

# The Long-term Impacts on Cognitive Development of Political Movements in Chinese Cultural Revolution: 1966-1968

Zou Jian

University of Illinois

*jianzou2@illinois.edu*

April 24, 2017

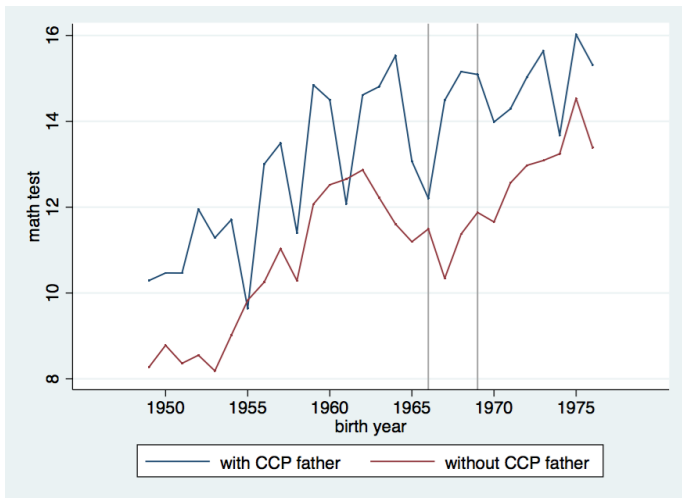
# Motivation

- ① A large number of literature have discussed the potential long-term impacts of early childhood environment. Previous studies showed that negative treatment in early childhood like infections, toxic exposures and home environment may lead to some long-term negative outcomes like health status at birth or labor market performances at adult (Currie & Almond, 2011).
- ② Although many of them have discussed about the relationship between early childhood environment and long-term cognitive development, few of them have showed their causal link due to the endogenous issues.

# Motivation

- ① A large number of literature have discussed the potential long-term impacts of early childhood environment. Previous studies showed that negative treatment in early childhood like infections, toxic exposures and home environment may lead to some long-term negative outcomes like health status at birth or labor market performances at adult (Currie & Almond, 2011).
- ② Although many of them have discussed about the relationship between early childhood environment and long-term cognitive development, few of them have showed their causal link due to the endogenous issues.

## Motivation (cont.)



# Identification Strategy

Taking political movements (1966-1968) in Chinese Cultural Revolution as a quasi-natural experiment, this study try to evaluate the long-term impacts of political movements on the cognitive development by employing difference-in-differences estimator.

# Identification Strategy

## Difference-in-differences method

- 1 The first (time) variation comes from birth cohorts. We treat those children born between 1964 to 1968 as the treatment group, which consists of cohorts that were exposed to the political movements under age 3; while treating those born between 1962 to 1964 and those after 1968 as the control group, as they were rid of the political movements.
- 2 Another variation comes from whether those children born in family with a father or mother belongs to China Communist Party (CCP). We assume that children born under a family with father belongs to CCP would be better protected in their early childhood when there were political movements, compared to those born in a family without a CCP father.

# Identification Strategy

## Difference-in-differences method

- 1 The first (time) variation comes from birth cohorts. We treat those children born between 1964 to 1968 as the treatment group, which consists of cohorts that were exposed to the political movements under age 3; while treating those born between 1962 to 1964 and those after 1968 as the control group, as they were rid of the political movements.
- 2 Another variation comes from whether those children born in family with a father or mother belongs to China Communist Party (CCP). We assume that children born under a family with father belongs to CCP would be better protected in their early childhood when there were political movements, compared to those born in a family without a CCP father.

## Political Movements: 1966-1968

- 1966: Red Guards and "Destruction the Four Olds"
- 1967: Power seizure between insurgents and local government officials
- 1968: Cleansing the Class Ranks movement
- After 1969, revolutionary committees clamed down power seizure; senior and college in urban area were send down to countryside by the Sent-Down Movement, there were few political movements in China,



## CFPS 2010

- China Family Panel Studies (CFPS)
- CFPS2010 is a nationally representative, annual longitudinal survey of Chinese communities, families and individuals launched by the Institute of Social Science Survey of Peking University
- The samples CFPS 2010 contains are 33,600, while we keep 5073 observations that are satisfied for this study.

# Data (cont.)

Table 1 Descriptive summary

	Obs.	Mean	S.D.	Min	Max
Age	5073	41.3426	4.2752	34	48
Gender	5073	0.4676	0.4990	0	1
Han	5073	0.9511	0.2157	0	1
Married	5073	0.9432	0.2314	0	1
Educ	5073	3.1547	1.2922	1	8
Math test	5070	12.8750	5.5669	0	24
Word test	5070	21.7183	8.5428	0	34
Weight at birth	1452	6.0244	1.1464	2	12
Height at birth	5051	164.4811	7.4642	140	197
Health	5072	1.6788	0.8611	1	5
Log_income	4406	9.3707	1.2667	0	13.3047
Father (Non CCP)	3815	0.7599	0.4272	0	1
Mother (Non CCP)	3891	0.9458	0.2265	0	1
Father Educ	4293	2.1700	1.2044	1	8
Separated weeks with Father (aged 0-3)	4906	4.1086	19.7515	0	144
Separated weeks with Father (aged 4-12)	4997	11.3758	53.9869	0	384

# Empirical Strategy

The basic model used in this paper is shown as follow:

$$Cognition_{ijk} = C + \beta_k + \sum_{k=1964}^{1968} \gamma_{ijk} (PC_{ijk} \times birth_{ijk}) + \delta PC_{ijk} + \lambda X_{ijk} + \varphi_j + \varepsilon_{ijk} \quad (1)$$

where  $Cognition_{ijk}$  are dependent variables indicating cognitive ability for individual  $i$ , in cohort  $k$ , in province  $j$ , which is measured by scores of word test and math test.  $C$  is the constant term and  $\beta_k$  are the cohort fixed effects.  $PC_{ijk}$  is the dummy variable showing whether individual  $i$ , in cohort  $k$ , in province  $j$ , were born in family with one of parents belongs to Chinese Communist Party.  $PC_{ijk} \times birth_{ijk}$  is the interaction term, which is the keep part of causal inference in this study.  $X_{ijk}$  are control variables capturing individual's characteristics affecting personal cognitive ability, which includes gender, ethnic, marriage status and education attainment.  $\varphi_j$  is the province fixed effect, while  $\varepsilon_{ijk}$  is the error term.

# Main Findings

## A. Main Findings

Table 3 The long-term impacts of political movements on the cognitive development

	Math Test			Word Test		
	(1)	(2)	(3)	(4)	(5)	(6)
Father	-1.603*	-1.751*	-0.362	-2.028	-2.204	-0.870
*birth64	(-2.00)	(-2.21)	(-0.91)	(-1.64)	(-1.80)	(-0.95)
Father	0.137	0.281	-0.286	-0.306	-0.144	-1.204
*birth65	(0.17)	(0.35)	(-0.72)	(-0.25)	(-0.12)	(-1.31)
Father	1.119	1.062	-0.583	0.304	0.246	-1.407
*birth66	(1.41)	(1.36)	(-1.49)	(0.25)	(0.20)	(-1.55)
Father	-2.554**	-2.557**	-0.866*	-1.755	-1.749	0.223
*birth67	(-2.98)	(-3.02)	(-2.05)	(-1.33)	(-1.34)	(0.23)
Father	-1.713**	-1.896**	-0.474	-1.267	-1.488	0.0482
*birth68	(-2.36)	(-2.65)	(-1.32)	(-1.14)	(-1.35)	(0.06)
Father	-1.804***	-1.736***	0.0551	-2.272***	-2.179***	-0.165
	(-7.50)	(-7.30)	(0.46)	(-6.15)	(-5.95)	(-0.59)
Provin Fixed	Y	Y	Y	Y	Y	Y
Control Var	N	Y	Y	N	Y	Y
Education	N	N	Y	N	N	Y
Observations	3813	3813	3813	3813	3813	3813
Adj R-sq	0.1217	0.1438	0.7865	0.1252	0.1398	0.5159

# Placebo Test I

## Intergenerational transmission of political capital

Table 5 Discussion of intergenerational transmission of political capital

	Height	Weight	Health	Depression	Income
	(1)	(2)	(3)	(4)	(5)
Father	1.723*	-0.192	0.0131	-0.810	-0.472*
*birth64	(-2.19)	(-0.63)	(0.10)	(-1.50)	(-2.50)
Father	-0.145	0.0769	0.00285	0.145	0.118
*birth65	(-0.19)	(0.22)	(0.02)	(0.27)	(0.63)
Father	1.407	0.233	-0.148	0.727	-0.207
*birth66	(1.80)	(0.60)	(-1.12)	(1.36)	(-1.08)
Father	0.309	0.127	0.145	-0.623	-0.120
*birth67	(0.37)	(0.36)	(1.02)	(-1.08)	(-0.61)
Father	-0.527	-0.414	0.246*	-0.600	-0.232
*birth68	(-0.74)	(-1.49)	(2.04)	(-1.22)	(-1.40)
Father	-0.415	-0.0135	-0.0250	-0.105	-0.151**
	(-1.77)	(-0.15)	(-0.62)	(-0.65)	(-2.66)
Provin Fixed	Y	Y	Y	Y	Y
Control Var	Y	Y	Y	Y	Y
Education	N	N	N	N	N
Observations	3799	1092	3814	3804	3322
Adj R-sq	0.5519	0.0530	0.0359	0.0506	0.1495

# Placebo Test II

## Samples in rural China

Table 6 Placebo test: Samples in Rural China

	Math Test			Word Test		
	(1)	(2)	(3)	(4)	(5)	(6)
Father	1.197	1.287	0.937*	2.186	2.432	1.645
*birth64	(1.51)	(1.70)	(2.10)	(1.61)	(1.85)	(1.63)
Father	0.140	0.114	-0.342	0.573	0.547	-0.0809
*birth65	(0.18)	(0.16)	(-0.79)	(0.43)	(0.43)	(-0.08)
Father	0.471	0.726	-0.242	1.517	1.910	0.566
*birth66	(0.61)	(0.98)	(0.55)	(1.14)	(1.49)	(0.57)
Father	-0.573	-0.658	0.487	-0.0138	-0.143	0.883
*birth67	(-0.67)	(-0.80)	(1.00)	(-0.01)	(-0.10)	(0.80)
Father	0.0156	-0.412	0.319	0.340	-0.297	0.403
*birth68	(0.02)	(-0.56)	(0.74)	(0.25)	(-0.23)	(0.40)
Father	-1.328***	-1.254***	-0.331*	-2.090***	1.972***	-0.707*
	(-5.18)	(-5.11)	(-2.28)	(-4.74)	(-4.65)	(-2.15)
Provin Fixed	Y	Y	Y	Y	Y	Y
Control Var	N	Y	Y	N	Y	Y
Education	N	N	Y	N	N	Y
Observations	5072	5072	5072	5072	5072	5072
Adj R-sq	0.0915	0.1711	0.7117	0.1272	0.1929	0.5185

# Mechanism I

## Parental care in the early childhood

Table 7 The separated time of father with their child at the early childhood.

	Separated weeks with father (aged 0-3)	Separated weeks with father (aged 4-12)
	(1)	(2)
Father	3.264	8.529
*birth64	(1.02)	(1.04)
Father	0.897	-2.335
*birth65	(0.29)	(-0.29)
Father	1.328	11.42
*birth66	(0.43)	(1.44)
Father	-9.583**	-11.70
*birth67	(-2.89)	(1.37)
Father	-6.726*	1.303
*birth68	(-2.35)	(0.18)
Father	-2.460*	-2.751
	(-2.56)	(-1.12)
Provin Fixed	Y	Y
Control Var	Y	Y
Father Education	Y	Y
Separated Time (aged 4-12)	N	Y
Observations	3679	3756
Adj R-sq	0.0405	0.0068

## Mechanism II

### **child witnessing violence generated by political movements**

- Several research in psychology suggest that child witnessing domestic violence in the early childhood will lead to negative outcomes in many indicators including cognitive ability (Kitzman et al., 2003; Holt & Whelan, 2008).
- We put forward one possible channel of those cognitive differences is due to the child witnesses to violence generated by political movements in their early childhood.
- However, we can not provide empirical evidence in this study due to the lack of related data.



## Conclusion

- Taking political movements in Chinese Cultural Revolution as a quasi-natural experiment, this study employs difference-in-differences estimator to evaluate the long-term impacts of political movements on the cognitive development.
- Using 5073 observations in urban China from China Family Panel Studies 2010, we find that children born in family without father belong to Chinese Communist Party would have a worse performance in mathematical skills test, 2.557 lower for who born in 1967 and 1.896 lower for who born in 1968. After controlling the education attainment, we still can observe 0.866 lower for those born in 1967. However, we do not find any significant impacts on verbal skills test.

## Conclusion (cont.)

- After verifying the assumption of difference-in-differences method, we conduct two placebo tests. While one placebo test is to get rid of intergenerational transmission of political capital, another uses samples from rural area where there were few political movements.
- Further, our findings suggest that worse cognitive development can not be explained by the lack of parent care in the early childhood. Therefore, we suppose that one possible channel of those cognitive differences is the child witnesses to violence generated by political movements.

## Works Cited

- 1 Currie, J., & Almond, D. (2011). Human capital development before age five. *Handbook of labor economics*, 4, 1315-1486.
- 2 Kitzmann, K. M., Gaylord, N. K., Holt, A. R., & Kenny, E. D. (2003). Child Witnesses to Domestic Violence: A Meta-Analytic Review. *Journal of Consulting and Clinical Psychology*, 71(2), 339-352.
- 3 Kitzmann, K. M., Gaylord, N. K., Holt, A. R., & Kenny, E. D. (2003). Child Witnesses to Domestic Violence: A Meta-Analytic Review. *Journal of Consulting and Clinical Psychology*, 71(2), 339-352.

# Q&A

