

Vive la Révolution!

Long term returns of 1968 to the angry students

Eric Maurin* and Sandra McNally**

*Paris-Jourdan Sciences Economiques and CEPR

** CEE and CEP, London School of Economics

Background & motivation

- May and June 1968: chaos in France...
Mass student protests; national strike;
dissolution of Parliament
- Important consequences for those at
highly selective parts of the higher
education system: student representatives
successfully lobbied for 'light-touch' exams
- Large one-off increase in the pass rate

Background & motivation (2)

- What consequences did the 1968 events have for the affected cohorts? – higher education; labour market outcomes.

More general questions using 1968 events as a ‘natural experiment’:

- What is the labour market return to an additional year of higher education?
- What is the causal relationship between parental education and that of their children?

Previous literature

- Many studies use a ‘natural experiment’ affecting particular birth cohorts as an IV strategy to estimate labour market returns to years of schooling – e.g. Harmon and Walker (1995); Lemieux and Card (1998).
- Limited literature using such an approach to identify relationship between parental and child education: Black *et al.* (2003); Chevalier (2004); Oreopoulos *et al.* (2003)
- Rare to focus on an ‘experiment’ affecting years of higher education; to consider effects on own outcomes and children’s outcomes in the same study

Structure of talk

1. Descriptive – what happened in 1968; consequences for exams; descriptive evidence for how cohorts were affected
2. Labour market returns to years of higher education
3. Intergenerational transmission of human capital

1968 events and the exams

- 1967 and 1968: wave of student protest movements in Europe, Japan and the US
- Pre-May 1968 no mass student movement in France (Touraine, 1971).
- *Le Monde*, 14 March 1968:
“*The French are bored. They are not taking part either directly or indirectly in the great convulsions which are shaping the world...*”

1968 events and the exams (2)

- 2 May 1968: decision to close University of Nanterre in Paris
- Protest at the Sorbonne and heavy-handed response by the police
- Protests quickly snowballed throughout France
- ‘It was only in France that the revolt of students got a response from the workers...that precipitated the biggest general strike in French history, paralyzing the economy...’ (Singer, 2000). Over 10 million workers involved – 2/3s of the workforce.
- De Gaulle dissolved the national assembly and called for new parliamentary elections

1968 events and the exams (3)

University exams became a central part of the bargaining process between the administration and students

“Exams do not have to be abolished: it would harm students who need their diploma”

“Exams do not have to be as hard as usual: it would damage the students who have spent a lot of time struggling for a better university”

The authorities gave way to demands for ‘light touch’ exams so as not to deny the value of the student movement

Extensive coverage in *Le Monde* of delays, modifications and departures from normal procedure

The *Baccalauréat*

“The symbolic national diploma both crowning the successful completion of secondary education and providing a passport for entry into higher education” French Embassy, UK.

Normally involves oral and written exams, taking place over several days.

1968: 2 oral exams on the same day. Candidates informed of results on the same day, allowing no consultation between examiners from different places (normally national commission to harmonise marking procedures)

University examinations

- The *baccalauréat* gives an automatic right to attend university.
- *Premier cycle*: 2 years – possible to obtain a diploma. Must get over this threshold to enter 2nd cycle of university education: 1 more year – degree; 2 more years: Masters
- 1968: in almost every university it was not possible to organise exams without delays and adaptations. Bargaining between students and administration over nature of exams.

For example, *Brevet de Techniciens Supérieurs* (upper-level technical diploma) was granted without an examination in 1968 (based on candidate's work over 2 years)

Birth cohorts affected by 1968

- A certain proportion of people fail the *baccalauréat* and university examinations each year, who then drop out of the higher education system – but who would have stayed if they had been able to pass the exams.
- Birth cohorts affected by the 1968 events are those that contain a high proportion of such students at relevant stages of education at that time.
- FQP, 1993: most students undertaking the *baccalauréat* or in 1st cycle of the university system were born between 1947-1950.
- LFS: a large, representative sample of the French population of age 15 and above; Pool 1990, 1993, 1996, 1999: 10,000 respondents per cohort.

Figure 1: Trends in the number of *bacheliers* and in cohort size.

Note: cohort size reflects the size of the cohort that is of age 19 in each year (median age of candidates for the *bac*)
Source: French Ministry of Education (number of *bacheliers*); French Statistical Office (cohort size)

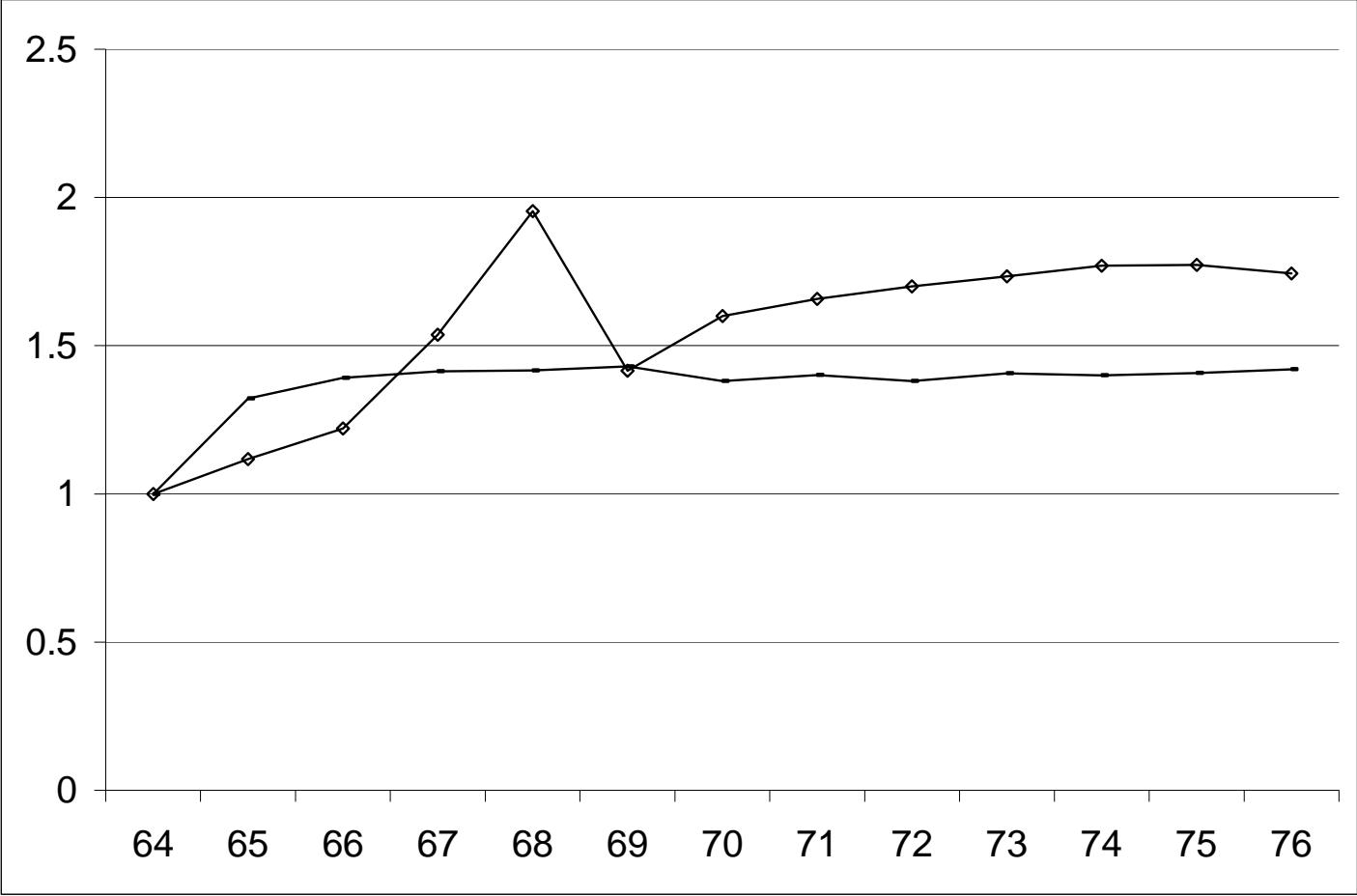


Table 1: Distribution of education across male workers, by cohort

	<Bac	Bac, no higher	All	>Bac	
				<i>Diploma</i>	<i>Degree +</i>
1946	72,7	9.9	17,4	6.3	11.0
	(0.7)	(0.4)	(0,6)	(0.3)	(0.5)
1947	72,2	9.0	18,8	7.1	11.8
	(0.7)	(0.4)	(0,6)	(0.4)	(0.5)
1948	71,9	9.1	19,0	6.9	12.1
	(0.7)	(0.4)	(0,6)	(0.4)	(0.5)
1949	70,0	9.8	20,3	8.6	11.6
	(0.7)	(0.4)	(0,6)	(0.4)	(0.5)
1950	71,8	9.8	18,4	8.0	10.4
	(0.7)	(0.4)	(0,6)	(0.4)	(0.5)
1951	72,3	9.8	17,9	7.5	10.4
	(0.7)	(0.4)	(0,6)	(0.4)	(0.5)
1952	72,4	9.8	17,8	7.3	10.4
	(0.7)	(0.4)	(0,6)	(0.4)	(0.5)

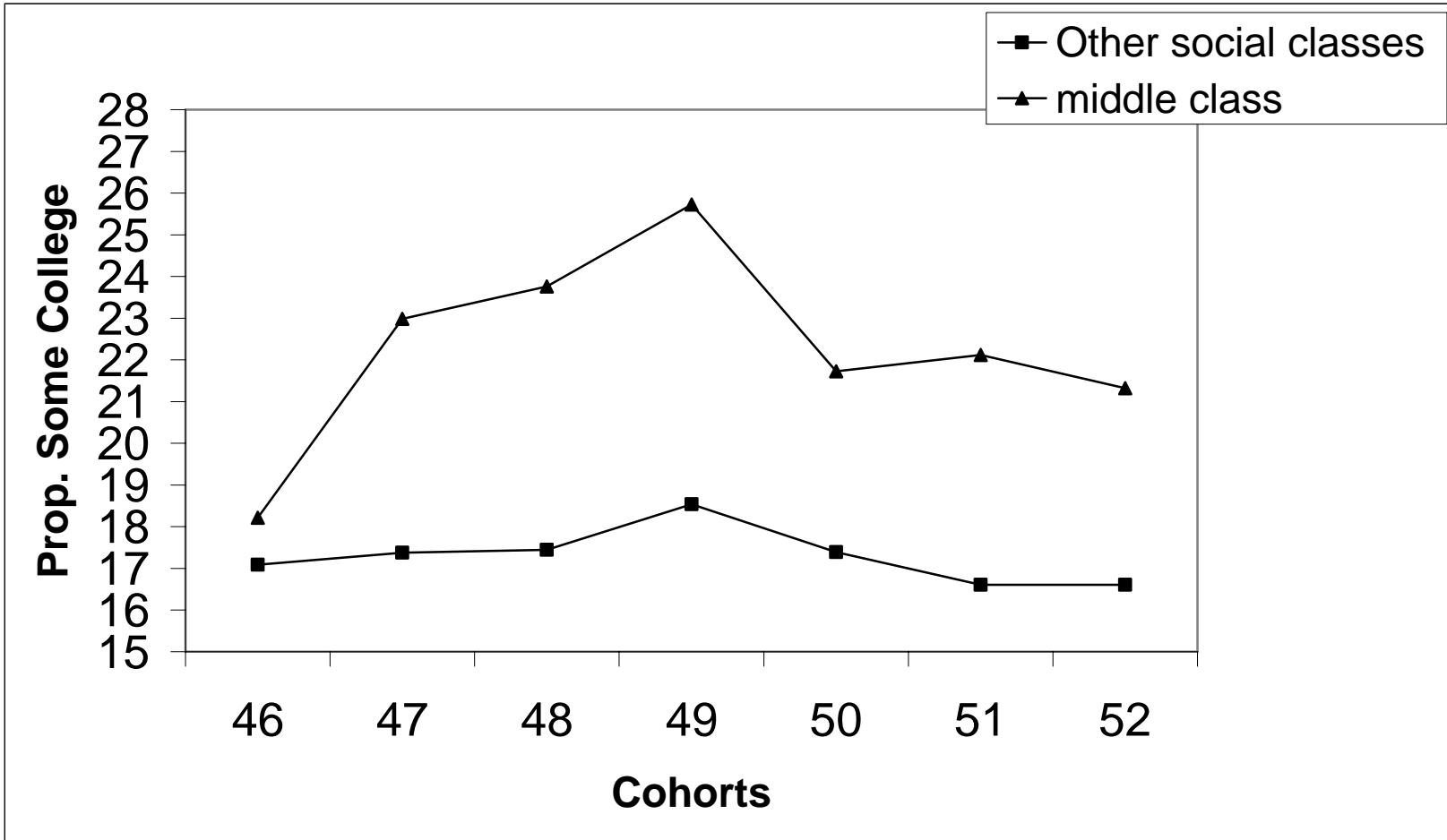
Why is 1949 cohort particularly affected?

- Most French students repeat a grade at school and pass the *baccalauréat* at age 19
- 10% of 1949 cohort in this position in 1968 (when pass rate increased by 30%).
- Most students who pass *baccalauréat* before age 19 pursue studies in more prestigious institutions and 90% gain university diploma.
- Therefore, of 1949 cohort, only group really affected are those taking exams for the *baccalauréat* in 1968. Table 1 shows that 2.5% of cohort pass exams, enabling entry to university and eventual acquisition of university qualification

Within cohort effects of 1968

- Only 'marginal' students within certain cohorts are affected – people who would not have been able to pass exams one year before or after 1968 events (and who would have failed if they had repeated)
- Lower socio-economic groups: much more likely to leave school before taking exam for *baccalauréat*
- Higher socio-economic groups: much more likely to pass *baccalauréat* and enter university
- Middle: more likely than the 'lower' group to persist in the secondary school system; less likely than the 'higher' group to pass exams for entry into tertiary education

The percentage of male workers in each birth cohort with at least a university diploma by social background



2.1. Modelling framework: y_i , earnings capacity at entry to labour market: $y_i = \alpha n_i + u_i$, n_i : number of grades passed in higher education; u_i , unobserved ability; Higher education: N basic grades. Denote $c_1 < c_2 < \dots < c_N$: ability required to pass entry exams for each grade.

Without grade repetition, student reaches level n_i , where $c_{ni} \leq u_i < c_{ni+1}$.

Enters next grade if $c_{ni+1} \leq u_i + r < c_{ni+2}$

(where r is impact of grade repetition on capacity to pass exam).

Thresholds shift downwards in 1968. Denote $c'_1 < c'_2 < \dots < c'_N$ as new thresholds. Assume $r \geq c_k - c'_{k+1}$. Consider cohort (1949) such that 'normal' age student is in 1st year of university; those who have repeated a grade are in *terminal*.

There are students in this cohort such that $c'_1 < u_i + r < c_1$.

Proportion: $\Delta P = F_u(c_1 - r) - F_u(c'_1 - r)$. Compare 1949 cohort with an unaffected cohort: a proportion ΔP has attended one supplementary grade. Regression of y on n , using a dummy variable for whether individual belongs to 1949 cohort as an IV, provides unbiased estimator $\Delta y / \Delta P$ of the returns to higher education α .

2.2. Estimation strategy

Wages w_i earned by worker i from cohort c_i at age a_i :

$$w_i = \alpha n_i + \omega a_i + \delta c_i + u_i \quad (2.1)$$

1968 events: years of higher education (n_i) vary in a non-linear way across cohorts:

$$n_i = d_{47} C_{i47+} + d_{48} C_{i48+} + d_{49} C_{i49+} + d_{50} C_{i47+} + d_{51} C_{i51+} + e\tau_i + v_i \quad (2.2)$$

τ_i captures a cohort trend and v_i is a random variable

- (1) Estimate reduced form by substituting (2.2) into (2.1)
- (2) Restrict sample to the most affected cohort (1949) and unaffected cohorts (1946; 1952); Identify the return to education using C_{i49} as an instrumental variable.
- (3) Augment equations (2.1) and (2.2) by including a cohort dummy for year of birth and a dummy for family background. In equation (2.2), also include an interaction term between the dummy for 'middle class' and whether the worker was born in the affected cohort.

Figure 4: The net effects of cohort of birth on the probability of holding at least a university diploma and on the probability of holding an upper-level white-collar position (*cadre*)

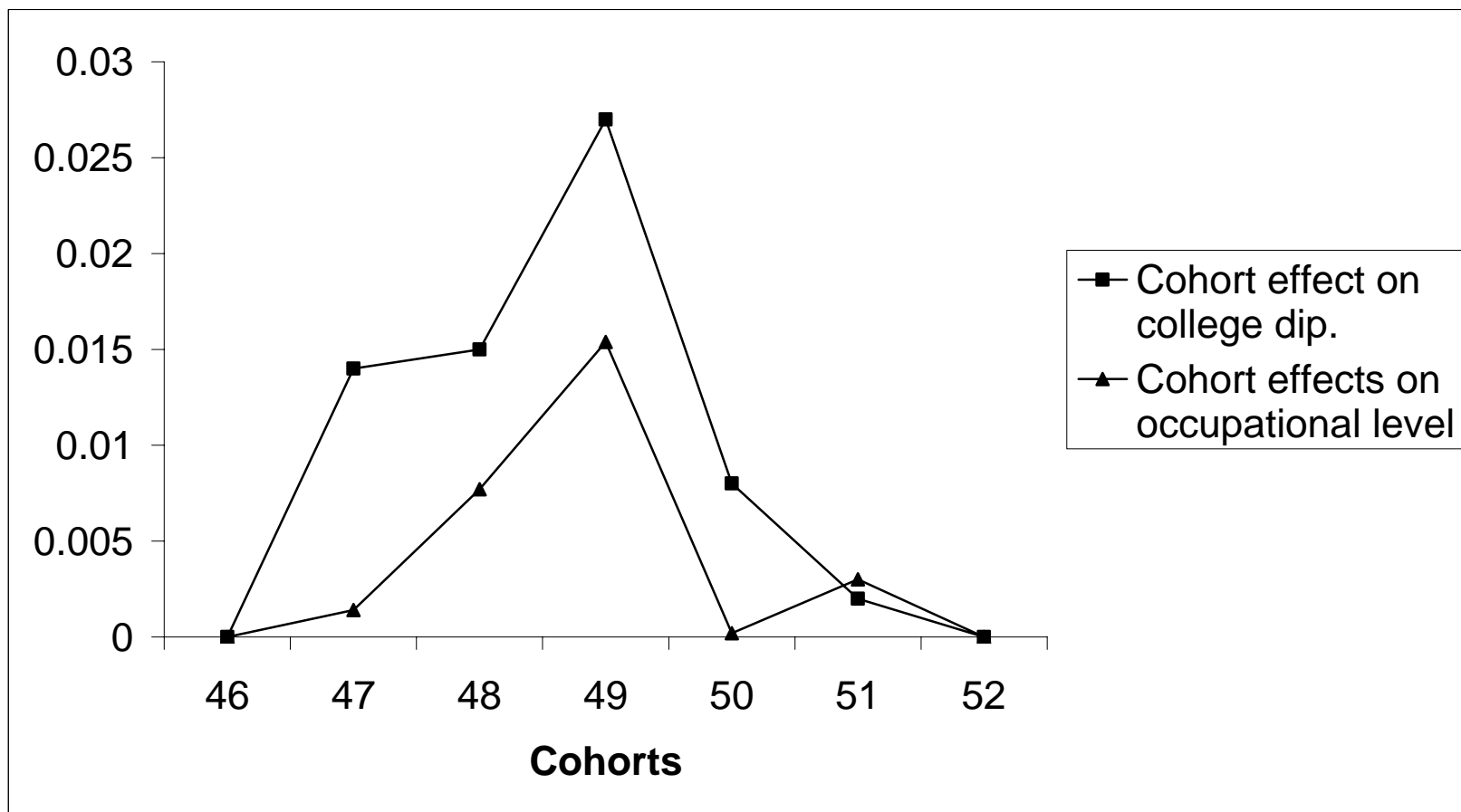


Table 3: Impact of birth cohort on outcomes of male workers (N=26,370)

	<i>Bac</i> only	Diploma +	Degree +	Years HE	Wages	<i>Cadre</i>
1947	-.009 (.006)	.014 (.008)	.008 (.006)	.040 (.037)	.006 (.010)	.001 (.008)
1948	.007 (.006)	.015 (.008)	.012 (.006)	.053 (.035)	.031 (.010)	.008 (.008)
1949	-.001 (.006)	.027 (.008)	.009 (.006)	.097 (.034)	.021 (.010)	.016 (.008)
1950	-.001 (.006)	.008 (.008)	-.002 (.006)	.019 (.034)	.005 (.010)	.000 (.008)
1951	-.005 (.006)	.002 (.008)	-.001 (.006)	.004 (.036)	.003 (.010)	.003 (.008)
Trend	-.000 (.001)	.001 (.008)	-.001 (.001)	.002 (.007)	.010 (.002)	-.005 (.001)
Age	-.000 (.001)	.001 (.008)	.0002 (.0006)	.003 (.003)	.023 (.001)	.003 (.001)

Table 4: An evaluation of the return to education using 1949 as an instrumental variable (Male wage earners born in 1946/49/52)

	<i>Wages</i>		<i>Probability of 'cadre'</i>	
	OLS	IV	OLS	IV
Years of higher education*	.09 (.002)	.14 (.06)	.10 (.001)	.10 (.04)
Cohort trend	.010 (.002)	.010 (.02)	-.006 (.001)	-.006 (.001)
Age	.023 (.001)	.023 (.002)	.003 (.001)	.003 (.001)
N	11171	11171	11171	11171
R-squared	.25	.04	.36	.01

Table 5: The effect of years of higher education on wages and the probability of holding an upper level managerial position (*cadre*)

Male wage earners born in 1946, 1949 or 1952

Controls include age; cohort dummies; Middle*1952; dummies for social background

	First stage Years of HE	Reduced form Log wage <i>Cadre</i>		IV Log wage	IV <i>Cadre</i>
Years of higher education	-	-	-	.17 (.07)	.10 (.05)
Middle*1949	.34 (.12)	.060 (.024)	.034 (.020)	--	--
N	11171	11171	11171	11171	11171

Intergenerational transmission of human capital

- Does providing additional education to parents (and resources more generally) transmit to the next generation?
- Problem: distinguishing causal effects from a correlation arising from unobserved factors
- A few papers use an exogenous change to the education system to identify 'causal' impact: Black *et al*, 2003; Chevalier, 2004; Oreopoulos *et al*. 2003. All studies use an extension to compulsory schooling as the basis for identification. Only Oreopoulos *et al*. find a causal affect for fathers – higher in IV than in OLS.

Outcome measure

- Grade repetition: widespread phenomenon in many countries, strongly linked to educational performance
- PISA: 15 year-old French adolescents who repeat a grade are likely to obtain much lower scores in maths, reading and science.
- Sample of 15 year-olds in LFS: 1990-2001
Information on date of birth; education; occupation of father; Can observe whether 15 year-olds are of 'normal' age for year group at school.

Simple model of relationship between parental and child outcomes:

$$s_i = \alpha f_i + \lambda c_i^p + \delta c_i + \beta g_i + u_i \quad (3.1)$$

where the school performance of child i is potentially affected by his/her parental resources (or education in particular) f_i , birth cohort father c_i^p , his/her gender g_i and birth cohort, c_i .

Parental resources vary in a non-linear way across cohorts on account of the 1968 events:

$$f_i = d_{47} C_{i47}^p + d_{48} C_{i48}^p + d_{49} C_{i49}^p + d_{50} C_{i50}^p + d_{51} C_{i51}^p + \theta c_i^p + v_i \quad (3.2)$$

where c_i captures a time trend and v_i is a random variable

- (1) Substitute equation (3.2) into (3.1) to estimate the reduced form.
- (2) Implement an IV approach where parental resources in (3.1) are instrumented by cohort dummies, measuring whether the father was born in 1948 or 1949 respectively. In this case, our sample is restricted to those born in an affected year (1948 or 1949) and the two 'control' years (1946 and 1952).

Table 6: Father's birth cohort, resources and child performance at school

	Father's yrs of HE	Father= 'cadre'	Child: Actual - 'normal' grade	Child: two grades behind
1947	.17 (.10)	.00 (.02)	-.006 (.030)	-.006 (.013)
1948	.29 (.09)	.043 (.014)	.097 (.027)	-.043 (.011)
1949	.22 (.08)	.022 (.013)	.070 (.025)	-.031 (.011)
1950	.12 (.08)	.016 (.013)	.034 (.024)	-.01 (.01)
1951	.09 (.08)	.010 (.013)	.052 (.025)	-.01 (.01)
Father's cohort trend	-.06 (.02)	-.013 (.002)	-.003 (.005)	.000 (.002)
Child's date of birth	.07 (.01)	.007 (.001)	.026 (.002)	-.011 (.001)
Male	.01 (.05)	.01 (.01)	-.17 (.01)	.056 (.006)

Table 7: An evaluation of the impact of father's education on children's performance at school.

	Controls for father's cohort trend; child's cohort trend; gender of child				
	(1)	(2)	(3)	(4)	(5)
	First	Reduced	OLS	IV	IV
	Stage	Form		(Z=1948)	(Z=1949)
	Father's	Actual –	Actual –	Actual –	Actual –
	education	norm. grade	norm. grade	norm. grade	norm. grade
Father's education	-	-	.076 (.004)	.33 (.12)	.32 (.15)
Father's cohort=1948	.29 (.09)	.097 (.027)	-	-	-
Father's cohort=1949	.22 (.09)	.071 (.025)	-	-	-

Conclusion

- 1968 events led to higher pass rates than would otherwise have been the case
- This affected group was at a highly selective stage in the education system during 1968 – the 1948 and 1949 cohorts in particular.
- The ‘marginal’ student was likely to be from a middle-class family background.
- Events made it easier for the affected group to progress to a further stage of higher education and obtain more years of higher education than would otherwise have been the case.

Conclusion (2)

- Very strong relationship between birth in an affected cohort and labour market returns. For fathers, these effects are transmitted to the next generation.
- The events can be used as a 'natural experiment' to identify the private returns to higher education and the causal impact of parental education on child outcomes.
- Large, positive effect of an extra year of higher education on labour market outcomes – higher than in most studies estimating returns to schooling: may reflect differential impact of obtaining an extra year of education at a later stage

Conclusion (3)

- There is a strong causal relationship between an extra year of higher education of the father and the school performance of his child at age 15
- Results show the importance of an additional year of higher education for those on the margin of the higher education system (possibly affected by policies to reduce selectivity in the university system – e.g. expand university places)
- The revolutionaries of 1968 were very successful!