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# Education and Social Trust in Transitional China

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*It is commonly held that education generates higher trust in others. In this article we consider how education might affect trust in transitional China where sociopolitical risks are widespread. We adopt an instrumental variable approach utilizing China's two educational reforms—the Compulsory Education Law (1986) and the University Enrollment Expansion (1999)—as IVs. Analyzing data from the Chinese Family Panel Studies, we show a causal negative effect of education on trust in China. We also show education and risk awareness interact to shape trust: the negative effect of risk awareness on trust is stronger among the better educated. Taken together, the findings not only contribute to a recent debate on whether modernization has an erosive impact on social cohesion in China, but they also shed light on how education might affect trust differently across sociopolitical contexts.*

## Introduction

In China, the idiom *jian si bu jiu* (watch others dying without offering any help) is broadly used to describe a scenario in which someone is unwilling to help others in urgent need. Sadly, incident of *jian si bu jiu* has literally and frequently happened in China in recent years (see, e.g., Yan 2009; Huang 2016). In fact, the *New York Times* alone has reported such incidents several times including titles, for example, *Bystanders' Neglect of*

*Injured Toddler Sets Off Soul-Searching on Web Sites in China* (Wines 2011), *Soul-Searching in China After Subway Passengers Flee Fainting Foreigner* (Feng 2014), *A Man's Death Strikes a Nerve in China* (Yu, 2015), and *In China, Video of Deadly Accident Reignites Debate Over Lack of Trust* (Johnson 2017). Why are people in China not willing to offer help to others on the verge of death?

Many argue that the answer has more to do with trust than with humanity (e.g., Johnson 2017; Hanser and Li 2015; Yan 2009). In particular, people in China have become wary of helping others largely due to the recent rise of incidents in which good Samaritans were blackmailed by the very person being helped and were further penalized by the local judge (Yan 2009; Young 2013). One of the landmark cases is the 2006 Peng Yu incident that took place in the city of Nanjing. A 65-year-old woman, Xu Shoulan, fell and broke her femur while coming off the bus. Peng Yu, a 26-year-old man, assisted her with good intentions by sending her to a local hospital for medical care. Xu later claimed it was Peng who caused her injuries and sued him for injury compensation. The local judge held Peng liable and financially responsible for her injury without concrete evidence, reasoning that “no one would in good conscience help someone unless they felt guiltily” (see Young 2013, 693). Since then, there have been numerous incidents where people purport to be victims of an injury to extract compensation and the courts fail to uphold justice for good Samaritans (for a collection of twenty-six cases, see Yan 2009). The frequency in exposure to media reports on such incidents has made Chinese more aware of not only the social risk of being framed but also the institutional risk of being unprotected from civil liability (Yong 2013). Consequently, people in China have become more sensitive and self-protective, and they have also become reluctant to trust and help those they do not personally know (Huang 2016; Tao et al. 2014; Johnson 2017; Hanser 2010; Hanser and Li 2015; Huang 2016).

Education is likely to raise people's awareness of such social and institutional risks. Does this mean education could only worsen the situation? This in fact is at the core of a broader debate about how China's rapid modernization including increased education attainment might affect people's trust in each other. On one hand, scholars have pointed out that the rapid process of modernization has brought China with widespread social disorder including extortions of good Samaritans, official corruption, financial scams, faulty goods, and deceptive business transactions, and therefore it is responsible for the crisis of trust in China (Dai and Elsner 2015; Yan 2009, 2012; Huang 2016; Tao et al. 2014). On the other hand, some argue that the rapid socioeconomic modernization has increased people's economic status and economic security, diversified their social connections, broadened their general outlook, and enhanced their confidence in political institutions, which thereby has generated a positive

impact on social trust (Steinhardt and Delhey 2019; Tang, Zhou, and Yang 2016).

Engaging in this debate, here we ask: how does education affect people's trust in others in China? Current literature widely suggests that education has a positive effect on trust (Borgonovi 2012; Borgonovi and Burns 2015; Helliwell and Putnam 2007; Hooghe, Marien, and de Vroome 2012; Milligan, Moretti, and Oreopoulos 2004; Sturgis, Read, and Allum 2010; Zanin 2017). We challenge this commonly held assumption and argue that how education affects trust might depend on the larger sociopolitical context. This is because education could affect trust through two counterbalancing processes. On one hand, education could increase people's capability of taking on more risk thereby generating a positive impact. On the other hand, education could also teach people to be more cautious in interacting with anonymous others leading to a negative effect. Accordingly, the counterbalanced effect of education on trust could vary across sociopolitical settings. In transitional China where sociopolitical risks are widespread education is likely to lower people's trust in others. The main goal of the current research is to test this argument.

Considering both the confounding effects (see also Hooghe, Marien, and de Vroome 2012; Sturgis, Read, and Allum 2010) as well as the direction of the association between education and trust (see also Bjørnskov and Méon 2013; Oskarsson et al. 2017), we adopt an instrumental variable (IV) approach. We make use of China's two educational reforms, namely, *the Compulsory Education Law (1986)* and *the University Enrollment Expansion (1999)* as IVs. Our analyses of the data from the 2014 Chinese Family Panel Studies show that (1) education has a causal negative effect on trust and that (2) education and risk awareness interact to shape trust: the negative effect of risk awareness on trust is stronger among the better educated.

Ultimately, this study makes several important contributions. First, the erosion of people's trust in each other has become a widely discussed topic in today's China. This is among the first rigorous quantitative study that addresses how education might lower people's trust further in high-risk China. Second, it provides a way to judicate a recent debate about whether modernization increases or decreases social cohesion in China (see also, e.g., Dai and Elsner 2015; Steinhardt and Delhey 2019). Improvement in education is one essential aspect of modernization (Inglehart 1997). Our finding that education teaches people to be more careful in dealing with others and not to trust suggests that the rapid modernization might explain the ongoing crisis of trust in transitional China. Third, this research also challenges the commonly held assumption that the effect of education on trust is universally positive. In line with more recent cross-national studies (see, e.g., Charron and Rothstein 2016; Frederiksen, Larsen, and Lolle

2016; Wu 2019), we show that education might affect trust very differently across institutional contexts. In high-risk societies, education could lower people's trust in others.

### **Trust and the Role of Education**

When people trust in each other, they tend to have an expectation of “goodwill and benign intent” from others (Yamagishi and Yamagishi 1994, 131; Yamagishi 2011). Trust explains a wide range of social phenomena. Trusting individuals are richer, happier, healthier, more satisfied with their life, and live longer (Lin 2002; Kawachi and Berkman 2000; Veenstra 2002; Giordano, Mewes, and Miething 2019; Helliwell and Akinin 2018). Trusting societies often have higher economic growth, higher social integration, better governance, and are also more equal and less violent (Luhmann 1979; Fukuyama 1995; Putnam 2001; Warren 1999; Algan and Cahuc 2010; Uslaner 2018).

What predicts trust? One of important predictors, or some say, “the most important predictor” (Helliwell and Putnam 2007, 1), is education (see also Huang, Van den Brink, and Groot 2009; Hooghe, Marien, and de Vroome 2012). Currently, the weight of a large volume of evidence indicates that more highly educated individuals are more trusting than those with less education (e.g., Borgonovi 2012; Borgonovi and Burns 2015; Huang, van den Brink, and Groot 2011; Milligan, Moretti, and Oreopoulos 2004; Sturgis, Read, and Allum 2010; Zanin 2017). Explaining the positive effect of education on trust, scholars have highlighted the fact that education often improves people's powerfulness and therefore a higher capability of taking on more risks (Ross, Mirowsky, and Pribesh 2001; Wu and Wilkes 2016). Individuals trust more when they have more resources and when they can better avoid or manage the risk and threat in their everyday life (Ross, Mirowsky, and Pribesh 2001; Wu and Wilkes 2016). The powerfulness includes not only socioeconomic positions, success, and wellbeing, but also the ability to access information for decision making and to better control the social exchange and interaction in an uncertain environment (Hooghe, Marien, and de Vroome 2012; Frederiksen, Larsen, and Lolle 2016). In this sense, better educated people can trust more not only because they are often at a higher socioeconomic status and are more resourceful and powerful to take on risks, but also because they are more capable of handling the situations should the trust relationship falter (Nunkoo and Ramkissoon 2012; Cook et al. 2005).

More recently, however, cross-national studies have shown that the effect of education on trust could vary systematically from one society to another (e.g., Borgonovi 2012; Charron and Rothstein 2016; Frederiksen, Larsen, and Lolle 2016; Wu 2019). Analyzing survey data from 85,000

individuals across twenty-four European countries, Charron and Rothstein's (2016) find that in countries where the institutional setting is "impartial and noncorrupt," the effect is positive, whereas in societies with greater levels of corruption and favoritism toward certain people the effect is negligible or even becomes negative. Similarly, Frederiksen, Larsen, and Lolle (2016) find that while education has a positive impact on trust in low-corruption countries, it decreases trust in high-corruption ones such as Serbia, Turkey, Hungary, Slovakia, Bulgaria, Croatia, Kosovo, and Ukraine. As these studies illustrate, education could generate differential impacts on trust across sociopolitical contexts.

In fact, trust involves not only people's capability of taking on risk but also their perception of the level of risk and uncertainty of the sociopolitical environment (Luhmann 1979; Rothstein and Stolle 2002; Wilkes and Wu 2018). Education will teach people to trust in low risk and well-functioning societies where trust is rewarding. However, in a high-risk environment, education is likely to teach people to be more aware of social and institutional risks and therefore not to trust. The overall effect of education is a result of the counterbalancing between these two processes. Hence, cross-nationally, education is likely to generate diverse effects in response to the level of risk and uncertainty of each social and institutional setting. In particular, the counterbalanced effect can be negative in a socially unstable and institutionally weak society. In fact, the negative effect of education on trust has been documented in high risk societies such as Serbia, Turkey, Hungary, Slovakia, Bulgaria, Croatia, Kosovo, and Ukraine (Charron and Rothstein 2016; Frederiksen, Larsen, and Lolle 2016).

### **Education and Trust in Transitional China**

China is a high-risk society. Over the last 30–40 years, China has been undergoing a social transformation "whose scope, rapidity, and significance in impact are unprecedented in human history" (Xie 2011, 14). Unfortunately, the rapid social transformation has also made contemporary Chinese society highly unstable. Today, risks, uncertainties, and dangers are in every aspect of people's daily life (Yan 2010, 707; see also Hanser 2010; Hanser and Li 2015; Yan 2012).

The prevalence of risks as well as the widely perceived incapability of the Chinese government in effectively addressing these social and political risks have produced "a crisis of trust" (Hanser 2010; Hanser and Li 2015; Huang 2016; Yan 2009, 2012). For example, in a recent study, Dai and Elsner (2015) have argued that incidents such as *the melamine-milk scandal* in 2008 (a food safety incident that caused the deaths of six infants and more than 800 babies being hospitalized) and the like have severely

affected people's trust in each other. Consequently, there has been a decline in trust over recent years (Dai and Elsner 2015). The decline of trust has also been documented by national and international surveys. For example, analyzing data from the World Values Survey, Hu (2015) shows a decline in trust between 1990 and 2007 in China. The Chinese General Social Survey (CGSS) reports a similar decline trend: whereas about 73 percent said most people can be trusted in 2003, this number went down to about 52 percent in 2013.

How does education affect trust in China? Despite the growing inequality, there is no doubt that, overall, increased educational attainment during China's rapid modernization has improved people's socioeconomic status (Wu and Xie 2003; Fu and Ren 2010; Wu 2010). Education's positive impact on people's powerfulness is likely to further generate a positive impact on people's trust in each other (Steinhardt and Delhey 2019; Tang 2016). However, due to the widespread social disorder, risks, and uncertainties during the modernization process, education in China could also teach people to be more careful in dealing with others and not to trust. In fact, several existing studies have reported that the effect of education on trust in China is negligible or negative (e.g., Huhe 2014; Steinhardt 2012; Zhou and Hu 2013; Steinhardt and Delhey 2019). For example, using data from the Asian Barometer Survey, Steinhardt (2012) shows that while education increases people's trust in both Hong Kong and Taiwan, it has virtually no impact or slightly negative impact on trust in mainland China. Similarly, Tao et al. (2014) report that people at a higher power position in China including the better educated, the rich, and the Chinese Communist Party members tend to have lower levels of trust. Therefore, the overall effect of education on trust in China is likely a counterbalanced result between the pathway of education increasing higher powerfulness and the pathway of education leading to higher risk perception.

Here we aim to take a closer look at the association between educational attainment and social trust in China. We seek to advance current knowledge in three important ways. First, we focus specifically on the effect of education on trust, whereas in previous studies education is simply considered as a control variable. In fact, this will be the first rigorous quantitative study addressing the effect of education on social trust in China.

Second, we adopt an IV approach to the education and trust association. We make use of China's two recent educational reforms—the *Compulsory Education Law (1986)* and the *University Enrollment Expansion (1999)*—as our IVs. We do this for two major reasons. First, education is likely to confound with many other factors that relate to people's educational attainment as well as to their trust (Hooghe, Marien, and de Vroome 2012; Sturgis, Read, and Allum 2010; see also Huang, van den Brink, and Groot 2011; Li, Savage and Warde 2008). Second, it is far

from clear whether the association comes from the effect of education on trust, or from the effect of trust on education (e.g., Bjørnskov and Méon 2013; see also Oskarsson et al. 2017). It is highly possible that trust effects education. According to Coleman (1994), for example, trusting people are more likely to achieve higher levels of educational attainment because they are more likely to receive help and support in schools from their classmates and teachers. The IV approach allows us to deal with the potential problem of endogeneity and to detect the causal direction.

Third, we will also discuss the specific process underlying the negative effect of education on people's trust. People learn to trust early on from socialization (Uslaner 2007; Wu 2019). Since education is one essential mechanism of socialization, the effect of education might come mainly from the educational socialization such as what is being taught in schools and the popular values held among classmates and teachers. In particular, we highlight the role of risk awareness. We argue that education is likely to teach people to be more careful in dealing with others in high-risk China. People's higher awareness of sociopolitical risks from their educational socialization in schools could create a negative impact on their willingness to trust in others.

### Analytical Strategy

Following Borgonovi's (2012) study, we construct our baseline model of the educational effect on trust as follows:

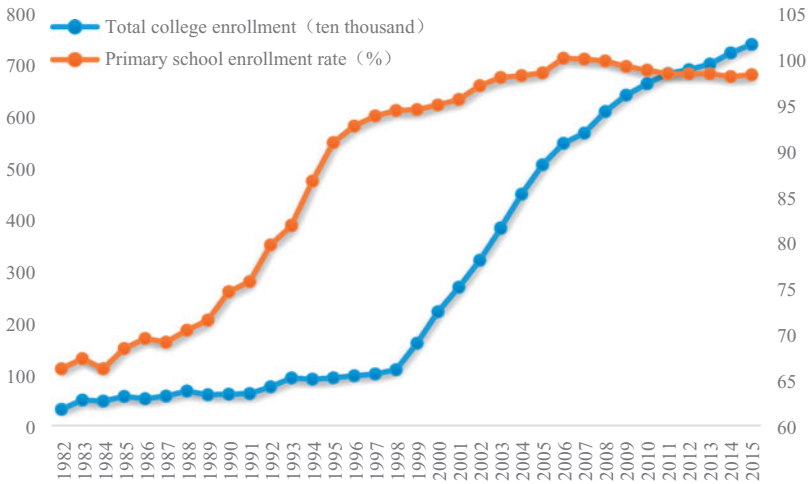
$$\text{TRUST}_i = \alpha_0 + \alpha_1 \text{EDUY}_i + \alpha_2 \text{CT}_i + \mu_i \quad (1)$$

In Equation (1),  $\text{TRUST}_i$  denotes respondent  $i$ 's trust status (1 = yes, 0 = no),  $\text{EDUY}_i$  indicates the independent variable in focus— $i$ 's education level in years.  $\text{CT}_i$  denotes a list of control variables including demographic variables, life satisfaction, and family backgrounds, and  $\mu_i$  captures the random errors.

However, in this baseline model, education is likely to confound with many other factors that relate to respondents' educational attainment as well as to their trust, and the direction of the effect is also unclear. To deal with these potential problems, we make use of China's two educational reforms as our IVs (see also Fant et al. 2012; Li et al. 2017). First, in 1986 the Chinese government passed a 9-year "Compulsory Education Law of the People's Republic of China," making nine years of education mandatory for all Chinese children. The law has a huge impact on overall education improvement in China. For example, before the 1980s, the general education level was only five years, but during the 2000s the general education level in years reached eight years (see Figure 1). Second, in 1999 the Chinese government also started its radical expansion of college



Figure 1. The improvement of education levels in China, 1982–2014.



Data source: Ministry of Education of the People’s Republic of China

enrollment. The number of students admitted to college in 1999 (about 1.60 million) was 50 percent more than in 1998 (about 1.08 million). By 2005 the total number of new college students was about 4.7 times that of 1998 (Li, Whalley, and Xing 2014). These numbers illustrate that both educational reforms have led to a significant improvement in education among the Chinese population. These educational policies were not expected to have a direct impact on people’s trust, and therefore they can be used as IVs to study the education and trust relationship.

Figure 1 plots out the improvement in education among the general public from 1982 to 2014 (see also Wu 2017). As we can see, while before 1986 the primary school enrollment rate was only about 65 percent, this number went up to 95 percent after about ten years in 1996. Today, almost 100 percent of children can receive primary school education. Similarly, before 1998, the total college enrollment was less than one million, and this number doubled almost every other year since then. Today, more than seven million high school graduates are accepted into universities every year.

To construct our first IV, we specifically choose respondents whose birthday was between September 1, 1964 and August 30, 1999. We do this for several reasons. First, people who were born before 1969 were not really affected by the law since they were already 16 years old in 1985 when the Compulsory Education Law was first enacted in some provinces. Chinese who were born before 1963 were also removed because they were largely affected by *The Three Years of Great Chinese Famine* between 1959 and 1961. These three bitter years had not only led to millions of deaths,

but also created a distinctive group of population that might bias our analysis. Respondents who were born after 1999, were less than 15 years old in 2014, and therefore were also removed.

Adding China's two educational reforms, the Compulsory Education Law enacted in 1986 and the University Enrollment Expansion in 1999, as IVs, we modify Equation (1) as follows where we adopt a two-stage least squares (2SLS) regression analysis:

$$EDUY_{it} = \beta_0 + \beta_1 Nyce_{it} + \beta_2 UE_{it} + \beta_3 CT_{it} + \varepsilon_{it} \quad (2)$$

$$TRUST_{it} = \gamma_0 + \gamma_1 EDUY_{it} + \gamma_2 CT_{it} + \varphi_{it} \quad (3)$$

Equation (2) is the first stage model of the effects of IVs on education, where  $Nyce_{it}$  captures the effect of China's Compulsory Education Law on education, while  $UE_{it}$  captures the effect of China's University Enrollment Expansion on college level education among the general public.  $\beta_3 CT_{it}$  indicates a series of controls. With including the estimates of the education changes from the Equation (2), Equation (3) estimates the second stage of the effect of education on trust.

Although the law was enacted by the state in 1986, it was implemented at various periods of time from 1985 to 1992 across provinces. For example, more developed coastal Zhejiang province and Shanghai city piloted this education reform in 1985 to pave the way for national legislation. They were then followed by Beijing, Jiangxi, Sichuan, and Liaoning provinces in 1986. However, in provinces such as Hainan, Ningxia, and Tibet, the law was not implemented until 1992. Accordingly, to create an appropriate IV, we consider the specific year in which the law was enacted for each province. This in fact makes China's Compulsory Education Law a great IV since it allows more regional variance. Individually, we use the following formula to capture how the law might affect respondents' education:

$$Nyce_{it} = \begin{cases} 0 & \text{if } pb_i - bt_i \geq 16 \\ \frac{15 - (pb_i - t)}{9} & \text{if } 7 \leq pb_i - bt_i \leq 15 \\ 1 & \text{if } pb_i - bt_i \leq 6 \end{cases} \quad (4)$$

In the Equation (4),  $Nyce_{it}$  indicates the effect of the Compulsory Education Law on respondent  $i$ 's education. Overall there are three scenarios regarding effect of the policy on people's education. First, if the law was enacted in the year  $pb_i$ , and the age of the respondents were already 16, their educational attainment would not be affected by the law. Accordingly, the control cohort of all individuals is specified as:  $Nyce_{it} = 0$  if  $pb_i - bt_i \geq 16$ . Second, if in the year when the law was enacted, respondents ages 6 or under, this group would be affected by the law through the year of primary school as well as junior high school.

These individuals are our treatment cohort:  $Ny_{ce_{it}} = 1$ , if  $pb_i - bt_i \leq 6$ . Third, there were also subjects who were in the school already when the law was enacted, and for those individuals the law has only a partial impact on respondents' education. The older they were, the less influence they received. Accordingly, we define the in-between cohort of individuals as:  $Ny_{ce_{it}} = \frac{15-(pb_i-bt_i)}{9}$ , if  $pb_i - bt_i \leq 6$ . Table 1 shows the provincial differences in the effect of the Compulsory Education Law on individuals' education.

We construct our second IV University Enrollment Expansion using the following formula:

$$UE_i = \begin{cases} 0 & \text{if } ut_i - bt_i \geq 18 \\ 1 & \text{if } ut_i - bt_i < 18 \end{cases} \quad (5)$$

In the Equation (5),  $UE_i$  indicates the effect of University Enrollment Expansion on  $i$ 's probability of receiving the university education. If respondents were age 18 or older in 1999 when the radical University Enrollment Expansion was implemented, they would not be affected by the policy since the majority go to a university at age 18. We therefore define our control cohort as  $UE_i = 0$  if  $ut_i - bt_i \geq 18$ . However, if respondents were younger than 18 years old, this means the policy had affected them, and we indicate the treatment cohort as  $UE_i = 1$ , if  $ut_i - bt_i < 18$ .

### Data

The data for this study comes from the Chinese Family Panel Studies (CFPS). Covering twenty-five provinces and autonomous regions across China, the CFPS is a household survey designed to collect longitudinal information on various topics including economic activities, education outcomes, social relationships, migration, and health among Chinese individuals, families, and communities every two years since 2010 (Xie and Hu 2014). In this study, we use the most recent 2014 survey only. Deleting likewise if there is any missing data on all key variables in analysis yields a total sample of 14,680 individuals across twenty-five provinces.

### Measures

To measure trust, we use two survey items in the CFPS: (1) "whether most people can be trusted, or you cannot be too careful in dealing with people," and (2) "whether most people are willing to help, or most people are selfish." Despite methodological concerns (e.g., Reeskens and Hooghe 2008; Sturgis and Smith 2010), trust scholars largely agree that these items are appropriate and valid measure of trust (Uslaner 2015; Delhey, Newton

Table 1  
**Provincial Differences in the Effect of the Compulsory Education Law on Individuals' Education**

Enacted year	Province (CFPS, 2014)	Noneffect Group = 0 $t \leq pb_j - 16$	Full Effect = 1 $t \geq pb_j - 6$	Partial Effect = $\frac{15 - (pb_j - t)}{9}$ $t \geq pb_j - 15$ $t \leq pb_j - 7$
1985	Shanghai 31, Zhejiang 33	$t \leq 1969.9.1$	$t \geq 1979.9.1$	$1970.9.1 - 1978.9.1$
1986	Beijing 11, Jiangxi 36, Liaoning 21, Hebei13, Shanxi 14, Heilongjiang 23, Chongqing 50, Sichuan 51	$t \leq 1970.9.1$	$t \geq 1980.9.1$	$1971.9.1 - 1979.9.1$
1987	Tianjing 12, Jiangsu 32, Jilin22, Shandong 37, Anhui34, Henan 41, Shanxi 61, Hubei 42, Guangdong 44, Yunnan 53	$t \leq 1971.9.1$	$t \geq 1981.9.1$	$1972.9.1 - 1980.9.1$
1988	Fujian 35, Guizhou52, Xingjian 65	$t \leq 1972.9.1$	$t \geq 1982.9.1$	$1973.9.1 - 1981.9.1$
1989	Neimenggu15, Qinghai 63	$t \leq 1973.9.1$	$t \geq 1983.9.1$	$1974.9.1 - 1982.9.1$
1991	Gansu 62, Hunan 43, Jiangxi 45	$t \leq 1975.9.1$	$t \geq 1985.9.1$	$1976.9.1 - 1984.9.1$
1992	Hainan 46	$t \leq 1976.9.1$	$t \geq 1986.9.1$	$1977.9.1 - 1985.9.1$
1993	Ningxia 64	$t \leq 1977.9.1$	$t \geq 1987.9.1$	$1978.9.1 - 1986.9.1$
1994	Tibet 54	$t \leq 1978.9.1$	$t \geq 1988.9.1$	$1979.9.1 - 1987.9.1$
1999	University Enrollment Expansion	$t \leq 1981.9.1$	$t > 1981.9.1$	

and Welzel 2011; Mewes 2014; Fairbrother and Martin 2013; Wilkes 2011).

Education is measured using respondents' highest degree obtained. The categories include *illiterate/semi-literate, primary school, junior high school, senior high school/secondary school, 2-or-3-year college, 4-year college/bachelor's degree, master's degree, doctoral degree*. We group university and above as one category because of the small sample size for above university education categories. Then, we recode these degrees in terms of years at school, which gives us an education variable indicating respondents' total years in schools: 1 = *illiterate/semi-literate*, 6 = *primary school*, 9 = *junior high school*, 12 = *senior high school*, 15 = *2-or-3-year college*, and 16 = *4-year college/bachelor's degree, master's degree, doctoral degree*.

To measure respondents' awareness of social risks, we use survey questions in the CFPS that ask respondents to rate the severity of a series of social problems including government corruption, environmental problem, the inequality between the rich and the poor, employment problem, educational problem, medical service problem, housing problem, as well as social security problem. For example, for the government problem, the following question is asked: "How would you rate the severity of the government corruption in China?" and respondents indicate their score from 0 to 10, corresponding to not severe and extremely severe, respectively. Furthermore, we use a list of questions to capture respondents' perceptions of unfair treatment. For example, their perception of social inequality between the rich and the poor, perception of unfair treatment because of *hukou* status, of gender discrimination, as well as perception of social conflicts with the government. These questions are all coded as 1 (experienced unfair treatment) and 0 (did not).

We include controls for gender (1 = male, 0 = female), marital status (1 = married, 0 = never married, and 2 = other: widowed or divorced), religion (1 = religious, 0 = no religion), parents' education, and total personal income in constant RMB ranging from 0 to 444,000. All equations are estimated with robust standard errors and respondents are clustered by both province and year of birth cohort to control the random intercepts at the macro level.

## Results

### *The Effect of Education on Trust*

Table 2 reports the results from the traditional probit regression models estimating the effect of education on trust. Overall, it shows that education has a positive effect on trust regardless how trust is measured. Specifically, an increase in education leads to a significant

Table 2

**Probit Regression Estimating the Effect of Education on Trust (CFPS, 2014)**

	(1) Most people can be trusted		(2) Most people are willing to help	
Education	0.050*** (0.003)	0.050*** (0.003)	0.015*** (0.003)	0.015*** (0.003)
Female		0.039 -0.021		-0.034 -0.022
Marital status (single =0)				
Married		-0.130*** (0.032)		-0.101** (0.034)
Divorced/widowed		-0.150* (0.076)		-0.194* (0.078)
No religion		-0.071** (0.025)		-0.064* (0.026)
Urban		0.0004 (0.024)		-0.014 (0.024)
Income (ten thousand)		-0.006 (0.005)		-0.003 (0.005)
Father's education		0.004 (0.003)		0.001 (0.003)
Mother's education		-0.007 (0.003)		-0.001 (0.004)
Birth year cohort control	Y	Y	Y	Y
Provincial difference	Y	Y	Y	Y
Constant	-0.218*** (0.056)	-0.233*** (0.062)	0.454*** (0.058)	0.467*** (0.064)
<i>N</i>	14,848	14,848	14,832	14,832
<i>Pseudo R</i> <sup>2</sup>	0.024	0.026	0.005	0.006

Standard errors in parentheses, \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

increase in the probability of people perceiving *most people can be trusted* and in the probability of people perceiving *most people are willing to help*. The results change very little when demographic controls such as gender, age, urban, and controlling for parental education and regional difference are included.

However, without considering the problem of endogeneity the positive effect does not necessarily indicate a causal effect. Hence, our discussion

of the substantive findings relies on the regression results from the following 2SLS models.

Table 3 presents the estimations from the IV approach (2SLS models). The use of IV ensures us that the direction of the effect is from education to trust, and it also allows us to control the confounding effects from factors such as family background, genetic transmission, and intelligence. The table reports the first stage coefficients of IVs on education, the second stage coefficients on trust, and the average marginal effects of education on trust.

The positive and significant coefficients of both IVs in the first stage confirm that Compulsory Education Law and University Enrollment Expansion have significantly increased people's educational attainment in China.

In the second stage, in contrast to the effect shown in Tables 2 and 3 shows that the effect of education on trust becomes negative in both Model 1 (*whether most people can be trusted*) and Model 2 (*whether most people are willing to help*). The marginal effects show that, one-unit change in respondent's education leads to a decrease in the predicted probability of perceiving *most people can be trusted* by 0.026 in Model 1 and a decrease in the predicted probability of perceiving *most people are willing to help* by 0.028 in Model 2.

The significant  $F$ -values and the Wald tests lend support to the validity of our model specifications. The Wald test of the exogeneity of the instrumented variables ( $p = 0.000$ ) informs us to reject the null hypothesis of no endogeneity. Moreover, the nonsignificant  $p$ -values of the test of over-identifying restrictions at the end of the Table 4 further justify the suitability of using both instruments.

Table 4 compares the probit and IVprobit estimations of the effect of education on trust across different levels of education. Specifically, it estimates how the change in education leads to the change in trust between two different models. While the probit models show the change in education leads to a positive change in trust, the IVprobit models show the opposite pattern that an increase in education leads to a decrease in trust.

Furthermore, Table 4 also shows two different patterns of the size effect between the probit and the IVprobit regressions. Whereas in probit models, the biggest size of the effect occurs at the university level of education, it happens at the junior high school level in IVprobit models. It is possible that, in probit models, the effect of education confounds with many other factors. In China, family background, social and institutional factors play bigger roles in shaping people's attending university education than their attending high schools (Wu 2011; 2017). Thus, strong confounding effects should be expected in between university and nonuniversity education. However, under the IV approach, these confounding factors are controlled. Because people learn to trust from early in life through

Table 3

## Instrumental Variable Estimations for Effect of Education on Trust

	(1) Most people can be trusted (IVprobit)			(2) Most people are willing to help (IVprobit)		
	First stage coefficient on instrument	Second stage coefficient on trust	Marginal effects	First stage coefficient on instrument	Second stage coefficient on trust	Marginal effects
Education		-0.068*** (0.017)	-0.026*** (0.006)		-0.080*** (0.018)	-0.028*** (0.006)
Compulsory Education Law	2.978*** (0.187)			3.003*** (0.186)		
University Enrollment Expansion	0.586*** (0.120)			0.551*** (0.124)		
Female	0.340*** (0.057)	0.079*** (0.021)		0.334*** (0.057)	0.003 (0.023)	
Marital status (Single = 0)						
Married	-1.311*** (0.094)	-0.198*** (0.033)		-1.311*** (0.094)	-0.161*** (0.034)	
Divorced/windowed	-1.770*** (0.219)	-0.266*** (0.078)		-1.768*** (0.219)	-0.290*** (0.079)	
No religion	-0.299*** (0.067)	-0.095*** (0.025)		-0.294*** (0.067)	-0.085*** (0.025)	
Urban	1.588*** (0.062)	0.180*** (0.034)		1.591*** (0.062)	0.135*** (0.037)	

(continued)



Table 3 Continued

	(1) Most people can be trusted (IVprobit)		(2) Most people are willing to help (IVprobit)			
	First stage coefficient on instrument	Second stage coefficient on trust	Marginal effects	First stage coefficient on instrument	Second stage coefficient on trust	Marginal effects
Income (ten thousand)	0.277*** (0.016)	0.030*** (0.007)		0.278*** (0.016)	0.026*** (0.007)	
Father's education	0.191*** (0.008)	0.026*** (0.004)		0.192*** (0.008)	0.020*** (0.005)	
Mother's education	0.169*** (0.009)	0.014** (0.004)		0.168*** (0.009)	0.015*** (0.005)	
Birth year cohort control	Y	Y		Y	Y	
Provincial difference	Y	Y		Y	Y	
Constant	1.250*** (0.377)	0.710*** (0.147)		1.284*** (0.379)	1.208*** (0.148)	
N	14,848	14,848		14,832	14,832	
F	252.75***			245.54***		
Adj R <sup>2</sup>	0.379			0.379		
Waldchi <sup>2</sup>		296.13***			125.82***	
Rho		0.391***			0.323***	
Wald test of exogeneity		41.11			24.85	
		(p = 0.000)			(p = 0.000)	
Test of over-identifying restrictions		0.029			1.73	
		(p = 0.864)			(p = 0.188)	

(1) Robust standard errors in brackets \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001. (2) Marginal effects = average marginal effects with Delta-method.  
 (3) Test of over identifying was obtained from two-step method.

Table 4

### Comparing the Effect of Education Between Probit and IVprobit Estimates at Different Stages of Education

Education	Most people can be trusted					
	(1) Probit	(2) IVprobit	(3) Probit	(4) IVprobit	(5) Probit	(6) IVprobit
Junior high school (Primary school or below = 0)	0.212*** (0.027)	-2.396*** (0.691)				
Senior high school (Junior high or below = 0)			0.157*** (0.032)	-1.439*** (0.349)		
Colleges/university (Senior high or below = 0)					0.372*** (0.033)	-0.807*** (0.224)
Controls	Y	Y	Y	Y	Y	Y
N	10,400	10,400	12,568	12,568	14,848	14,848
Wald $\chi^2$	207.52***	91.23***	192.87***	159.11***	372.3***	250.74***
Wald test of exogeneity:		27.1 (0.000)		25.4 (0.000)		30.93 (0.000)

(1) Robust standard errors in brackets, (1)  $*p < 0.05$ ;  $**p < 0.01$ ;  $***p < 0.001$ . (3) IVprobit was estimated using two-step method, first stage estimates omitted. (4) All models include controls of gender, age, marital status, religion, total income, urban/rural resident, patents' education and province dummies.

socialization (Uslaner 2002; Wu 2019), the causal effect of education is a result of educational socialization occurred in high school or before. Table 4 shows that this is indeed the case that educational change during the junior high school period has the strongest marginal impact on people's trust in the 2SLS models. These differential effects not only demonstrate the importance of dealing with the problem of endogeneity in studying the effect of education, but also suggest that the mechanism of the effect of education comes from the early life socialization, for example, what being taught in the primary and junior high schools.

### *The Role of Risk Awareness*

Table 5 presents IVregress models estimating how education affects individuals' rating of the severity of a list of social problems in China including government corruption, environmental problem, housing problem, and social security problem in contemporary Chinese society. It shows that individuals with higher education are more likely to rate higher in the severity of these social problems. For example, better educated Chinese are more likely to see the fact that China has a high level of social inequality and they also are more likely to perceive the fact that ordinary Chinese are dealing with housing difficulties today. Similarly, Table 6 estimates how education affects people's perceptions of unfair treatment due to a variety of reasons. It shows that education significantly raises people's awareness of unfair treatment from the governmental departments and due to institutional barriers such as *hukou* status.

Finally, we consider how education and risk awareness might interact to affect trust. We measure risk awareness using an index created by combining individuals' rating of the severity of a list of social problems (see Table 5). Table 7 shows a list of probit regressions comparing effects of education, risk awareness, and also the interaction between these two factors. Specifically, Model (1) and Model (3) include only education and a list of controls (see also Table 2). The results show that education has an overall positive effect on trust. Model (2) and Model (4) include both education and risk awareness. The results show that the size of positive effect of education on trust becomes greater in both models compared to the effects in Model (1) and Model (3). This suggests that the positive effect of education is likely to be compressed by the negative effect of risk awareness. Model (3) and Model (6) include both education and risk awareness and the interaction term between these two variables. The results show that the size of the positive effect of education becomes even bigger and the effect of risk awareness becomes insignificant. The significant interaction effect suggests that the negative effect of risk awareness on trust is

Table 5

## Education Increases People's Awareness of Social Risks and Problems (2SLS)

	Government corruption	Environmental problem	Social inequality	Unemployment Problem	Education problem	Medical service problem	Housing problem	Social security problem
Education	0.320*** (0.039)	0.144*** (0.035)	0.176*** (0.033)	0.0883** (0.033)	0.174*** (0.038)	0.292*** (0.038)	0.336*** (0.040)	0.274*** (0.038)
Controls	Y	Y	Y	Y	Y	Y	Y	Y
N	14,695	14,820	14,812	14,768	14,793	14,818	14,792	14,758
Wald test	968.86***	1717.61***	988.68***	1547.90***	741.37***	859.75***	1298.67***	739.47***

(1) Robust standard errors in brackets \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . (2) IVprobit was estimated using two-step method, first stage estimates were omitted. (3) All models include controls of gender, age, marital status, religion, total income, urban/rural resident, parents' education and province dummies.

Table 6

**Education Raises People's Perception of Unfair Treatment Due to Various Reasons (2SLS)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Unfair treatment due to inequality between the rich and the poor	Unfair treatment due to household registration status	Unfair treatment by government officials	Conflict with government officials	Unreasonable delay and stalling at a government agency	Unreasonable charges paid to a government agency	Divorced
Education	0.065*** (0.019)	0.116*** (0.020)	0.058** (0.021)	0.054* (0.023)	0.102*** (0.019)	0.051* (0.022)	0.167*** (0.049)
Controls	Y	Y	Y	Y	Y	Y	Y
N	14,770	14,741	14,826	14,859	14,851	14,835	10,984
Wald test	481.72***	530.57***	527.90***	309.70***	471.01***	314.54***	298.86***

(1) Robust standard errors in brackets \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . (2) IVprobit was estimated using two-step method, and the first stage estimates were omitted here. (3) All models include controls of gender, age, marital status, religion, total income, urban/rural resident, parents' education and province dummies.

Table 7

## Interaction Effect of Education and Risk Awareness on Trust

	Most people can be trusted			Most people are willing to help		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Education	0.050*** (0.003)	0.052*** (0.003)	0.077*** (0.011)	0.015*** (0.003)	0.020*** (0.003)	0.045*** (0.011)
Risk awareness		-0.020** (0.006)	0.009 (0.013)		-0.055*** (0.007)	-0.026 (0.014)
Education#risk awareness			-0.004* (0.001)			-0.004* (0.001)
Male	0.047* (0.021)	0.044* (0.021)	0.043* (0.021)	-0.021 (0.021)	-0.021 (0.022)	-0.023 (0.022)
Age	0.004** (0.001)	0.004** (0.001)	0.004** (0.001)	0.003* (0.001)	0.002 (0.001)	0.002 (0.001)
Married (single = 0)	-0.134*** (0.032)	-0.127*** (0.032)	-0.129*** (0.032)	-0.097** (0.033)	-0.089** (0.033)	-0.090** (0.033)
Divorced/widowed (single = 0)	-0.180* (0.072)	-0.168* (0.074)	-0.170* (0.074)	-0.199** (0.074)	-0.184* (0.075)	-0.186* (0.076)
Urban	-0.012 (0.023)	-0.019 (0.023)	-0.018 (0.023)	-0.010 (0.024)	0.003 (0.024)	0.004 (0.024)

(continued)

Table 7 Continued

	Most people can be trusted			Most people are willing to help		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Income	-0.007 (0.005)	-0.008 (0.005)	-0.008 (0.005)	-0.004 (0.005)	-0.003 (0.005)	-0.002 (0.005)
Father's education	0.004 (0.003)	0.005 (0.003)	0.005 (0.003)	0.000 (0.003)	0.000 (0.003)	0.000 (0.003)
Mother's education	-0.005 (0.003)	-0.005 (0.003)	-0.005 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
Birth year cohort control	Y	Y	Y	Y	Y	Y
Provincial differences	Y	Y	Y	Y	Y	Y
Constant	-0.535*** (0.124)	-0.389** (0.133)	-0.591*** (0.155)	0.259* (0.128)	0.633*** (0.137)	0.435*** (0.160)
N	14,848	14,848	14,848	14,832	14,832	14,832
Pseudo R <sup>2</sup>	0.025	0.026	0.026	0.006	0.009	0.010

Standard errors in parentheses.

\* $p < 0.05$ .

\*\* $p < 0.01$ .

\*\*\* $p < 0.001$ .

stronger among the better educated Chinese than among the less educated Chinese.

Taken together, we show that education affects trust through two counterbalancing processes. On one hand, education confounds with the effects of factors such as higher levels of socioeconomic status and wellbeings thereby producing a positive effect on trust. On the other hand, education also leads to people's higher awareness of the widespread social and political risks in China and this creates a negative effect of education. We demonstrate education lowers trust in China in several ways. First, we use an IV approach and show a causal negative effect of education on trust. Second, we show that education increases people's risk awareness and their perceptions of social problems in China. The increased risk awareness from education has a negative impact on trust. This is illustrated through the increase in the size of the positive effect of education on trust after controlling the effect of risk awareness as well as through an interaction effect between education and risk awareness: the negative effect of risk awareness is more significant and stronger among the better educated.

## Conclusion

In their seminal article *Education and Social Capital*, Helliwell and Putnam (2007, 1) wrote in the opening sentence that: "Education is one of the most important predictors—usually, in fact, the most important predictor—of many forms of social engagement—from voting to chairing a local committee to hosting a dinner party to trusting other." However, focusing on "trusting other" as an outcome, empirical studies have reported mixed effects of education. Most suggest that the effect is positive (e.g., Alesina and La Ferrara 2002; Borgonovi and Burns 2015), some suggest that the effect is negligible (e.g., Oskarsson et al. 2017), while more recent cross-national studies suggest that the effect varies from positive to negative from one society to another (e.g., Borgonovi 2012; Charron and Rothstein 2016; Frederiksen, Larsen, and Lolle 2016; Wu 2019).

To explain the diverse effects of education on trust, in this research we have developed a counterbalancing model to approach the effect of education on trust. We have argued that the overall effect of education is a result of the counterbalancing between the positive effect through "education-taking on more risk-trust" and the negative effect through "education-higher risk awareness-trust." As a result, the effect could vary systematically from one society to another in response to the level of sociopolitical risk of the specific social and institutional setting (e.g., Charron and Rothstein 2016; Frederiksen, Larsen, and Lolle 2016).

Focusing on China as an interesting case, we have analyzed the survey data from the large-scale and nationally representative CFPS (2014). We



find that education lowers trust in high-risk China. Our further exploration shows that better educated Chinese have higher awareness of risk and therefore trust less. This finding in fact is also in line with previous studies that show education has a negative impact on people's trust in political institutions in China (Tao et al. 2014; Wu and Wilkes 2018a), and lower trust in political institutions leads to a lower trust in people (Tao et al. 2014; Sønderskov and Dinesen 2016). Ultimately, this study challenges the widespread assumption that education has a universally positive effect on trust (e.g., Alesina and La Ferrara 2002; Helliwell and Putnam 2007). Instead, it suggests that education has a negative impact on trust in transitional societies where risks are widely perceived and less manageable. In particular, we have built a counterbalancing model to study how education might affect trust differently in high-risk and low-risk societies. This counterbalancing approach can also be used to look at how education might affect other value orientations that are related to risk perceptions.

One limitation of this research is that the overall analysis is based on one-year data only. While we show that education has a negative impact on trust overall in contemporary China, future research needs to look into whether education always has a negative impact, or whether this negative effect only appears at certain transitional stages of China. In fact, exploring the Age-Period-Cohort effects, Hu (2015) has recently shown that trust is lower among the Chinese cohorts that experience the totalitarian Mao's Era in relative to those cohorts with formative stage falling in the Reform Era. This is to suggest, education might also have differential impacts on trust longitudinally within a country due to the changing sociopolitical context over time.

Another limitation is the measure of social trust we used in this article. Some research suggests that the commonly used trust questions *whether most people can be trusted* or *whether most people are willing to help* might not be the best measures of social trust in Chinese society. This is because people in China are more likely to interpret "most people" as in-group families, relatives, and friends (Delhey, Newton and Welzel 2011). In other words, the radius of trust is smaller in China than in Western societies (Fukuyama 1995; see also Zhou and Hu 2013). Consequently, trust level measured from these survey questions is much higher than the actual level. Nevertheless, the radius of trust is considered more an issue in comparative studies than our single-country investigation focusing on China only (Wu and Wilkes 2018b).

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