabilities (with 95 % confidence intervals) to upper secondary and tertiary education for successive cohorts in the Republic of South Korea (KR) (Source: Authors' calculation)

South Korea

(Blossfeld, Blossfeld & Blossfeld 2016)

IEO in comparative perspective. Ologit models

Breen, Luijkx, Müller and Pollack (2009 for M, 2010 for F) estimate Ordered Logit models for IEO in a number of wealthy countries, using the best data available for each country.

They find substantial reduction in the OE association (also using parental education as 0) in all countries observed.

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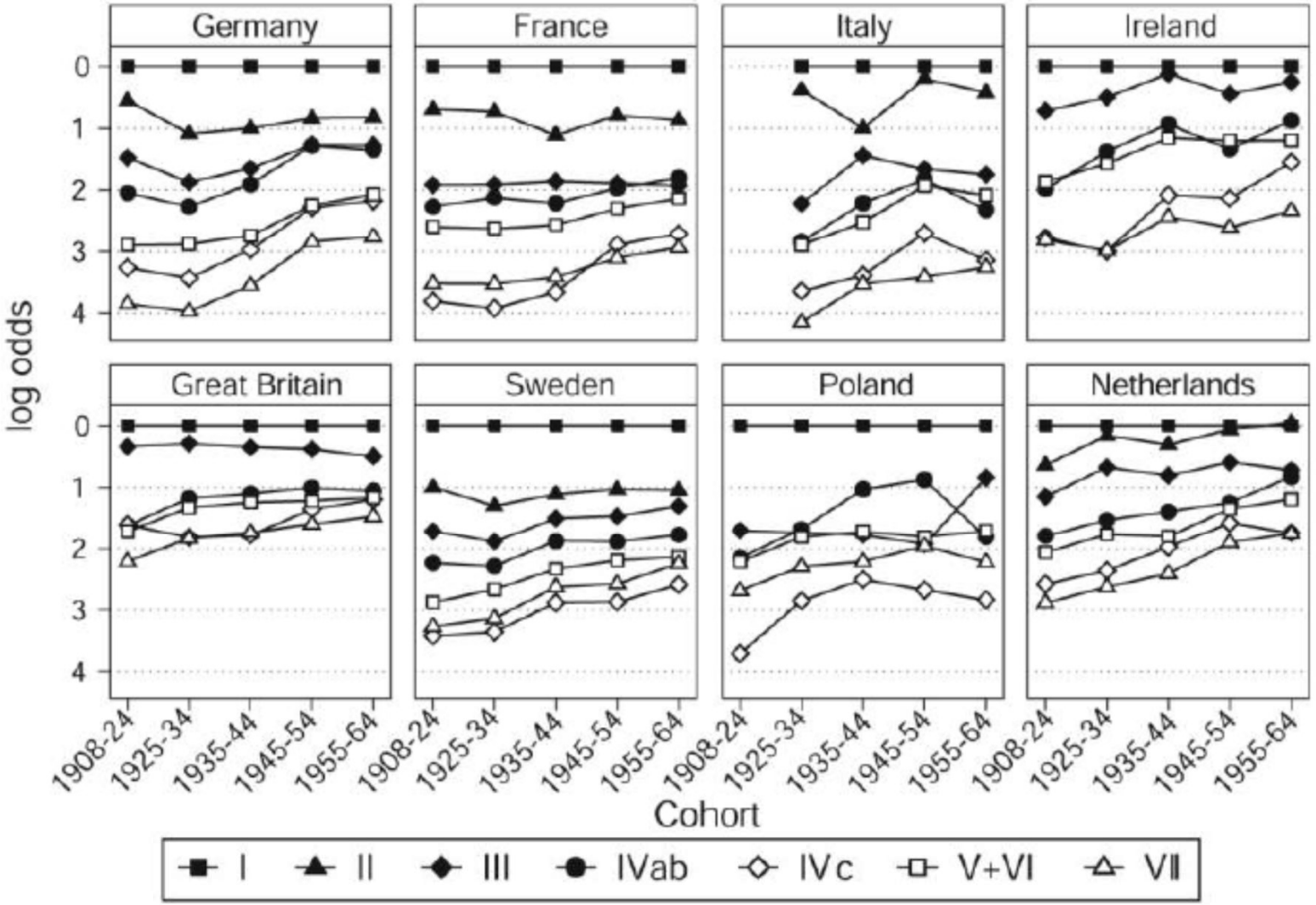

FIG. 4.—Ordered logit models for educational attainment in eight countries for men. Class origin effects over cohorts, controlled for survey effects. Class I is classes I+II in Ireland and Poland and classes I+II+IVa in Britain; educational levels 3a and 3b are merged in Italy and Ireland.

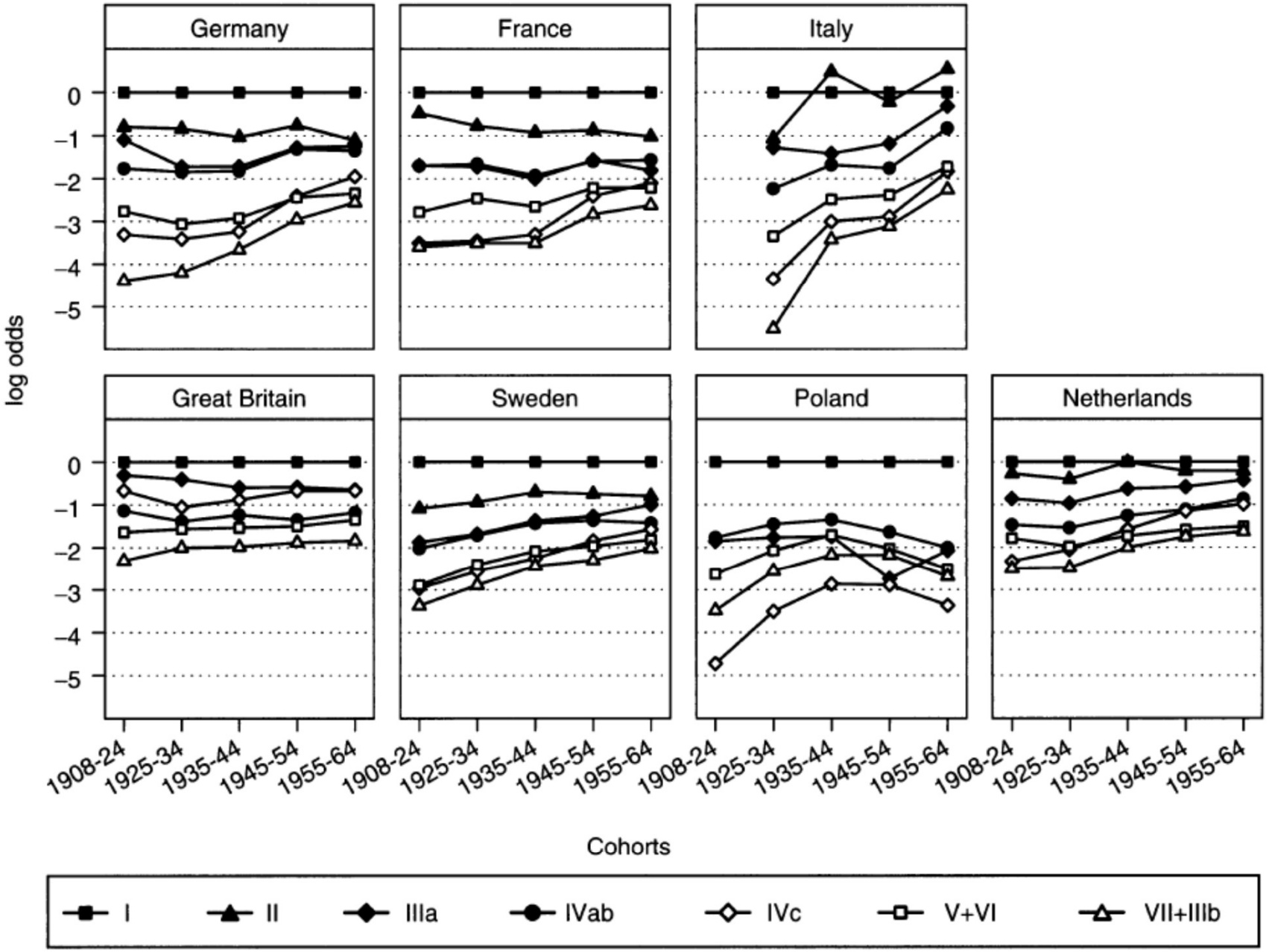

Figure 3 Ordered logit models for educational attainment in seven countries for women; class origin effects over cohorts, controlled for survey effects

6. Mechanisms producing IEO

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Primary and secondary effects

When the findings of the "critical" 60s – 70s came out and the persistent inequality paradigm was established, scholars started to look for mechanisms explaining the persistence of IEO.

Work on this was started by the pioneering work of French sociologist Raymond Boudon (1974), who distinguished btw primary and secondary effects of family background on schooling.

This distinction refers to two different types of economic, social and social-psychological mechanisms producing the educational advantage of the offspring of the higher classes, ie the intergenerational persistence of educational differentials.

Primary effects relate to performance, secondary effects to school choice.

Primary and secondary effects

The behavioural model underlying the "primary/secondary effects" framework assumes that, first, students achieve some scholastic results and, second, that students (and their families) make their educational decisions based on prior results and on their social position.

As it appears from abundant research, high-class children are systematically attaining higher educational levels than their lower-class peers, even after accounting for prior performance (Jackson, 2013; Erikson & Jonsson, 1996; Erikson & Rudolphi, 2010; Jackson et al., 2007).

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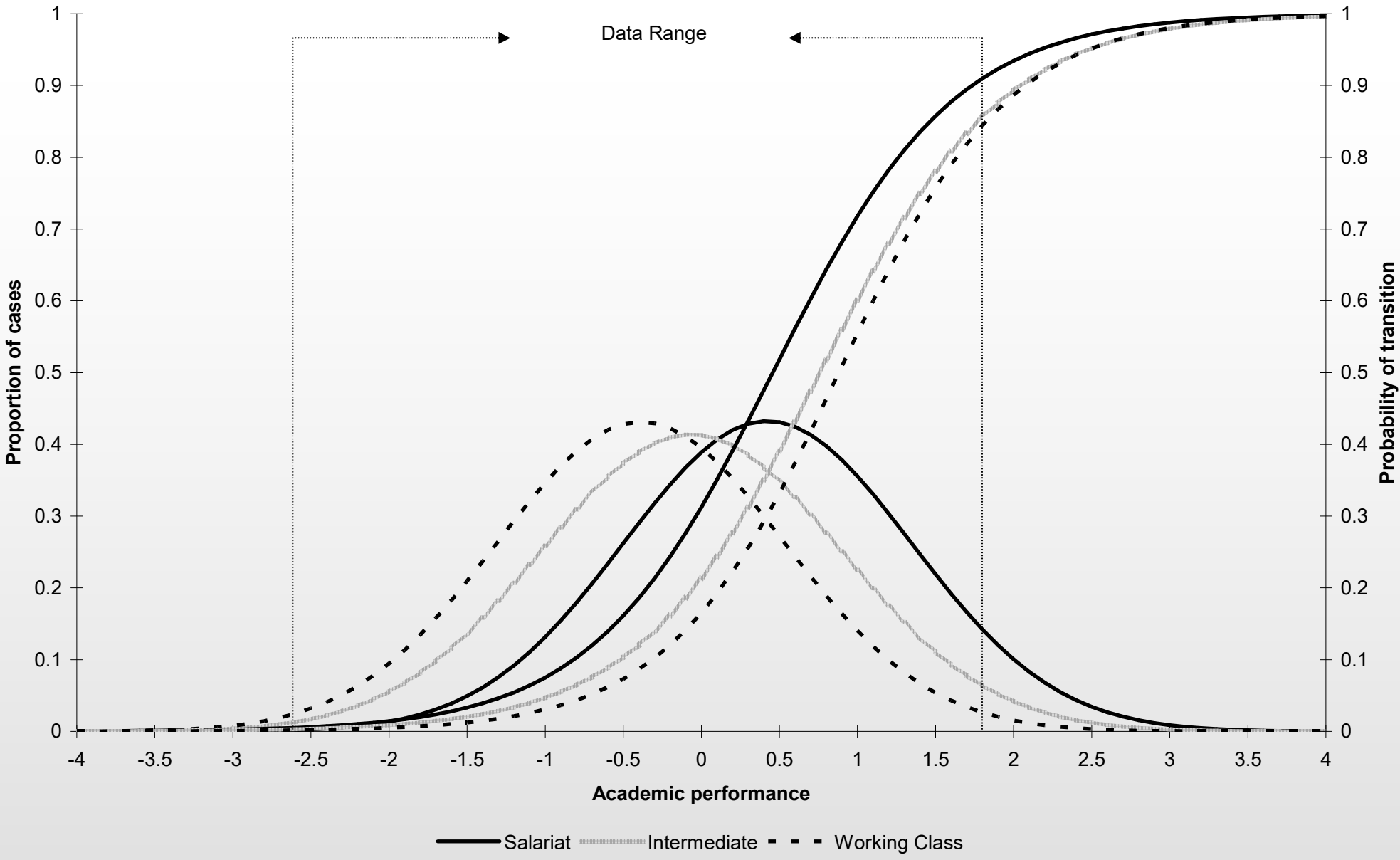
Primary and secondary effects

(Jackson/Erikson/Goldthorpe/Yaish, Acta Sociologica 2007)



Primary effects of family background

Primary (performance) effects: social origins affect individuals' school attainment via the social stratification of performance.

Those with a higher family background show on average a better school performance (as measured by standardized achievement tests and/or school grades) than those from a lower FB.

Primary effects operate via two main groups of mechanisms:

1. via the transmission of genetic traits. This has nothing to do with genetic determinism (according to which all of life outcomes are pre-determined at birth). Genes are just a potentiality, requiring an apt environment in order to be actualized. For instance, consider obesity. It is genetic, but if in a population little food is available, people won't become obese (Freese 2008).

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Primary effects of family background

According to recent estimates based on the direct observation of the genoma (set of genes), this might account for about 10% of the variability of educational outcomes. However, we do not know anything about the actual bio-fisiological processes leading from the genes (which are known) from a better school performance (Freese 2018)

2. through environmental conditions and the daily interactions between parents and children, with the former transmitting to the latter sociocultural resources that are key for the cognitive and non-cognitive development since the early years (this is similar to what has been called cultural capital).

More educated parents spend on average more time with their children (even controlling for occupation).

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Primary effects of family background

Genes always interact with the environment (as discussed concerning education as socialization), so there is no pure genetic transmission of education-relevant skills

Herrnstein & Murray, in famous book *The Bell Curve* (1994) proposed a vision of social stratification based on the inheritance of intelligence, but were strongly and rightly criticized (eg Fischer et al 1996).

However, a part of the intergenerational transmission of education, and more generally on status, has surely a genetic component to it, as is the case for any other trait (height, weight, hair colour…). "The apple does not fall far from the tree"

Research on this (social genomics) is quite recent, and is one of the key frontiers for this field of research.

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Secondary effects of family background

Secondary (choice) effects: those educational attainment differences between social groups that still persist after holding school performance equal across groups.

Following the choices of their parents, children from a higher family background on average stay longer in school and take more rewarding tracks than their peers from a lower FP.

Secondary effects are generated by socially structured differences in perceived costs and benefits of educational investments as well as in the perceived probability of success, that is in completing the chosen school level.

Parents from more privileged social groups are more inclined to invest in longer periods of education (Erikson and Jonsson, 1996).

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Primary and secondary effects

In many countries primary effects seem to be the strongest driver of inequality in educational attainment. In the UK, primary effects are found to account for a large share of class differentials in educational transitions (between 50 and 75 percent) (Jackson et al., 2007).

In Sweden and the Netherlands, the relative weight of primary effects is estimated around 60 percent (Kloosterman et al., 2009; Erikson & Rudolphi, 2010) whereas in Germany is around 50 percent (Stocké, 2007).

However, in Italy, according to Contini & Scagni (2011; 2013), the weight of primary effects appears to be lower than it is elsewhere, at about 35%. This is consistent with what we saw comparing the ability of students from different tracks in Italy and Germany: in Italian schools student's ability plays a lower role than it is elsewhere.

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Secondary effects: school choice

According to economic human capital theory (HC), school choice is a rational and optimizing individual choice: it is an investment to improve the subject's opportunities.

However, HC theory makes a number of assumptions: perfect information, no credit constraints, individuality of choice… Investment is defined only in monetary terms, and expected returns are defined also in wage terms. «Adolescent econometricians» (Mansky 1993).

The sociological perspective (Erikson & Jonsson 1996; Breen & Goldthorpe 1997) sees school choice as a rational and optimizing process, but one taken with limited information, and with a definition of costs and benefits which is neither strictly economic nor individual, but depends on the family's position in the social structure (see below, fear of status demotion).

Investment in HC is not an individual, but mostly a familiar process (the same goes for migration and geographical mobility).

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Primary and secondary effects

At each bifurcaton point (transition) of the schooling process (as seen in the slide on the ETM above) there are a number of different available school opportunities (including drop-out): then families and inviduals take the alternative with the largest subjectively perceived utility

$$U = (B-C)*p$$

B: expected benefit of the choice

C: expected direct and indirect costs required by the choice

p: subjective probability that the benefits associated to the choice will be obtained

The definition of B, C; and *p* is subjective, thus related to the individual's position in the social structure, in particular on his family's actual and perceived social status.

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The social stratification of school choice: benefits

The expected benefits are defined not just in terms of income (as stated by HC theory), but also include social status, particularly the avoidance of social demotion (Erikson & Jonsson 1996; Breen & Goldthorpe 1997).

This is a very powerful driver of educational choices (and of many other career-relevant choices as well), and it favours the persistence of the OE association.

People from higher family background set the bar higher for their children's school attainment, since their school title will be a strong predictor of their social status. Families of lower standing, on the contrary, will be satisfied with their children reaching a lower educational level, the one sufficient to guarantee the maintenance of social status.

This produces a different motivation. But the underlying mechanism (avoidance of social demotion) is the same over all social classes.

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The social stratification of school choice: benefits

A similar mechanism has been devised in labour economics concerning careers, called “reservation wage”: those who come from a wealthier background expect higher wages, so wait for longer to get the right job. This is a similar way to “set the bar higher”.

Other economists made an argument quite similar to the status demotion hypothesis, framed in terms of identity. School choice is a way to confirm the identity (the answer to the question: who am I?) of the family, so that in families with educated parents it will be taken from granted that the sons and daughters will also be educated, and the other way round when parents are not educated.

Next slide’s graph (from Eriksson & Jonsson 1996) represents theoretically this phenomenon: the benefits of higher school titles (school years) are higher for the upper classes than for the lower ones.

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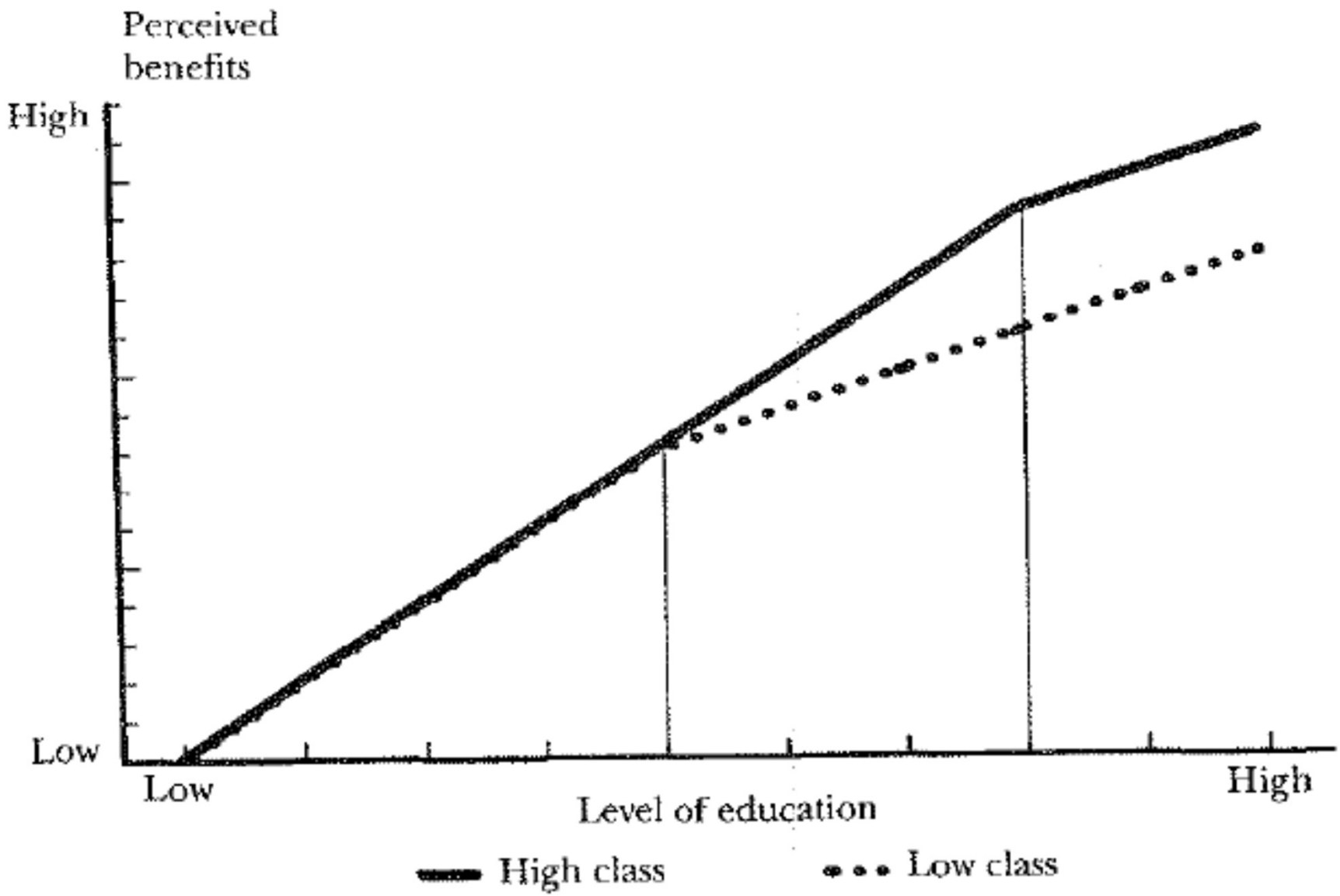
FIGURE 1 Stylized relation between level of education and perceived benefits for two social classes



The social stratification of school choice: benefits

The lower classes should also show a motivation for attainment, and for improving their lot, stronger than the upper ones, at least since they have more to obtain (still, ceiling effects): this might counterbalance the stronger «defensive» motivation on the part of the upper classes.

However, there is strong evidence that the motivation to defend something that you have is stronger than the one to get what you do not have (and want). This is one of the key finding of contemporary behavioural economics, in particular of Prospect Theory, developed in 1979 by economic psychologists Kahnemann and Tversky, who got the Nobel prize for it in 2002.

See D. Kahneman (2011), *Thinking fast and slow* (also available in Italian).

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Choice under uncertainty: A Bet

Prospect theory refers to subjective decisions taken in conditions of uncertainty («prospect» means prevision). In such conditions, individuals give more weight to possible losses than to possible wins, differently from what predicted by standard cost-benefit analysis.

Would you prefer:

- A) Getting 25 euros for sure
- B) Tossing a coin: gaining 150 euros or losing 100 euros

The expected value of the second option is the same as the first one:

$$(+150*0,5)+(-100*0,5)=25$$

However, the majority of people prefers the first option, i.e. they are loss-averse and risk-averse.

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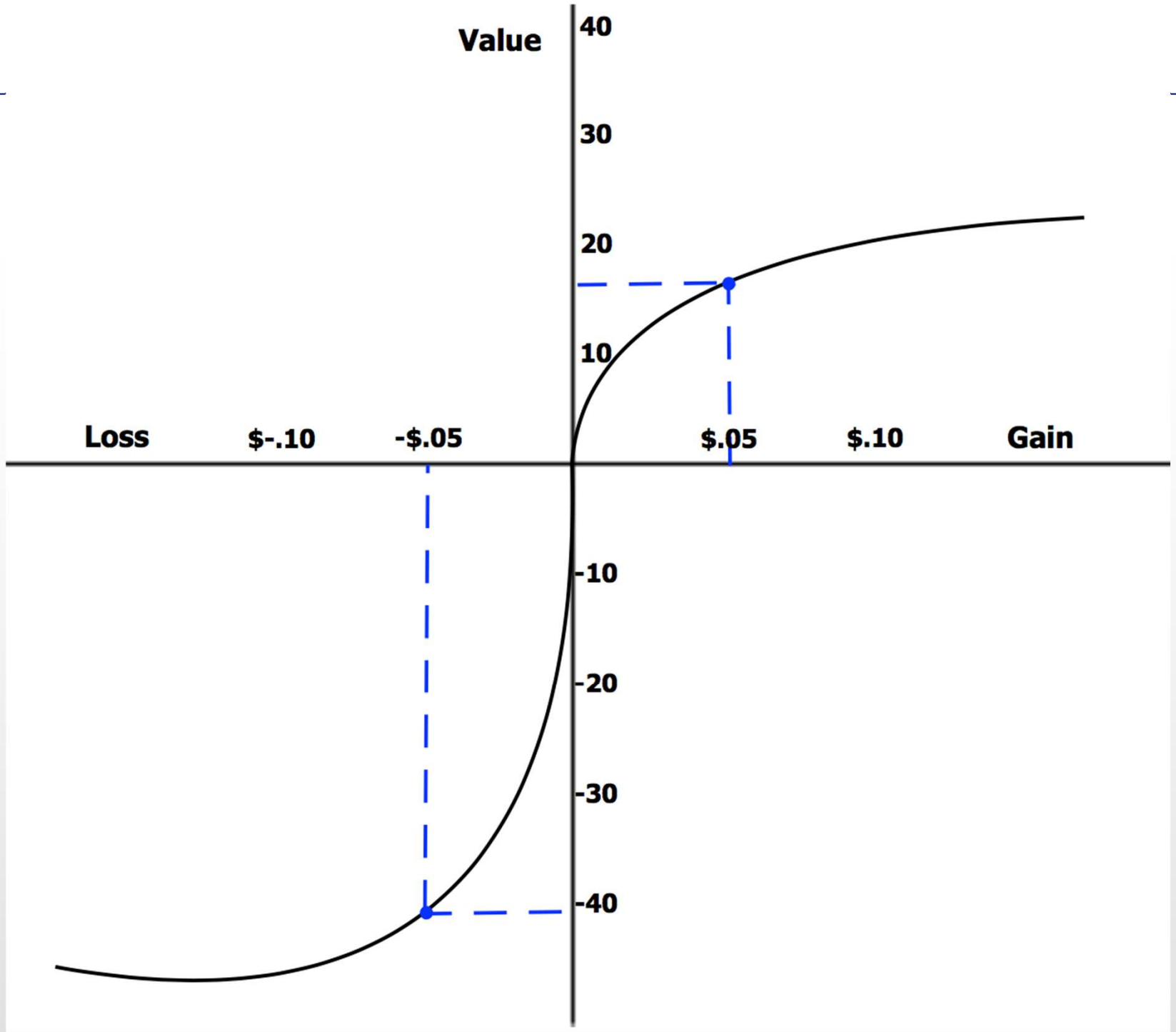

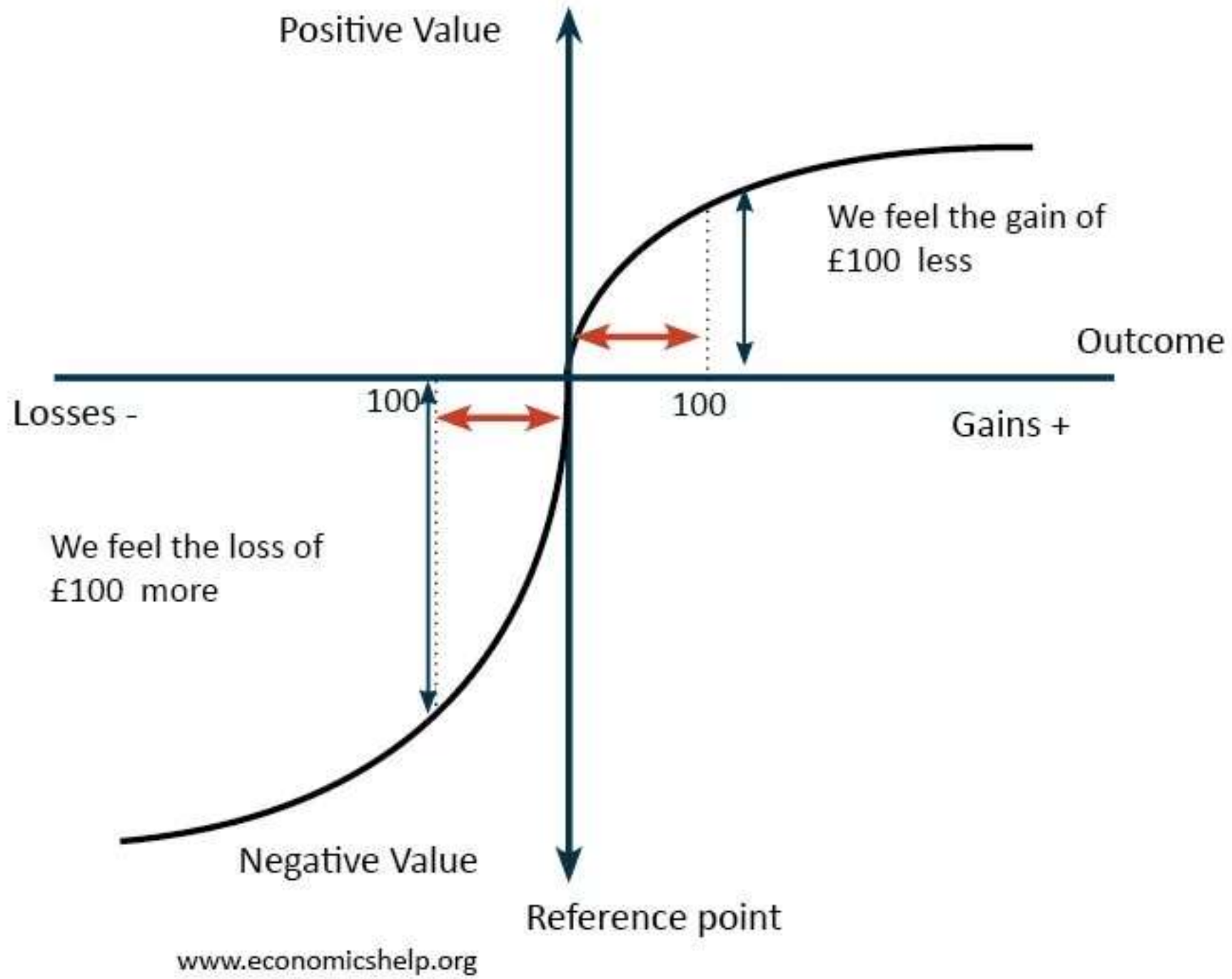

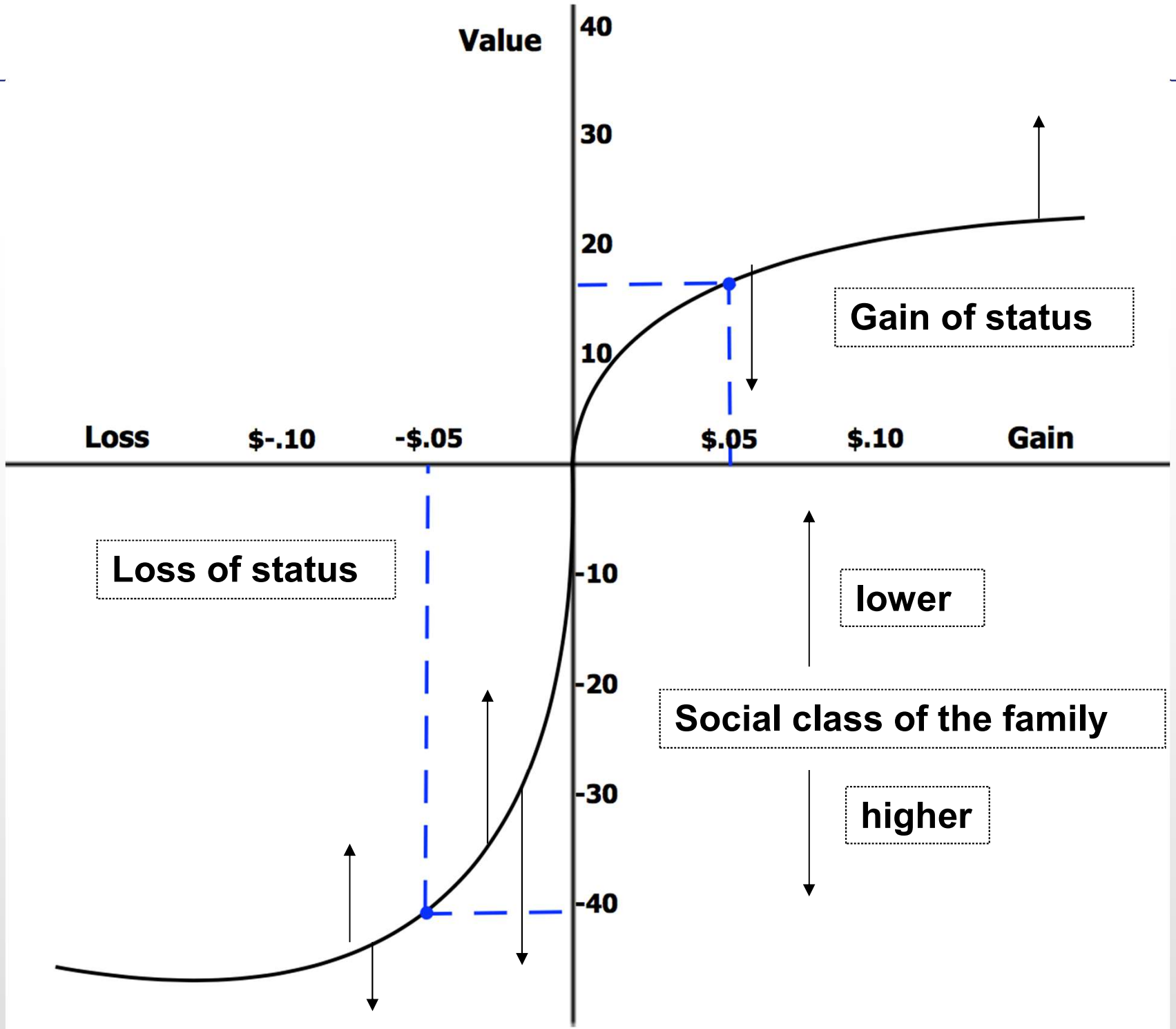

The social stratification of school choice: costs

Costs matter, and are to be considered as relative costs, ie wrt to the total income. So the advantage of the upper classes in terms of economic possibilities might be reduced both by decreasing the cost of schooling (as school reforms did) and by increasing incomes (via higher wages and increasing welfare benefits).

Costs of schooling, moreover, also include opportunity costs, that is foregone earnings. In the late XIX century, the prohibition of child labour, asked by the labour movement, greatly favoured school participation, by decreasing opportunity costs.

At higher stages of school participation a similar mechanism holds, in post-compulsory school, for youth employment: the better the employment prospects, the higher the opportunity costs of schooling. In this sense, schools might become a parking lot (Barbagli 1982) or a warehouse (Walters 1984), where young people are parked or stored for lack of good occupational opportunities.

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The social stratification of school choice: probability

The *p* term describes the probability that the school choice will turn into actual school attainment, avoiding dropout. Dropout means benefits of the choice won't be attained, or only to a lower extent.

The estimation of *p* depends (negatively) on the selectivity of the school system and (positively) on the performance of the kid.

More educated families are at advantage, since:

1. on average their kids show better performance (primary effects);

2. they can make a more precise guess of the probabilities to complete a given school level, since they have a direct knowledge. Less educated families often overestimate the difficulty of school and underestimate the ability of their childre.

Importance of reliable information for school choice: information is socially stratified.

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The social stratification of school choice

3. they are more inclined towards a long-run investment since they are more secure concerning their long-run perspectives: investment in schooling has to be renewed constantly, for each grade.

Putting all this together, to explain persistent IEO the Maximum Maintained Inequality (MMI) hypothesis (Raftery & Hout 1993) was formulated: higher-class families want to maintain the educational advantage of their offspring, and have the means (material, motivational, informational) to hold on to their educational advantage.

IEO at a given level only decreases when higher-class families have saturated it, but then the same families are the first able to exploit new opportunities created at the higher levels.

IEO gets then “upgraded” to higher schol levels.

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The social stratification of school choice

According to some authors (Walters 2000), the expansion of the school system is *per se* a means for the reproduction of the school (and thus general) advantage of the better-off.

Since lower classes ask for more school opportunities for their children, they are accomodated in the lower levels, which the higher classes have already saturated, while the new levels are appropriated by the offspring of the upper class, who are more bright (primary effects) and more rapid at exploiting the new opportunities (secondary effects).

This perspective comes close to the reproduction hypothesis. Indeed, Italian sociologist of education Barone (2012), from an egalitarian perspective, proposes to stop the expansion of education and to perform its redistribution according to merit (ability and effort). It is not clear, however, how this might be politically feasible, and how this approach would deal with primary effects.

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The social stratification of school choice

However, we have seen that there has been diminishing IEO, related to increasing participation. Which are the factors who favoured it? (Erikson & Jonsson 1996; Erikson 1996; Ballarino et al. 2009). Generally speaking, it was favoured by social policies and the welfare state:

The lowering costs of schooling to the lower classes, including both direct costs (tuition fees, transportation etc) and indirect ones (since the 70 in most European countries there has been high youth unemployment).

Destratification of secondary education and the delay of bifurcation points & age of selection: this reduced the importance of information concerning the school and increased the role of individual ability wrt family choice. However, remember the comparison btw the ability of Italian and German students in different tracks: what matters more are criteria of selection, more than age of selection.

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The social stratification of school choice

Lower school selectivity, often related to de-stratification and increase of compulsory school age brings about a decrease of the role of ability in school processes, thus decreasing primary effects of social class, and decreasing the risk of dropout (this increases the *p* term and diminishes its social stratification).

Increasing social guarantees to families with lower *p* (lower-class families), for instance by employment regulations favoring job security and welfare state policies providing unemployment benefits. This decreases the risk related to long-term school investment (related to the possibility of not making the grade) for these families, increasing their propensity to further invest in the schooling of their offspring.

In the next slide, the trend of those two parameters over cohort is reported for Italy and Spain (Ballarino et al. 2009).

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Parameters for school choice: Italy and Spain, 1910-1969

(from Ballarino, Bernardi, Requena & Schadee 2009)

	Spain		Italy	
cohort	Failures higher secondary (%)	Parents with secure employment (%)	Failures higher secondary (%)	Parents with secure employment (%)
1910-1919	31.0	34.0	45,5	44.7
1920-1929	31.8	41.8	51,5	53.0
1930-1939	31.6	46.3	35,8	56.6
1940-1949	14.7	53.1	38,0	61.2
1950-1959	14.6	60.3	37,1	66.9
1960-1969	17.8	64.9	41,9	69.5

Trade-off?

Inequalities of educational opportunities decrease over time. But also returns to education do! (Ballarino & Panichella 2021 – see following slides).

This is the "trade-off" scenario depicted by Bernardi & Ballarino 2014)

TABLE 1. The three scenarios

Equality of opportunities	*Occupational value of titles*	*Scenario*
Increase	Decrease	***Trade-off***
Equal	Decrease	***Worst-off***
Increase	Equal	***Best-off***

(from Ballarino & Panichella 2021)

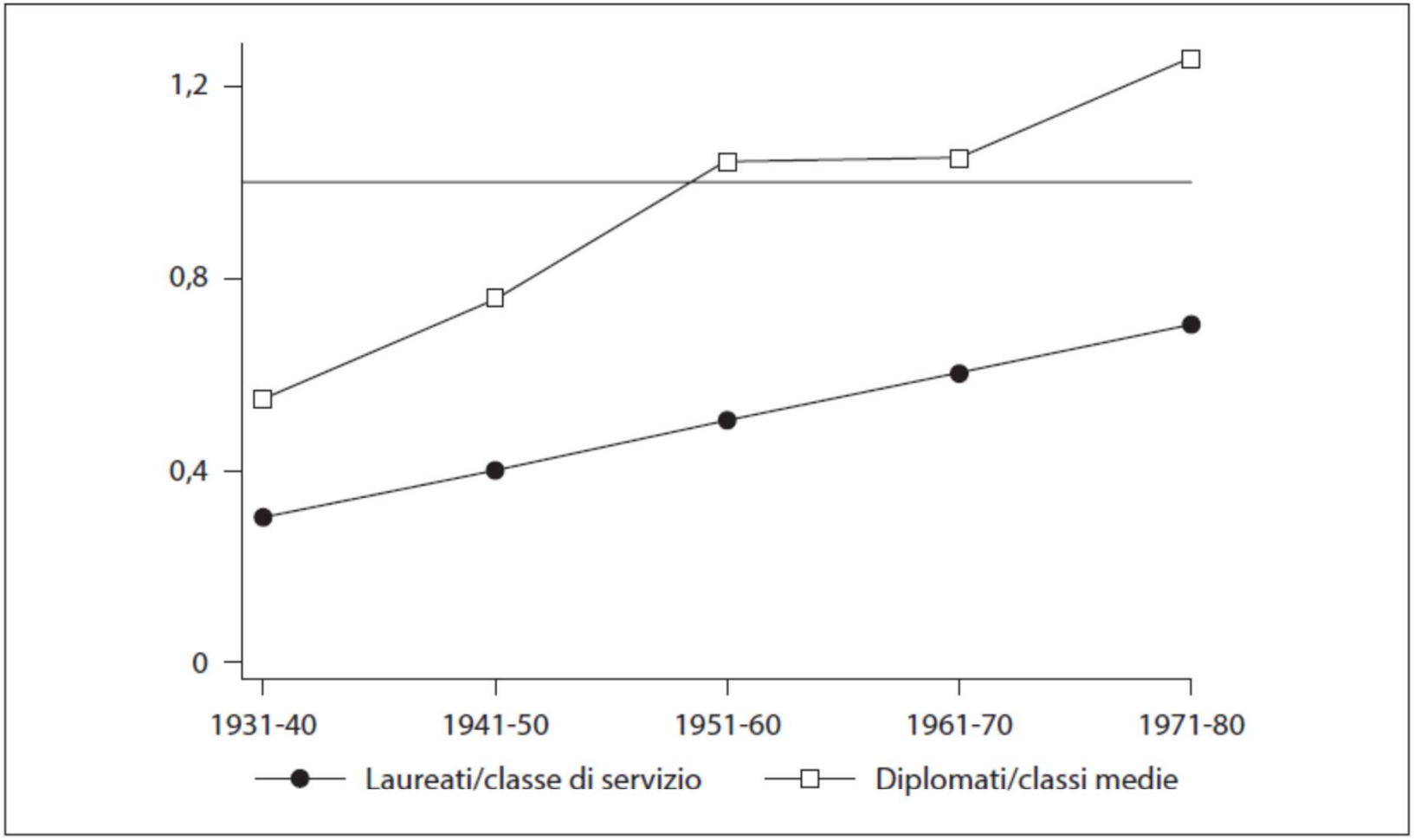

fig. 8.1. *Rapporto tra espansione educativa e cambiamento della struttura occupazionale, per coorte di nascita.*

Fonte: Elaborazioni su dati Ilfi (1997-2005) e Indagine Nazionale sulla Mobilità Sociale (1985), da Ballarino, Barone e Panichella [2014].

(from Ballarino & Panichella 2021)

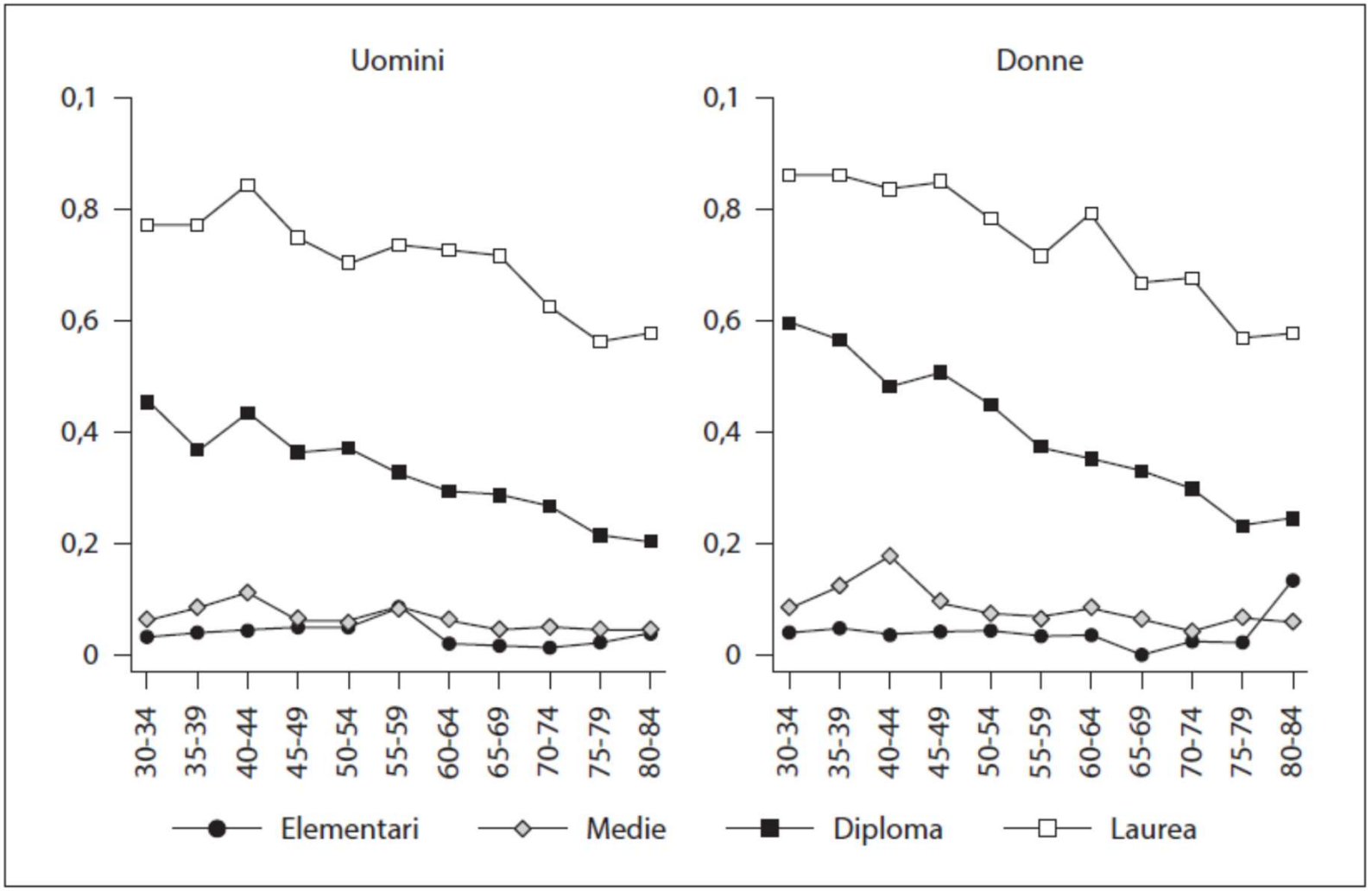

fig. 8.2. *Probabilità di accedere alla classe di servizio con il primo lavoro, per coorte di nascita, titolo di studio e genere.*

Nota: La figura riporta le predizioni medie calcolate da un modello di probabilità lineare che controlla per classe sociale di origine e area geografica di residenza.

Fonte: Elaborazione da dati Istat-Multiscopo 1998-2003-2009.

(from Ballarino & Panichella 2021)

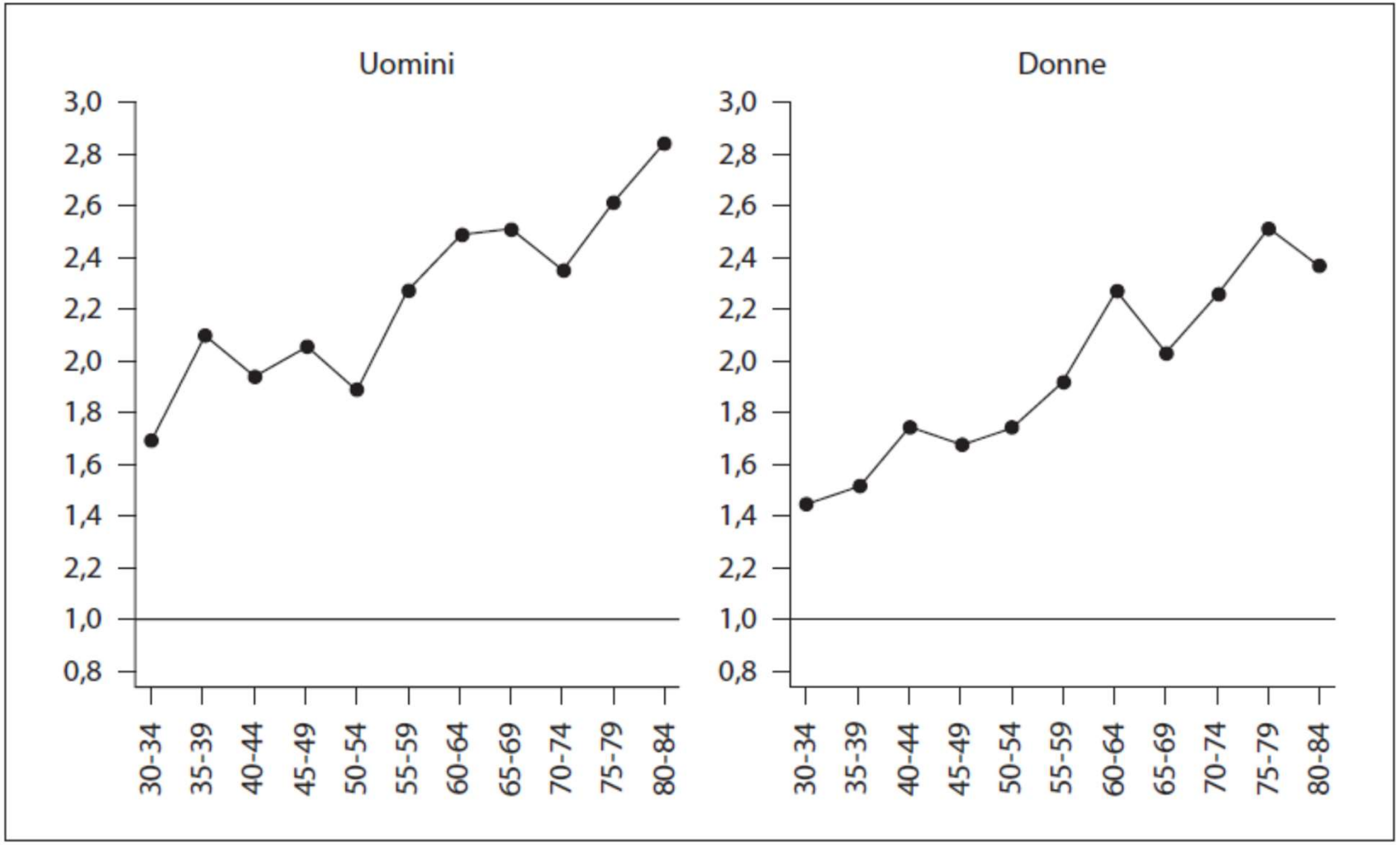

fig. 8.3. *Rapporto tra la probabilità di accedere alla classe di servizio con il primo lavoro dei laureati e dei diplomati, per coorte di nascita e genere.*

Fonte: Elaborazione dati Istat Multiscopo, 1998-2003-2009.

Policies to reduce inequality and cumulative advantage

If it is so, policies oriented towards reducing inequality face strong issues, since they should intervene over a number of mechanisms and contexts.

In particular, they should displace the workings of market competition and of the family, who tend to produce and reproduce over generations, respectively, inequality.

In both cases, policies face serious difficulties in actually intervening on all mechanisms involved in creating inequality.

It might be a good idea to intervene as soon as possible. According to Nobel laureate economist J. Heckman, returns to investment in human capital decrease rapidly over time (see slide).

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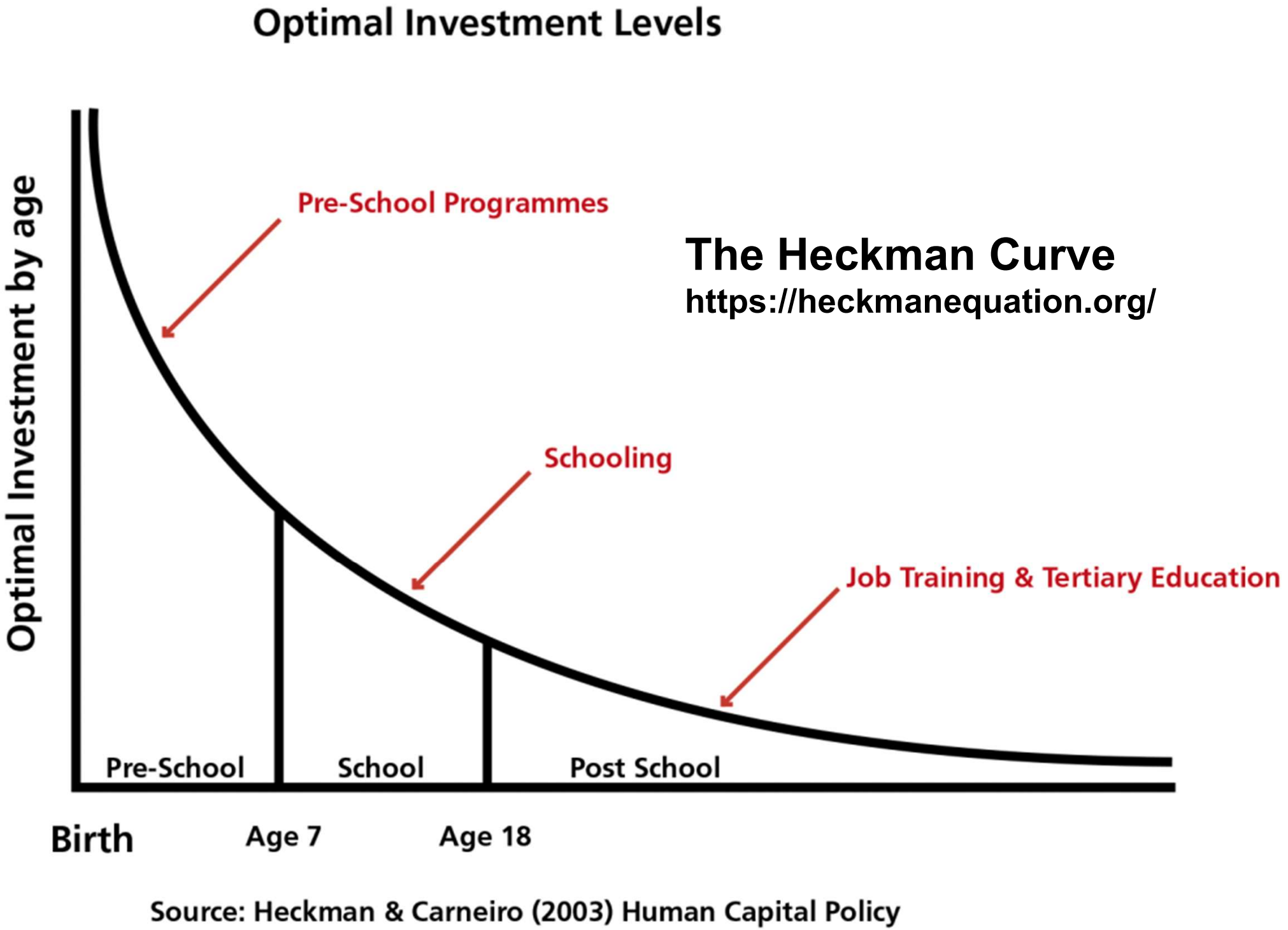
Optimal Investment Levels
Optimal Investment by age
Pre-School Programmes
Schooling
Job Training & Tertiary Education
Pre-School
School
Post School
Birth
Age 7
Age 18
The Heckman Curve
https://heckmanequation.org/
Source: Heckman & Carneiro (2003) Human Capital Policy

Policies to reduce inequality and cumulative advantage

The Heckman curve is a stylized fact (in economics, SFs are statements based on empirical evidence raised from different sources, and not corresponding to a single measurement).

It is based on 4 points:

1. The neurological structure of the brain and the formation of skills depend on an interaction btw genoma and the individual's experience of the environment.
2. The mastering of skills shows a hierarchical structure, so that more advanced skills are built on the more basice ones, in a cumulative structure ("learning begets learning")
3. Different types of skills (cognitive, social, emotional etc.) are interdependent, and are built starting from childhood.

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Policies to reduce inequality and cumulative advantage

4. This is a lifetime process, but the creation of skills is stronger and faster in the childhood years, during which neurological circuits and the behaviour they are associated with are more plastic and then more to be influenced by the environment.

This is of course a general, average pattern. It does not mean that investment in learning at later ages does not have any return. There might be, indeed, different curves for different types of skills.

Some authors have tried to empirically estimate the curve, by directly measuring costs and benefits of policy interventions oriented to learning. It appears that the curve is actually flatter than the way it is represented by Heckman (Rea and Burton 2020). The debate is ongoing.

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