Boudon Reexamined

Nuts and Bolts for Contemporary Sociological Science

Gianluca Manzo (Ed.)

SORBONNE UNIVERSITÉ PRESSES

L'intelligence du social

Boudon Reexamined presents a selection of short essays by leading scholars from several generations who critically engage and enter into dialogue with the work of Raymond Boudon. Each chapter focuses on a specific topic from his extensive writings. Readers will follow this intellectual trajectory through analyses of early correspondence with Lazarsfeld and Merton, his typology of sociological styles, and his contributions to contemporary analytical sociology, including the notion of middle-range theory. In addition to already well-discussed aspects of Boudon's work, namely his understanding of methodological individualism and the theory of ordinary rationality, the book also explores less frequently discussed topics, including his early interest in formal modeling in sociology and his understanding of the link between interdependence structures and social change. Included in the following pages are new assessments of Boudon's well-known analyses of the inequality of educational opportunity and intergenerational social mobility, as well as his lesser-known substantive contributions to the study of relative deprivation and his early dialogue with game theory. The book also outlines Boudon's study of classical authors, especially Tocqueville, before two final chapters conclude by examining how Boudon's works can be used to teach sociology at the undergraduate and master's levels. Our hope is that *Boudon Reexamined* provides readers with a fresh assessment of his legacy – how his work can be applied to conduct theoretical and empirical research in contemporary sociology, as well as to promote high-quality scientific standards for new generations.

Gianluca Manzo is Professor of Sociology at Sorbonne University and a Fellow of the European Academy of Sociology. His research applies computational models and social network analysis to the study of social stratification and diffusion dynamics. He is the author of *La Spirale des inégalités* (PUPS, 2009) and of *Agent-based Models and Causal Inference* (Wiley, 2022). He also edited *Analytical Sociology: Actions and Networks* (Wiley, 2014) and the *Research Handbook on Analytical Sociology* (Edward Elgar, 2021). More information is available on his webpage: www.gemass.fr/member/manzo-gianluca/.

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Chapter 9

On the Relationship Between Inequality of Educational Opportunity and Inequality of Social Opportunity

Louis-André Vallet

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L'intelligence du social

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The great books of the sociological tradition are either works of theory and epistemology or empirical studies structured by a profound theoretical or epistemological reflection. Émile Durkheim's first three books, *The Division of Labour in Society*, *The Rules of Sociological Method*, and *Suicide*, each fall into one of these three categories. This heritage represents an impressive growing legacy of authors and works that foster an understanding of social life through the formation of new concepts, models, and interpretations, thereby providing a pathway to deciphering the thickness and chaotic nature of human societies.

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ON THE RELATIONSHIP BETWEEN INEQUALITY OF EDUCATIONAL OPPORTUNITY AND INEQUALITY OF SOCIAL OPPORTUNITY

Louis-André Vallet
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I was introduced to *L'Inégalité des chances* as a Master's student in Social Psychology during the 1978-79 academic year. I remember quite well that one of my professors at the Catholic University of Angers presented the book, and I quickly sought it out in my favorite bookshop, where I bought the second edition, dated 1978. The following year, I had the opportunity to discover large-scale empirical research on social mobility when Claude Thélot accepted me for a fifty-day research training period in the regional headquarters of the INSEE, the French National Statistical Office, in the town of Nantes. At that time, he was working on the 1953 French social mobility data – the very first mobility data that was statistically representative for France and collected within the Labour Force Survey (the *Enquête Emploi*) – and he was also working with more recent data coming from the 1970 *Formation-Qualification Professionnelle* survey, another INSEE survey he was previously responsible for. At INSEE, I discovered the extensive representative surveys conducted by the French National Statistical Office, as well as statistical modeling of contingency tables using multiplicative or log-linear models. I also began programming with the FORTRAN computing language. At the end of this period, I decided to switch from Social Psychology to Sociology to prepare a doctoral thesis on a topic related to social mobility, with Raymond Boudon as my PhD mentor. I had, *and still have*, great admiration for the Boudon of the first period, the

This chapter closely corresponds to the presentation the author delivered at the International Symposium "Engaging with Boudon: Insights for Contemporary Sociological Science" in Sorbonne University on 27 June 2024. The statistical analyses evoked in this chapter were performed on survey data collected by INSEE. The author would like to thank the French National Statistical Office as well as the large research infrastructure PROGEDO and ADISP (Archives de Données Issues de la Statistique Publique) for providing him with these survey data at no cost for secondary analysis.

man who wrote *L'Analyse mathématique des faits sociaux* (*The Mathematical Analysis of Social Facts*) and who edited famous textbooks in French together with Paul Felix Lazarsfeld, *Le Vocabulaire des sciences sociales* (*The Vocabulary of Social Sciences*), *L'Analyse empirique de la causalité* (*The Empirical Analysis of Causality*), and, with also François Chazel, *L'Analyse des processus sociaux* (*The Analysis of Social Processes*) – all books that I introduced into my own library in 1979, 1980 or 1981. I was simply happy to go in that direction, thinking it might well be an appropriate way to reconcile my interest in science, especially statistical science, and my interest in society.

But, coming back to *L'Inégalité des chances*, I must simultaneously admit that, over the decades, I have been *haunted* by a statement that Boudon made in the foreword of the 1978 second edition, and that I have spent a significant part of my academic life discussing it. On the very first page of this foreword, Boudon explained that he wrote the volume to account for an apparent paradox: *"All industrial societies have been characterized for several decades by a certainly slow, but also significant and steady decrease of inequality of educational opportunity. However, this reduction has had only modest effects on the level of social heritage."* This is my translation of Boudon's words. I discovered quite late, during the 1990s, in the *American Journal of Sociology*, the debate between Robert M. Hauser and Boudon, that is, the rather sharp review of the American version of the book written by the former, and the response by the latter. Evoking this fascinating exchange in a footnote within a 1996 *European Sociological Review* paper, John H. Goldthorpe (1996, p. 121) nicely wrote that *"*Hauser wins most of the battles but Boudon wins the war*"*. At a dinner I had with Leo Goodman, Mike Hout and Donald Treiman – the evening before the August 2001 Conference of the Research Committee on Social Stratification and Mobility that Mike organized in Berkeley – Leo, who unfortunately passed away in December 2020, told me that the shock between Hauser and Boudon was also a shock between two mentors as the former was sponsored by Otis Dudley Duncan while the latter was supported by Paul Lazarsfeld.

In this chapter, I will question Goldthorpe's 1996 view that Boudon actually "wins the war". Indeed, I will argue that *L'Inégalité des chances* is a great book, certainly for the part on Inequality of Educational Opportunity (IEO),[1] but not so much for the part on Inequality of Social Opportunity (ISO). Over the last twenty-five years, a collective effort undertaken by a group of social

1 With the introduction of the model in which individuals and families take decisions about continuing with education or not by considering the risks, costs, and benefits associated, these parameters being differentially assessed according to social position. This model has had a profound influence in sociology of education over the next decades.

stratification researchers I had the great chance to belong to, has provided considerable empirical evidence that Boudon's statement in the foreword of the second edition is simply wrong. *Within modern societies, Education and change in Inequality of Educational Opportunity are key elements and ingredients to create and to understand change in Inequality of Social Opportunity*. I will demonstrate this based on my own work about France. I will also briefly reference comparative work that shows that what is observed for France can also be observed in many other societies.

I will immediately add that we should not blame Boudon too much for putting forward a questionable statement about the relationship between IEO and Inequality of Social Opportunity. *L'Inégalité des chances* was written in the early 1970s, at a time when long series of social mobility data within a country were unavailable, and when the statistical apparatus for the modeling of contingency tables was only beginning to emerge. Even the now-classical distinction between the notion of "absolute rates" and the notion of "relative rates" was not yet clearly established at that time. It is quite clear that Boudon was interested in Inequality of Educational Opportunity and Inequality of Social Opportunity – that is to say, interested in *relative rates* on both aspects. However, when we read *L'Inégalité des chances* today, we sometimes get the impression that Boudon confounds educational expansion or "massification", that is, change in absolute rates, with democratization of education per se, that is, change in relative rates. Ultimately, this is probably good news that we are today able to *falsify*, in a Popperian sense, Boudon's statement because that suggests that sociology is indeed able *to function as a science*.

After this lengthy introduction, let me begin by emphasizing that statistical models can be fundamental tools for revealing hidden trends within a society. In the year 1900, George Udny Yule discovered or invented the odds ratio, that is, a statistic that measures the association between two categories of a row variable and two categories of a column variable and which possesses the remarkable property of being independent of the margins of the contingency table. In 1935, the British statistician Maurice Bartlett defined the notion of no three-way interaction in a contingency table that cross-classifies three dichotomous variables: the odds ratio, which measures the association between two variables, is rigorously constant across the categories of the third variable. Now, let me consider a set of social mobility tables observed at different dates in the same country; i denotes class origin, j denotes class destination, and t identifies the year of the survey.

Table 1: Statistical Models Are Fundamental Tools to Discover Hidden Trends in Society

The multiplicative model with no three-way interaction,
i.e. the constant social fluidity model (circa 1975)

$$m_{ijt} = \alpha_{it} * \beta_{jt} * \gamma_{ij}$$

The log-multiplicative layer-effect model,
i.e. the model of uniform difference in social fluidity (beginning in 1992)

$$m_{ijt} = \alpha_{it} * \beta_{jt} * \gamma_{ij}^{\delta t}$$

(with **δt** fixed at 1 for the first date and estimated freely for subsequent dates).

The first model depicted in Table 1 is simply a generalization of Bartlett's insight: the expected count in the *(i, j, t)* cell is the product of three parameters. The *Alpha-it* parameter guarantees that the fitted counts will exactly reproduce the distribution of class origins that is characteristic of each date. Similarly, the *Beta-jt* parameter guarantees that the fitted counts will also reproduce the distribution of class destinations observed for each date. The model, therefore, has the capability to account for historical changes observed in class origin and class destination distributions within the society. Finally, the *Gamma-ij* parameter expresses the fact that there is an association between class origin *i* and class destination *j*, that is, there is inequality of social opportunity, but this association is assumed to be rigorously constant across time. Under this model, all homologous odds ratios are rigorously constant over the survey years. This is the model of Constant Social Fluidity, or, we might say, the model of Constant Inequality of Social Opportunity.

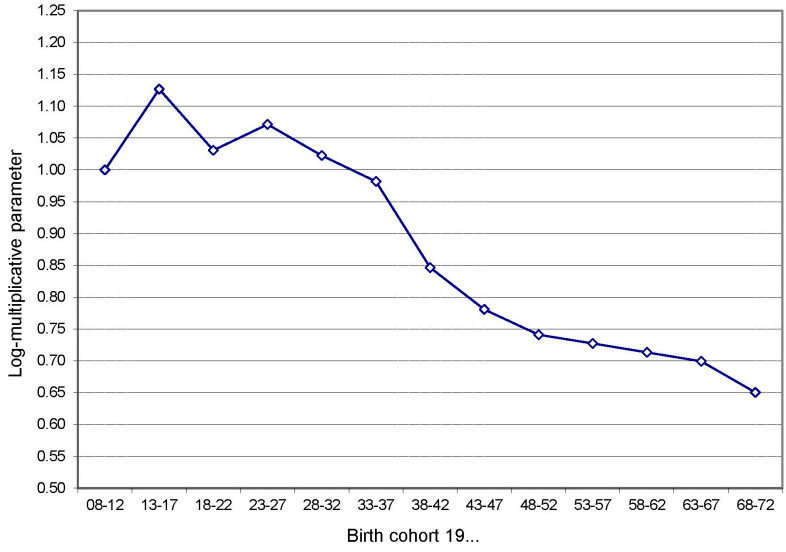
The first paper using this model was published in *American Sociological Review* in 1975 and entitled "Temporal Change in Occupational Mobility: Evidence for Men in the United States". The author, Bob Hauser, along with his students John Koffel, Harry Travis, and Peter Dickinson, concludes that the model satisfactorily fits the observed data. All scholars, including myself, who have subsequently estimated the same model using a series of real social mobility tables across time have been impressed by the extent to which it closely approximates the observed data. So the conclusion that social fluidity – or Inequality of Social Opportunity – is certainly characterized by powerful inertia in real societies!

The second model depicted in Table 1 is very close to the previous one. The only difference is that the *Gamma-ij* parameter is now raised to the power *Delta-t*. Conventionally fixed at 1 for the first date, *Delta-t* is estimated freely

for all subsequent surveys. If this parameter goes below 1, that means that the association between class origin and class destination weakens over time and, as a consequence, that all estimated odds ratios are moving toward 1. When it is applied to real mobility tables across time, the second model therefore assumes a constant structure of the association between class origin and class destination while being able to possibly detect a change in what we might call 'the general strength of this association' – please note that the first model is just a special case of the second one with *Delta-t* equal to 1, whatever *t*. Interestingly, this very powerful model, that appeared in 1992, was proposed simultaneously from both sides of the Atlantic Ocean: on the one hand, by Yu Xie, from the University of Michigan at that time, under the name of "Log-Multiplicative Layer-Effect Model"; on the other hand, by Robert Erikson and John Goldthorpe, from the Universities of Stockholm and Oxford, under the name of "Uniform Difference Model".

With the help of this powerful instrument, I will now demonstrate that Inequality of Educational Opportunity has declined monotonically, but slowly and unevenly, across cohorts born in France over the 20th century.

Figure 1: Trends in the Association Between Class Origin and Educational Attainment in France



Note: 8 class origins x 7 levels of education x 13 five-year birth cohorts, N=240,367.
Data: INSEE FQP Surveys from 1964 to 1993, and INSEE Labor Force Surveys 1993 and 1997.
Sources: Vallet (2001b, p. 200).

Figure 1 comes from my chapter in a book edited by Boudon, Nathalie Bulle, and Mohamed Cherkaoui in 2001. I presented it at a conference at the Sorbonne held in June 1999, exactly 25 years ago. I also presented it in Brisbane in 2002, at the 15th World Congress of the International Sociological Association. In this joint work with Claude Thélot, we compiled seven nationally representative INSEE surveys to get a huge sample of more than 240,000 French-born men and women belonging to 13 birth cohorts, from the oldest (1908-12) to the youngest (1968-72). For each birth cohort, father's class in eight categories is cross-classified with educational attainment in seven categories (from "no diploma at all" to "a degree of at least three years after the *baccalauréat*"). The graph illuminates how, net of changes in the class structure and the educational expansion, Inequality of Educational Opportunity – or the general strength of the intrinsic association between class origin and educational attainment – has evolved through the 20th century. This is done by depicting the dynamics of the estimated log-multiplicative parameters (my previous *Delta-t*).

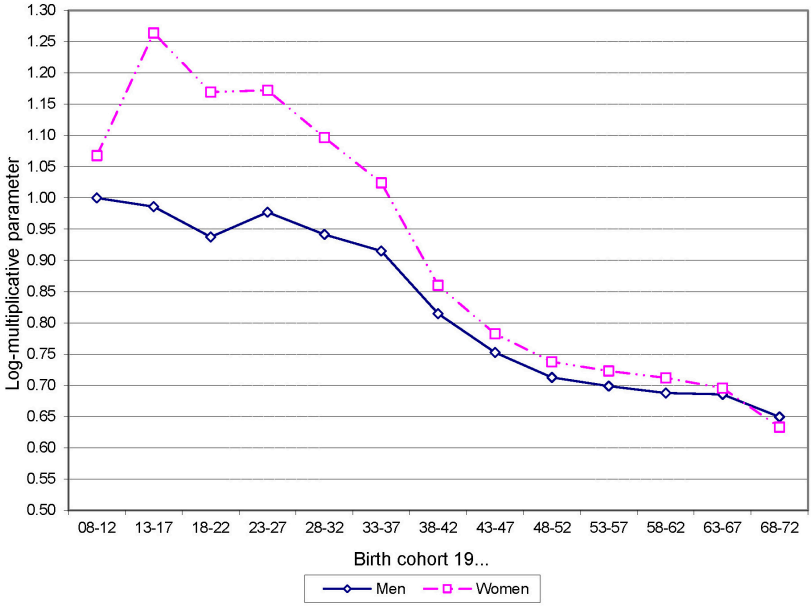
One clearly sees that the trend has been downward, with especially remarkable progress achieved between the 1933-37 and the 1943-47 birth cohorts. The parameter declines from 1 in the first cohort to 0.65 in the last one. But don't be too impressed by this seemingly impressive 35 percent decline! The reason is that it is measured on the very abstract scale of the logarithm of the odds ratio. To be more sociological, it is necessary to use counterfactual analysis to answer the following question: how many members of the very last cohort have different diplomas than those they would have held if nothing at all had changed in France regarding the general strength of Inequality of Educational Opportunity over 60 years? And the answer is: 10 percent, only 10 percent. I also note that, when I extended this analysis with Marion Selz in 2007, considering 7 Labor Force Surveys, more than half a million individuals, 11 class origins, and 19 three-year birth cohorts, I received new estimations that this 10 percent might well be a bit overestimated.

Interestingly, the general and uneven trend observed in nationally representative data is quite consistent with the conclusions of a monographic study by the French historian of education Antoine Prost, who analyzed changes in pupils' social origins in lower and upper secondary schools in the town of Orléans between 1945 and 1980. Moreover, the pronounced progress for the cohorts born in the early 1940s can be interpreted in the context of Boudon's IEO model. In 1941, a reform promulgated by the conservative Minister of Education Jérôme Carcopino integrated the Écoles Primaires Supérieures into the secondary school track. As a consequence, the structure of opportunities offered to children of modest class origins has probably dramatically changed, allowing them to eventually achieve ambitious school goals without having to

make decisions that are too risky. After their elementary classes, they still had the possibility of continuing within the primary school track, with its concrete and labor-oriented aspects; however, the reform offered the most able children from lower-class backgrounds the opportunity to prepare for the *baccalauréat* after passing through the Écoles Primaires Supérieures.

Figure 2: Trends in the Association Between Class Origin and Educational Attainment in France

By sex

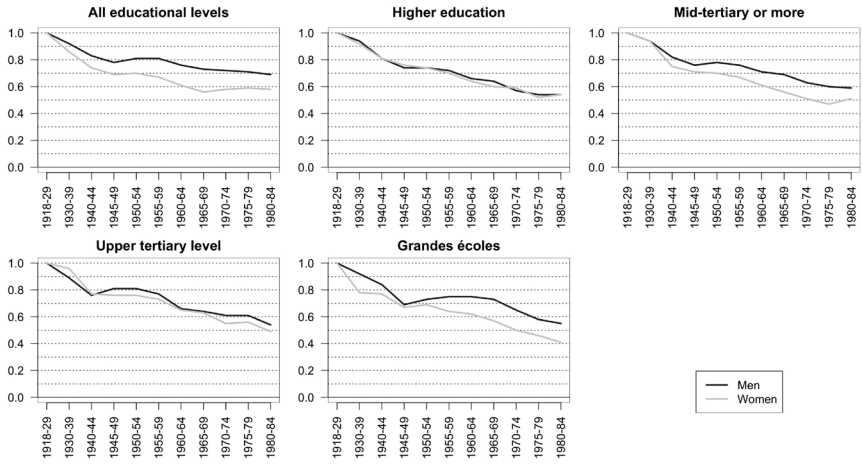


Note: 8 class origins x 7 levels of education x 13 five-year birth cohorts (by sex), N=240,367.
Data: INSEE FQP Surveys from 1964 to 1993, and INSEE Labor Force Surveys 1993 and 1997.
Sources: Vallet (2001b, p. 201).

When the investigation is replicated after distinguishing the 13 tables for men and the 13 tables for women in the same modeling, a striking conclusion emerges (Figure 2). The decline of Inequality of Educational Opportunity has indeed been more substantial for females than males, especially because, until the end of the 1930s, IEO was much more pronounced for girls than for boys. This difference progressively disappears, and it is even reversed in the 1968-72 cohort – an inversion that is also confirmed when the analysis is extended to later cohorts. This is closely related to the fact that, today in

France, school achievement and attainment are better for girls than for boys, with this difference being especially pronounced within the working class.

Figure 3: All French Labor Force Surveys Between 1982 and 2014, 11 Cohorts Born Between 1918 and 1984, and Much Detail for Degrees in Tertiary Education



Sources: Falcon and Bataille (2018, p. 342), by permission of Oxford UP.

One may wonder whether the temporal dynamics I have exhibited are sensitive to the categorization of the educational attainment variable. In a 2018 *European Sociological Review* paper, Julie Falcon and Pierre Bataille revisited the same research question with all French Labor Force Surveys between 1982 and 2014, 11 cohorts born between 1918 and 1984, and a detailed categorization for degrees in tertiary education – indeed, their lowest educational category is "less than *baccalauréat*" (Figure 3). You can easily see that the decline of the association is very general and more pronounced for women than for men; it also appears for degrees at the upper tertiary level and for degrees from the Grandes Écoles. Therefore, there is considerable empirical evidence that Inequality of Educational Opportunity has decreased in France, rather monotonically but also slightly.

What about trends in Inequality of *Social* Opportunity within French society? I will also argue that there is considerable empirical evidence that ISO has diminished, again slightly but quite regularly, at least from the middle of the 20th century. In 1999, I published a sixty-page paper in the *Revue Française de Sociologie,* which I also presented at the University of Wisconsin-Madison. This was my very first visit to and conference in the US, and Bob Hauser was in the room! Using again the same powerful model on social mobility tables for French men aged 35 to 59, I found that, fixed at 1 in 1953, the log-

multiplicative parameter is estimated at 0.91 in 1970, 0.87 in 1977, 0.85 in 1985, and 0.81 in 1993. Indeed, the decline appears so regular that I was able to entirely capture it with a linear trend: social fluidity has increased, or Inequality of Social Opportunity has diminished, at the rate of half a percent per year over 40 years. Again, this change of nearly 20 percent in the general strength of the association between class origin and class destination looks impressive, but you now have in mind the problem of the scale. Counterfactual analysis shows that about 4 percent of men in the 1993 mobility table have changed their class destinations, only as a result of the decline in this association over forty years. Only 4 percent. This is quite clearly something that we cannot perceive with the naked eye or in everyday life. Again, the trend was similar in father-daughter mobility tables and slightly more pronounced than in father-son tables.

Table 2: Intergenerational Social Fluidity Has Increased in France, i.e., Inequality of Social Opportunity Has Declined

Odds ratios (same origins and destinations) for French men (and women in parentheses) aged 35-59

		Professions Intermédiaires (lower service class)	***Employés*** (routine non-manual employees)	***Ouvriers*** (manual workers)
Cadres et Professions Intellectuelles Supérieures (higher service class)	1977	**3.5 *(2.7)***	**10.8 *(9.4)***	**91.7 *(410.4)***
	1985	**2.5 *(2.3)***	**7.6 *(11.1)***	**110.8 *(109.4)***
	1993	2.3 *(2.2)*	4.4 *(5.2)*	40.9 *(67.1)*
	2003	2.3 *(1.8)*	5.8 *(8.1)*	28.8 *(63.0)*
	2014-2015	**2.3 *(1.8)***	**5.4 *(6.7)***	**24.5 *(36.2)***
Professions Intermédiaires (lower service class)	1977		**1.8 *(1.8)***	**6.3 *(9.2)***
	1985		**1.8 *(1.8)***	**4.6 *(6.4)***
	1993		1.5 *(1.5)*	4.3 *(7.3)*
	2003		2.1 *(1.6)*	3.8 *(6.6)*
	2014-2015		**1.6 *(1.8)***	**2.7 *(6.0)***
Employés (routine non-manual employees)	1977			**3.6 *(2.3)***
	1985			**3.3 *(2.6)***
	1993			2.4 *(2.5)*
	2003			2.4 *(1.9)*
	2014-2015			**1.9 *(2.1)***

Data: INSEE FQP Surveys 1977, 1985, 1993, 2003, and 2014-2015. Author's calculations.

It is possible to be less abstract by considering odds ratios computed from the observed or real mobility tables. In Table 2, for all *Formation-Qualification Professionnelle* surveys between 1977 and 2014-2015, I examine the odds ratios that involve the official four socio-occupational groups composed of salaried

people: *Cadres et Professions Intellectuelles Supérieures* (or the higher service class), *Professions Intermédiaires* (or the lower service class), *Employés* (or routine non-manual employees), *Ouvriers* (or manual workers). In computing all odds ratios, I consider the same groups for both class origin and class destination. You can perceive a general tendency for all, or nearly all, odds ratios to move toward 1 from 1977 to 2014-2015. Let me take only one very striking example. In 1977, among French women aged 35 to 59, the odds for belonging to the higher service class rather than being a manual worker were 410 times higher for daughters of a man in the higher service class than for daughters of a manual worker. The same odds ratio declines to 109 in 1985, 67 in 1993, 63 in 2003, and 36 in 2014-2015.

When male social mobility data from the same surveys conducted between 1977 and 2014-2015 are submitted to general statistical modeling, the result I obtained in 1999 exactly reappears (Table 3). The Bayesian Information Criterion shows that the model of uniform change must be preferred to the constant social fluidity model. The former model is also a significantly better fit to the data than the latter one. The estimated log-multiplicative parameter regularly declines from 1 in 1977 to 0.80 in 2014-2015. Finally, this can be captured by a diminishing linear trend of, again, half a percent per year over 38 years.

Table 3: Statistical Modeling of Change in Intergenerational Social Fluidity in France Between 1977 and 2014-2015

French men aged 35-59

Model	G^2	df	test	DI (%)	rG^2	bic
Men (N=41,014)			*On the 6 INSEE socio-occupational groups*			
Conditional independence {TO TD}	13 945.1	125	$p < 0.001$	20.5	-	12 617.4
Constant social fluidity {TO TD OD}	268.3	100	$p < 0.001$	2.6	98.1	-793.8
Uniform change {TO TD ϕ_TOD}	**215.6**	**96**	**$p < 0.001$**	**2.2**	**98.5**	**-804.0**
ϕ_T estimated parameters	***1.000 (1977)***	***0.960 (1985)***	***0.900 (1993)***	***0.891 (2003)***	***0.803 (2014)***	
Uniform change (constraint 1993=2003)	215.7	97	$p < 0.001$	2.2	98.5	-814.6
ϕ_T estimated parameters	*1.000 (1977)*	*0.960 (1985)*	*0.894 (1993)*	*0.894 (2003)*	*0.803 (2014)*	
Uniform change (linear trend)	**217.6**	**99**	**$p < 0.001$**	**2.2**	**98.4**	**-834.0**
Annual trend estimated	***-0.0050***					
Goodman-Hout model {TO TD OD γ_TOD}	65.8	72	ns	1.2	99.5	-699.0

Note: O for class origin (father's class), D for class destination, T for time (survey).
Data: INSEE FQP Surveys 1977, 1985, 1993, 2003, and 2014-2015. Author's original analysis.

Results obtained on the corresponding social mobility data for women are quite similar, albeit with an interesting difference (Table 4). Over the covered period that has been characterized by an increasing involvement of women on the labor market, the increase in intergenerational social fluidity, or the decrease in Inequality of Social Opportunity, has clearly been stronger among women than among men: the last parameter attains 0.74 as against 0.80 for men, and the estimated linear trend is -0.75 percent per year compared to minus half-a-percent for men.

Table 4: Statistical Modeling of Change in Intergenerational Social Fluidity in France Between 1977 and 2014-2015

French women aged 35-59

Model	G^2	df	test	DI (%)	rG^2	bic
Women (N=34,811)			*On the 6 INSEE socio-occupational groups*			
Conditional independence {TO TD}	7 663.2	125	$p < 0.001$	16.5	-	6 356.0
Constant social fluidity {TO TD OD}	216.5	100	$p < 0.001$	2.3	97.2	-829.3
Uniform change {TO TD ϕ_TOD}	**140.6**	**96**	**$p < 0.01$**	**1.7**	**98.2**	**-863.4**
ϕ_T estimated parameters	***1.000*** *(1977)*	***1.020*** *(1985)*	***0.880*** *(1993)*	***0.828*** *(2003)*	***0.741*** *(2014)*	
Uniform change (constraint 1993=2003)	142.5	97	$p < 0.01$	1.7	98.1	-871.9
ϕ_T estimated parameters	*1.000* *(1977)*	*1.020* *(1985)*	*0.847* *(1993)*	*0.847* *(2003)*	*0.742* *(2014)*	
Uniform change (linear trend)	**146.6**	**99**	**$p < 0.01$**	**1.8**	**98.1**	**-888.7**
Annual trend estimated	***-0.0075***					
Goodman-Hout model {TO TD OD γ_TOD}	92.8	72	$p < 0.10$	1.4	98.8	-660.2

Note: O for class origin (father's class), D for class destination, T for time (survey).
Data: INSEE FQP Surveys 1977, 1985, 1993, 2003, and 2014-2015. Author's original analysis.

The evidence in favor of a decline in Inequality of Social Opportunity is therefore rather strong in France. We now want to appreciate the extent to which changes in Inequality of Social Opportunity have been related to changes in education and changes in Inequality of Educational Opportunity. As education typically is a cohort phenomenon – the average education attained evolves from one birth cohort to another one – it is first necessary to analyze change in social fluidity across cohorts rather than survey years.

Table 5: Change in Social Fluidity in France Across Cohorts and Age

Men

Model		G^2	df	p	Δ(%)	Bic
Men (N=64,801)						
1. CSO CSD OD		1147.06	684	.000	4.19	-6431.03
2. CSO CSD β_COD		1090.18	679	.000	4.04	-6432.52
Difference 1-2		56.88	5	.000		
β_C	*1 (1906-24)*	***1.105***	***1.030***	***0.958***	***0.961***	***0.897***
		(.027)	*(.026)*	*(.025)*	*(.030)*	*(.036)*
3. CSO CSD $\beta_C\beta_A$OD		1033.20	675	.000	3.93	**-6445.18**
Difference 2-3		56.98	4	.000		
β_C (deviation)	*0 (1906-24)*	***+0.072***	***-0.029***	***-0.108***	***-0.089***	***-0.191***
β_A (deviation)	*0 (middle)*	*-0.019*	*-0.097*	*+0.073*	*+0.187*	
		(old)	*(old+)*	*(young)*	*(young+)*	
4. CSO CSD $\beta_C\beta_A\beta_S$OD		1030.05	671	.000	3.92	-6404.01
Difference 3-4		3.15	4	ns		
5. CSO CSD β_{CA}OD		1020.85	665	.000	3.90	-6346.74
Difference 3-5		12.35	10	ns		

Note: O for class origin (father's class), D for class destination, C for cohort, S for survey, A for age.
Data: INSEE FQP Surveys 1970, 1977, 1985, 1993, and 2003.
Sources: Vallet (2020, p. 108). (French version in Vallet [2017]).

This is what I have done for men, as shown in Table 5. From Model 2 (see the first red line), we get the impression that Inequality of Social Opportunity has only slightly diminished, from 1 in the 1906-24 birth cohort to 0.90 in the 1965-73 one. However, let me emphasize that analyzing change in social fluidity in a cohort perspective is indeed more complicated than pursuing the same sort of analysis across survey years! The reason is that, by design, the oldest cohorts are observed at an advanced age in the initial surveys, while the youngest cohorts are observed at a relatively young age in the most recent surveys. So, there is a risk of confounding generational change in social fluidity with age effect on social fluidity. Further analysis indeed confirms this expectation. In Model 3 that controls for age, change in social fluidity reveals itself as more important than previously seen: from 1 in the 1906-24 cohort to 0.81 in the 1965-73 one; and we also learn that social fluidity increases with age advancement, that is, over the course of occupational career.

In Table 6, the same analysis on women's data reveals that generational change in social fluidity has been considerable in the female part of the population: according to Model 3, from 1 in the 1906-24 cohort to 0.58 in the 1965-73 one; and, interestingly, an age effect on social fluidity again appears, but its size is more limited than among men.

Table 6: Change in Social Fluidity in France Across Cohorts and Age

Women

Model		G^2		df	p	Δ(%)	Bic
Women (N = 46,079)							
1. CSO CSD OD		1239.75		684	.000	5.06	-6105.12
2. CSO CSD β_C OD		1091.44		679	.000	4.61	**-6199.74**
Difference 1-2		148.31		5	.000		
β_C	*1 (1906-24)*	***0.966***	***0.896***	***0.790***	***0.682***	***0.666***	
		(.031)	*(.029)*	*(.027)*	*(.030)*	*(.035)*	
3. CSO CSD $\beta_C\beta_A$ OD		1063.67		675	.000	4.50	-6184.56
Difference 2-3		27.77		4	.000		
β_C (deviation)	*0 (1906-24)*	***-0.057***	***-0.139***	***-0.251***	***-0.358***	***-0.419***	
β_A (deviation)	*0 (middle)*	*-0.024*	*-0.064*	*+0.072*	*+0.122*		
		(old)	*(old+)*	*(young)*	*(young+)*		
4. CSO CSD $\beta_C\beta_A\beta_S$ OD		1060.00		671	.000	4.47	-6145.27
Difference 3-4		3.67		4	ns		
5. CSO CSD β_{CA} OD		1049.66		665	.000	4.41	-6091.18
Difference 3-5		14.01		10	ns		

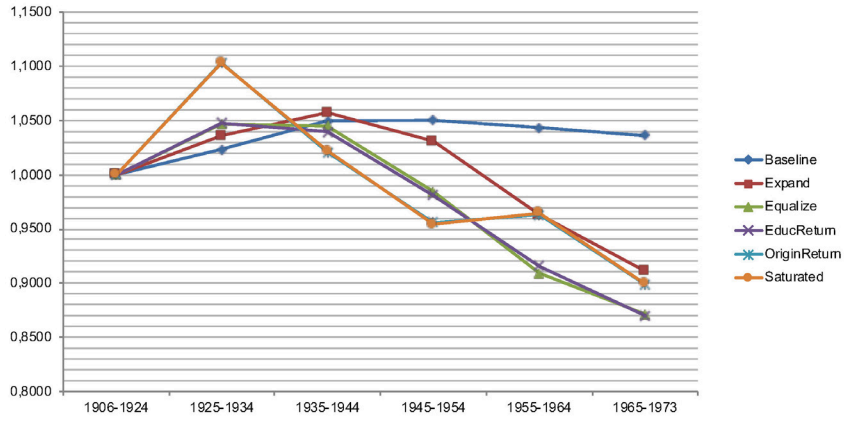
Note: O for class origin (father's class), D for class destination, C for cohort, S for survey, A for age.
Data: INSEE FQP Surveys 1970, 1977, 1985, 1993, and 2003.
Sources: Vallet (2020, p. 108). (French version in Vallet [2017]).

We are now close to the end of the analytical process. Let me consider the triangle Class Origin – Education – Class Destination. From a theoretical perspective, and in order to explain the declining trend observed in Inequality of Social Opportunity, four basic mechanisms are potentially relevant and can be invoked:

1. the declining trend observed in Inequality of Educational Opportunity, that is, democratization of education per se
2. a change in the association between Education obtained and Class Destination, that is, a change in the (relative) occupational returns to education
3. a change in the 'direct' effect of Class Origin on Class Destination – 'direct' meaning here 'controlling for Education'
4. a subtler compositional effect caused by educational expansion; more precisely, educational expansion increases the size of the more educated groups within the population and these more educated groups are characterized by a weaker association between Class Origin and Class Destination; please note that I was able to demonstrate the latter statement for France in my contribution to the 2004 *Social Mobility in Europe* book (see Vallet 2004, pp. 138-42).

Figure 4: Contribution of Four Mechanisms to the Increase in Social Fluidity Over Cohorts

Men



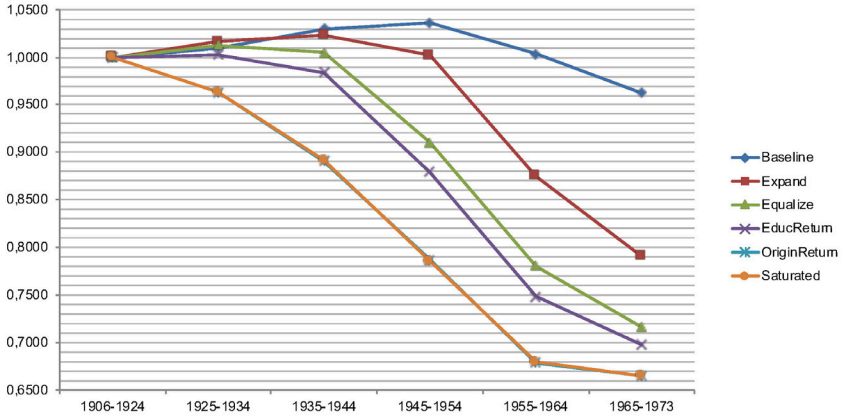
Data: INSEE FQP Surveys 1970, 1977, 1985, 1993, and 2003.
Sources: Vallet (2020, p. 116). (French version in Vallet [2017]).

How can we reveal the relative importance of these four mechanisms for explaining the observed change in Inequality of Social Opportunity in France? We can again use counterfactual analysis or simulation analysis. The general principle is as follows. We start from a very simple model (we can call it *Baseline*) that only incorporates elementary hypotheses: level of education obtained only depends on class origin; class destination depends on birth cohort, and it also depends on class origin, level of education obtained, and their interaction. We begin by simulating the consequences of these baseline hypotheses on the variation of social fluidity over cohorts (this is the blue line, *Baseline*). Then we progressively incorporate within the model the terms associated with the different explanatory mechanisms to reveal, in the same way, their specific impact on change in social fluidity or Inequality of Social Opportunity over cohorts. The terms are introduced in the following order: educational expansion or "massification" and its associated compositional effect (this is the line called *Expand*); democratization of education or reduction in Inequality of Educational Opportunity (this is the line called *Equalize*); change in the relative occupational advantage afforded by education (this is the line called *EducReturn*); change in the direct effect of class origin on class destination (this is the line called *OriginReturn*); finally, the very last terms that saturate the model and therefore exactly reproduce the *observed* variation in social fluidity (this is the line called *Saturated*). Figure 4 for men and Figure 5 for women synthesize all the results of this analysis: between the curves *Baseline*

and *Saturated*, we can perceive the relative importance of the contribution of the four explanatory mechanisms.

Figure 5: Contribution of Four Mechanisms to the Increase in Social Fluidity Over Cohorts

Women



Data: INSEE FQP Surveys 1970, 1977, 1985, 1993, and 2003.
Sources: Vallet (2020, p. 116). (French version in Vallet [2017]).

For both men and women, and whether we consider the 1945-54, 1955-64, or 1965-73 cohorts, it is indeed the two changes relating to education that have produced most of the decline in Inequality of Social Opportunity in France. Their relative importance, however, has changed. For men and women born between 1945 and 1954, the effect of the democratization of education is larger than the effect of its "massification". This is, however, the opposite in the two most recent cohorts, where the latter effect (*Expand*) clearly dominates the former (*Equalize*). Comparatively, the weakening of the relative advantage afforded by education for accessing the different class positions (*EducReturn*) has affected the variation of social fluidity very little, probably because it has concerned men and women from all class origins rather uniformly.

Do the results established for France also apply to any other society? In their concluding chapter in *Social Mobility in Europe*, Richard Breen and Ruud Luijkx (2004, p. 389) wrote: "The results from our eleven countries then point to a fairly clear conclusion: there is a widespread tendency for social fluidity to increase, even though this might not be a statistically significant trend in every case." The analyzed countries were: Germany, France, Great Britain, Hungary, Ireland, Israël, Italy, Norway, the Netherlands, Poland, and Sweden. In their concluding chapter in the 2020 book entitled *Education and Intergenerational*

Social Mobility in Europe and the United States, Richard Breen and Walter Müller wrote on page 287: "Considering the broad picture, taking each country over the whole period we have studied, we find no cases in which social fluidity increased without either an equalizing effect of educational expansion or equalization in the relationship between origins and education, or both." The eight analyzed countries were: Germany, Spain, the United States, France, Italy, the Netherlands, Sweden, and Switzerland.[2]

Let me conclude by expressing in English two statements that I made in the conclusion of my 1999 presentation at the Sorbonne. I myself am quite surprised to say that, even 25 years later, I have not needed to make any changes to my original statements in reproducing them here.

First, I do not have an enchanted vision of the increase in social fluidity or the decline in Inequality of Educational Opportunity. That actually means that people are living in a more 'competitive' society, but this is also a society less influenced by social determinism, that is to say, a society in which the "games" are a little less decided initially than they were a few decades ago. This point is, in my view, more important than the previous one.

Second, reflections that come from the epistemology of science also apply to sociology and the social sciences. When we study social change and we are particularly interested in statistical relationships that are characterized by powerful inertia – because they are located at the very heart of social organization – we are confronted with a problem of the power of our analytical instruments. In other words, we run the risk of not perceiving a change that, while real, remains tenuous and occurs slowly. It is, in reality, nothing other than the problem of the astronomer and his telescope, and, in matters of quantitative macro-sociology, it is often the statistical model we select for the analysis that plays the role of the telescope.

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2 At the time of finalizing the present chapter for publication, an *American Sociological Review* paper also demonstrates the decisive role of change in education for improved intergenerational occupational mobility, on the basis of a comparative analysis of 40 countries from four continents with data coming from the European Social Surveys and the International Social Survey Programme (van de Werfhorst, 2024).

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ACCLAIMS

This remarkably well-structured volume accomplishes two feats at once. It offers a critical engagement with the multiple facets and contributions of Raymond Boudon's sociological oeuvre, for example: the modeling of relative deprivation, the generative approach to social stratification, the plea for methodological individualism, the analysis of unintended consequences and social change, the epistemology of sociological investigations, and the reflection on rationality and belief formation. Through this critical engagement – here is the second feat – this volume tackles substantive and methodological issues central to contemporary developments in the discipline of sociology, whether the focus is on formal models, simulation work, counterfactual reasoning, social mobility and its measurements, the significance of Rational Choice, or our understanding of processual dynamics.

Ivan Ermakoff, Professor of Sociology,
University of Wisconsin-Madison

Without indulging in praise, this collective volume – bringing together 18 substantial chapters – aims to shed light on the enduring legacy of Raymond Boudon's sociology. It addresses a notable gap: the lack of a detailed, multifaceted examination of the work of one of the foremost figures in both French and international sociology. The reader will find not only an assessment of Boudon's intellectual contributions but also a critical appraisal of their limitations and the avenues they open for further research into contemporary issues. The book will appeal both to specialists familiar with the evolution of Boudon's thought over time and to those wishing to discover it, explore it in greater depth, or draw upon it for teaching purposes.

Gérald Gaglio, Professor of Sociology,
Université Côte d'Azur

This book is a splendid tribute to Raymond Boudon, one of the most important sociologists of the second half of the 20th century. The contributions, in their appreciative and critical aspects alike, clearly bring out the intellectual depth and challenging nature of Boudon's work and its continuing relevance in the study of modern societies.

John H. Goldthorpe, Emeritus Fellow,
Nuffield College, University of Oxford

This collection of papers, expertly curated by Gianluca Manzo, is as wide-ranging and thought-provoking as Raymond Boudon himself. It is sure to stimulate interest in a now-sometimes-forgotten giant of French sociology.

Neil Gross, Charles A. Dana Professor of Sociology,
Colby College (Maine)

This Memorial Festschrift honors Raymond Boudon (1934–2013) by considering his contributions to conceptualization, theory, and empirics, as well as their associated methods, across foundational topical domains in sociology and guided by expert commentators. It is not only a superb assessment, and its value will grow in three main ways. First, like most Festschrifts, it provides a portrait of the growth and trajectory of Boudon's ideas, embedded in his relations with other scholars, both teachers, peers, and students. This portrait will grow over time. Second, as the historian David Knowles wrote about the *quaestiones quodlibetales* of the medieval university (especially the University of Paris) and the debates held during Advent and Lent when anyone could ask any question of any master, Festschrift discussions are a valuable index to what is "in the air" – in this case both when Boudon was working and now. Third, Boudon believed in the promise of mathematics, and it will be possible to trace over time the progress of the $X -> Y$ relations in the book, as they travel from general functions to specific functions.

Guillermina Jasso, Professor of Sociology,
Silver Professor of Arts and Science, New York University

This book is not a hagiography. Unusually, its title truly reflects its content. Twenty-two sociologists from different countries and different generations take a fresh look at the work of Raymond Boudon. In keeping with his approach but without complacency, they highlight the theoretical and methodological contributions of his sociology, its limitations, its errors, its relevance for teaching sociology to the new generations, and the perspectives that remain open in several thematic areas.

Dominique Vidal, Professor of Sociology,
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