

China's Missing Children: Political Barriers to Citizenship through the Household Registration System

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Abstract

Approximately 13 million Chinese lack *hukou*, the formal household registration. This prevents them from claiming full citizenship rights, including social welfare, formal identity documents and employment in the state sector. The government blames birth planning policies for the unregistered population, but this explanation ignores the role of internal migration. Because citizenship rights are locally determined and the *hukou* system is locally managed, migrants face significant barriers to registering their children. This article systematically analyses the political determinants of the unregistered population nationwide. Based on a logit analysis of a sample of 2.5 million children from the 2000 census, I find that children born in violation of the one-child policy do have lower rates of registration and that children born to migrant mothers are four times more likely to be unregistered than registered. Continuing government focus on the effect of birth planning ignores the more fundamental institutional barriers inherent in the *hukou* system.

Keywords: unregistered population; household registration system; floating population; birth planning policy; China

China's household registration system (*hukou* 户口) is the country's fundamental citizenship institution, conferring citizenship rights to the population, more so than birth certificates or passports.¹ While obtaining a *hukou* is a "fundamental right" (*jiben quanli* 基本权利) for all Chinese citizens,² recent estimates suggest that at least 13 million people – approximately 1 per cent of the total population – live without *hukou*.³ Those without formal registration are non-citizens within their own country, as without *hukou* individuals lack legal rights to government services,

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1 Solinger 1999b; Vortherms 2015.

2 State Council 2016.

3 This 2016 figure is from National Bureau of Statistics and is based on census data as well as projected fertility to account for underreporting of births. The true population without *hukou* is likely to be larger.

including social welfare such as education and health insurance, as well as access to fundamental legal identity as legitimate citizens.⁴

Approximately 70 per cent of unregistered Chinese are under the age of ten.⁵ These “missing children” are statistically absent from government registers and are “as if” missing to the state. Official reports contend that at least 60 per cent of the unregistered population (*heihu* 黑户) are individuals born in violation of birth planning policies.⁶ The restrictions of the one-child policy formalized legal personhood: those born outside of birth planning regulations were not legal persons, allowing local government officials to deny them access to legal citizenship. Local government officials, whose promotion was dependent in part on maintaining low fertility rates, had political incentives to erect barriers to registering children born out-of-plan. Keeping them off the books reduced formally acknowledged population growth. Families, too, had an incentive to keep children unregistered, either delaying or never securing registration in order to avoid steep fines.

Underplayed by the state, however, is the role of the *hukou* system itself: the localization of citizenship rights through the *hukou* system presents significant barriers to registration for migrant families. Citizenship rights, including the right to pass one’s citizenship to one’s children, are determined by local belonging in China. Individuals can only claim rights to government services in their place of registration. A mother outside of her city of registration cannot register her children immediately in the *hukou* system and delayed registration increases administrative hurdles, creating barriers to accessing citizenship. With more than 300 million migrant workers living and working outside of their city of registration today,⁷ the localized nature of citizenship has consequences not only for accessing welfare but also for intergenerational socio-economic mobility. Because expanding a city’s population is an expansion of social welfare obligations, neither the sending nor receiving government has an incentive to register these children. This unintended consequence of economic development dramatically impacts access to citizenship rights for generations and implies a direct negative consequence of state actions rather than individual decisions and policy perversions.

This article is the first to systematically analyse the political determinants of the unregistered population nationwide during the 1980s and 1990s. Using logit models on a sample of over 2.5 million children from the 2000 census and imputed data estimating the unreported children missing from the census,

4 Greenhalgh 2003; Johnson 2016.

5 Based on data from the 1% sample of the 2000 census.

6 State Council 2016; Johnson 2016.

7 The National Bureau of Statistics estimates the rural-to-urban migrant population to be 282 million (National Bureau of Statistics 2017). The National Bureau of Statistics reports only rural-to-urban migrant numbers. According to the 2010 census, approximately 7% of the migrant population was urban-to-urban. If we assume the migrant population is proportionally stable over time, the total migrant population in 2016 would have been 303 million.

I evaluate the relative impacts of the primary official explanation of the unregistered population – birth planning policies – and a key concurrent explanation of migration and political management of the *hukou* system itself.⁸ For the children reported in the sample, I find that being born in violation of birth planning policies did decrease the probability of registration, especially for urban residents and girls born in rural areas. The significance of being born to a migrant mother is also undeniable: children of migrants were four times more likely to be unregistered than registered. Because central-level announcements of policy reforms to register the unregistered focus on birth planning determinants, these reforms are unlikely to address the fundamental institutional arrangements of the *hukou* policy itself that perpetuate barriers to citizenship.

The Household Registration System and Local Citizenship

Citizenship in China is based on *jus sanguinis* practices, where children born to Chinese parents are eligible for Chinese citizenship and are entitled to rights and services provided by the Chinese government with no birth-location based (*jus soli*) rights. This entitlement is diluted in practice, however, by the subnational provision of citizenship rights through the *hukou* system. As the ultimate record of identity, the *hukou* is the prerequisite document necessary to obtain any other form of identity, other than a birth certificate, and the possession of a *hukou* entitles citizens to government services. Additionally, local government officials view holders of local *hukou* as their citizenry and have an obligation to provide services to this population and not outsiders.⁹

China's modern *hukou* system began in 1958 as a necessary institution for the command economy in which people were registered locally as either urban or rural, based on their work unit.¹⁰ Because of local state involvement in urban work units during the Mao era, urban citizens had full access to government-provided social welfare and services such as grain rations, education, pensions, etc., while rural residents were kept out of the formal government systems.¹¹ Rural *hukou*, on the other hand, was and remains necessary for land redistribution and access to dividends from local village enterprises.¹² This variation in rights' entitlement created vastly different citizenships within China based on *hukou* status, with urban citizens gaining significantly more and better services from the government.¹³

Before economic reform, migration outside of one's registration location was strictly controlled, but after the reform and opening up, migration restrictions

8 2000 census 1% sample.

9 Interview with a central-level bureaucrat, Beijing, December 2015.

10 Built on the imperial population register, which was necessary for the *baojia* system of civil control, most current registration statuses are a remnant of the 1958 regulations. Chan, Kam Wing 2010; Chan, Kam Wing, and Buckingham 2008; Cheng and Selden 1994; Vortherms 2017.

11 Cheng and Selden 1994.

12 Greenhalgh 2003.

13 Cheng and Selden 1994; Solinger 1999b.

were removed.¹⁴ While this created greater economic opportunities for rural residents, it also created a new class of “non-locals” (*waidi ren* 外地人), who, while holding rural or urban *hukou* from another city, were denied local citizenship status in their new location. Access to all entitlements for a vast range of government services was restricted to one’s original registration location. While permanent transfers akin to naturalization were allowed,¹⁵ these opportunities were severely limited, especially throughout the 1980s and 1990s.¹⁶ The implications of the *hukou* system for labour markets, intergenerational socio-economic mobility and segregated citizenship rights are many and have been studied at great length.¹⁷

Gaining very little scholarly attention, however, are unregistered individuals. Formerly known as “black *hukou*,”¹⁸ those without registration are “marginal members of society who lack full citizenship rights, including access to schooling, jobs, housing, and a host of other state-supplied benefits.”¹⁹ A person without a *hukou* is “legally and socially a nonperson” with no formal claim to rights from any local-level government.²⁰ Children without *hukou* do not get access to government-provided immunizations or free education, while adults cannot register to marry or participate in local land redistribution. Additionally, children may suffer non-material costs, such as feelings of being unwanted or of being inferior to their peers because of their unofficial status, adding a psychological cost.²¹ Delayed registration, or registration well after birth, alleviates some of the disadvantages of this group, but even delayed registration means that infants lack access to government services such as healthcare, poverty alleviation and rural land allocation.²²

Political Barriers to Registration

According to the central government, there are eight categories of people without *hukou* (see Table 1). These explanations fall into three general categories: barriers based on birth planning, bureaucratic reasons related to paperwork barriers, and legal barriers based on the definition of citizenship in China.

The central government contends that the biggest barrier to registration is the complex birth planning policies relating to the one-child policy, with the majority

14 Chan, Kam Wing 2009; Chan, Kam Wing, and Buckingham 2008; Cheng and Selden 1994; Solinger 1999b.

15 Such as a firm sponsoring a new employee or one spouse moving to the other’s location.

16 Chan, Jenny, and Selden 2014; Chan, Kam Wing, and Buckingham 2008.

17 Most scholars focus on the floating population of rural migrant workers, who are treated as second-class citizens in their own country. See Chan, Jenny, and Selden 2014; Chan, Kam Wing, and Zhang 1999; Fan, Hall and Wall 2009; Qin, Wang and Zhuang 2014; Solinger 1999a; 1999b; Tan 2014; Wang 2005.

18 Official language in the 1980s used the phrase “black population” (*hei renkou*) or “black *hukou*” (*heihu*) to refer to people without official registration status. Currently, these populations are called *wu hukou zhe*, meaning those without *hukou*.

19 Greenhalgh 2003, 199.

20 Greenhalgh 2003; Johnson 2016.

21 Johnson 2016, 92–93.

22 Li, Shuzhuo, Zhang and Feldman 2010; Shi and Kennedy 2016.

Table 1: Categories of Unregistered Populations

Type	Category
Birth planning	1. Those born outside of birth planning policies
Bureaucratic	2. People without a birth certificate, such as those born at home
	3. Children whose parents did not complete adoption procedures
	4. Individuals who had their <i>hukou</i> cancelled after being declared missing or dead
	5. Adults whose original <i>hukou</i> was cancelled through marriage
	6. Individuals who did not formally complete a transfer to a new location
Legal	7. Children born to a foreign parent/born out of wedlock
Other	8. Other

Source:
Zheng 2016.

of the unregistered population falling into the first category. China's compulsory birth planning policies began in 1980 and varied in policy arrangement, implementation and severity of enforcement, both across time and space.²³ Children born outside of the policy are formally "non-persons" because they were born outside of the plan. This effectively created a group of people without legal existence.

Beginning in the late 1980s, below the provincial level, officials' job effectiveness was measured in part through their ability to keep fertility rates to prescribed targets.²⁴ For local officials, fertility targets carried the same weight as key economic targets in their Target Responsibility System evaluations, the system by which local leaders are evaluated annually for potential promotion.²⁵ The tightening of birth planning enforcement created significant incentives to hide out-of-plan births through underreporting or denying formal registration status, not only for families facing financial sanctions but also for officials.²⁶ Owing to this framework of legal personhood based on legitimate and illegitimate births in the eyes of the government, local governments, through their ability to control citizenship rights through the *hukou* system, denied children born out-of-plan access to citizenship, both by requiring birth planning certificates for *hukou* registration and by outright refusing to grant such children *hukou* registration.²⁷ In the 1991 China Health and Nutrition Survey, 71.9 per cent of rural communities and 66 per cent of urban communities reported required delays in registration of

23 The impact of variation in policy enforcement on registration rates is beyond the scope of this paper. For detailed discussion of policy specifics, see Bongaarts and Greenhalgh 1985; Cai 2010; Greenhalgh 1990; Gu et al. 2007; Saith 1981; Short and Zhai 1998.

24 Merli 1998; Merli and Raftery 2000.

25 In one province, a mayor gained 10 points for maintaining fertility rates and 10 points for hitting local budget revenue targets. No other single target carried as much weight in the evaluation. See Zuo 2015.

26 Merli and Raftery 2000.

27 For example, in Nanjing, if a child has two registered older siblings, parents must provide formal Population Planning Bureau approval in order to obtain a *hukou* from the Nanjing Public Security Bureau. See Ebenstein 2010.

out-of-plan births.²⁸ As of summer 2016, 79 per cent of municipalities formally required birth planning certificates to register children.²⁹

The different types of *hukou* – urban versus rural – affected the strictness of both policy arrangement and enforcement. Generally, birth planning policies were easier to enforce in urban settings. Urbanites risked losing their job if they violated planning policies, and services blocked for out-of-plan children were easier to control in urban settings.³⁰ Because of the relative ease of enforcement with more concrete incentives, urban women had better rates of policy compliance on paper than rural women.³¹ The stronger enforcement also increased incentives to hide children. Urban families, with stricter enforcement, should have larger unregistered populations. Because of traditionally held preferences for sons, it is assumed girls faced a gender penalty and were registered at lower rates, although families wishing to have both a son and daughter were incentivized to hide first-born children regardless.³²

Birth planning policies also had indirect effects that hindered registration. Children born to mothers below the legal marriage age and children born too soon after older siblings were also considered out-of-plan children and could be denied registration.³³ Additionally, children born out-of-wedlock were not eligible for *hukou* upon birth as, in most cities, *hukou* registration requires both parents' household registration documents and marriage certificates. Breaking the one-child policy could also result in the mother losing her urban *hukou*.³⁴

Localized management of citizenship through the hukou

The children of migrants form one significant group of unregistered persons missing from the eight categories identified by the government. In the main text of the formal government decision addressing the unregistered, migrant populations and the barriers faced by migrants are not discussed or even mentioned. Before the 1980s, almost no migration occurred in China. After the 1980s, “informal” migration, that is, migration without changing *hukou* status, increased as economic opportunities in cities and in coastal provinces increased and the government relaxed migration controls. While migration figures are not explicitly known, estimated rates skyrocketed in the 1990s. These estimates suggest that the interprovincial migration rate from 1980 to 1984 was 0.0027 and that from 1985 to 1988 it was 0.0043; according to the 2000 census, 5.49 per cent of the

28 Short and Zhai 1998. It is estimated that approximately 60% of unplanned children gain registration status after parents pay “social burden” fees. See Greenhalgh 2003; Johnson 2016.

29 Vortherms 2017.

30 Ebenstein 2010; Feng, Cai and Gu 2012; Li, Jiali 1995.

31 Li, Jiali, and Cooney 1993.

32 Shi and Kennedy 2016.

33 Birth planning policies often also have spacing requirements on the timing of second children. Merli and Raftery 2000.

34 Li, Jiali 1995. In the census sample, mothers living with their born out-of-plan children do have a lower registration rate ($p > 0.00$) but the difference becomes insignificant once age and education are controlled for.

population was living outside of its province of registration.³⁵ Labour migration for women increased during the 1990s and the average age of migrants decreased.³⁶ As women became more mobile, their children faced greater barriers to registration. With greater physical mobility came greater difficulty in effectively managing the *hukou* system as individuals' physical location and their place of registration decoupled.

Beginning in the late 1970s, local governments in industrializing areas feared the fiscal burden of caring for workers' dependents. Using the existing *hukou* system, governments strengthened exclusionary policies to keep children and the elderly out of the city.³⁷ Families considering migration had two main choices when managing their children. They could either take their children with them and lose access to locally provided citizenship rights in the destination location, or else leave them behind in the countryside to be taken care of by other family members. According to Unicef reports, there were approximately 22 million "left-behind children" (*liushou ertong* 留守儿童) in 2000 and 69.7 million in 2010.³⁸

While left-behind children suffer negative educational and psychological effects, the likelihood of *hukou* registration is uncertain.³⁹ On the one hand, if they are living in their parents' hometown, registration logistics are simpler. On the other hand, if parents leave shortly after birth, or if children move to other relatives' households, they will face similar barriers to registration as children living with their migrant parents. Some local governments such as Qujing 曲靖, Yunnan, have created specific policies to encourage left-behind children's *hukou* registration, but this institutionalization of *hukou* access remains rare.⁴⁰ The data used in this analysis do not provide sufficient information on left-behind children, prohibiting discussion of this subpopulation, but this should be a topic for future research.

Like national citizenship, rights to *hukou* are based on *jus sanguinis* rather than *jus soli* principles, where the *hukou* status of a child is dependent on the mother's *hukou* status and location.⁴¹ *Hukou* registration, unlike other forms of identification, is given at birth.⁴² Parents are supposed to register their children within one month of birth, although the cultural practice of waiting 100 days before celebrating a new birth may delay this initial registration.⁴³ In many cities, registration of children older than three months requires additional paperwork and a separate

35 Liang and White 1996; 2000 census 1% sample.

36 National Bureau of Statistics 2008.

37 Cheng and Selden 1994.

38 Defined by at least one parent living away for work. UNICEF 2010; 2014.

39 For the negative educational impact, see Ye and Pan 2011; for the psychological impact of migration, see Jian and Tian 2010.

40 Vortherms 2017.

41 Before 1999, the national regulations tied children's *hukou* status to mothers alone. After 1999, national regulations allowed children's status to follow the status of either parent. State Council and Public Security Bureau 1998.

42 Dossiers are started when students enter school, while the *jumin shenfēn zhēng* (resident identity card) is available when individuals turn 16, although there are exceptions. National People's Congress 1985.

43 Merli 1998; State Council and Public Security Bureau 1998.

registration process. The registration process requires a birth certificate, birth planning certificate (*zhunsheng zheng* 准生证), parents' *hukou* booklets and ID cards, parents' marriage certificate and, in some industries, parents' work unit approval (*luohu danwei tongyi jieshou zhengming* 落户单位同意接受证明).⁴⁴

Migration makes this reporting and recording of children difficult.⁴⁵ Because status is inherited, women must return to their place of registration to formally register their children.⁴⁶ Before the 1980s, registering children born or living outside of their mothers' registration location was not a significant concern for local governments, because migration was severely controlled. After economic reform, however, migration massively increased as a necessary tool for development. While the *hukou* system relaxed enough to allow people to move, it did not reform with the economic system. Migrants are not able to porter their rights and entitlements as they seek out economic opportunity in other locations, creating greater barriers to their access to citizenship.

There is little incentive for local governments to integrate populations. Allowing formal migration through *hukou* naturalization or granting *jus soli* citizenship for newborns would require the local government to expand their social welfare burden. With smaller formal populations, local governments generally have better performance indicators.⁴⁷ For example, the smaller the registered population, the larger GDP per capita appears.

While governments may wish to attract more labour for competitiveness, it is better to do so through the recruitment of high-skilled labour rather than general labour. Cities that have attracted the most migrants benefit from "outsourcing" education and pension programmes. A migrant worker from Sichuan who moves to Guangdong benefits Guangdong's economy but places a burden on Sichuan's social programmes, as the Sichuan government paid for the migrant's education and will bear the cost of old-age care. Conversely, that same migrant's home location in Sichuan lacks significant incentives to actively integrate the children of the migrant to protect their welfare systems, as the economic benefits of their parents are being exported to Guangdong.

Hukou can also be denied or cancelled for reasons beyond birth planning and migration. When individuals gain foreign residency, including residency in Hong Kong, Macau or Taiwan, their original *hukou* registration can be cancelled.⁴⁸ Children born to foreign parents can be denied *hukou* as they are seen as non-citizens. Local officials, especially those in villages redistributing land, have an incentive to cancel the *hukou* of individuals missing from the village, as *hukou*

44 Regulations do vary by location. For example, some locations do not require a marriage certificate because obtaining the birth planning certificate requires a marriage certificate. Interviews with *hukou* police officers in a large northern city and a large southern city, July 2015.

45 Zhang, Guanyu, and Zhao 2006.

46 In some cases, city governments allow relatives to proxy for new parents when registering children, but this practice remains informal and is not institutionalized. Interview with a *hukou* police officer in a large southern city, July 2015.

47 Chan, Kam Wing, and Wang 2008.

48 Ho 2011.

would provide those individuals with a right to share in land reallocation.⁴⁹ All of these mechanisms deny individuals citizenship by keeping them out of the registration system.

Data and Variables

In order to analyse the relative impact of the two political determinants of registration, I employ logit models on a cross section sample of over 2.5 million children born before 2000 to estimate the impact of being born out-of-plan and being born to a migrant mother on probability of registration. Data used in this analysis are from a 1 per cent random sample of households collected during the 2000 census, which includes basic demographic and registration data for all members of the household. The sample covers 2.5 million children living with mothers who identify no additional children living outside of the home.⁵⁰

As discussed above, underreporting of births is a significant issue.⁵¹ Estimates suggest that as many as 19 per cent of children between the ages of zero and five went unreported in the 2000 census, more than double than in the 1990 census, although the degree of underreporting is contested.⁵² It is presumed that almost all of the unreported children are unplanned and many are girls but little is known about the relationship between migration and unreported children.

To provide a better estimate of the impact of illegal births, I use the 2000 and 2010 censuses to estimate the number of children, by gendered age cohort, missing from the sample. I then use the census sample and standard data imputation methods to impute values for the missing variables for these observations. While this is an imperfect technique for correcting the reporting bias, it provides better estimates for the impact of birth planning policies. A detailed discussion of the data imputation process and its limitations is in the online Appendix.⁵³

The key dependent variable is defined as having a *hukou* or not (0, 1).⁵⁴ Individuals without *hukou* are those who responded “pending” to the *hukou* registration location question.⁵⁵ In the total census, there are 76,306 individuals who do not have *hukou*, which is approximately 0.65 per cent of the census sample, with significant variation across both space and time.

49 Interview with a migrant rights lawyer in a large southern city, July 2013.

50 A detailed description of the sample requirements available in the online Appendix.

51 Feeney and Yuan 1994; Goodkind 2011.

52 Goodkind 2011; Cai 2017.

53 Available at samanthavortherms.com.

54 The census question asks for “*hukou* registration circumstance.” Individuals who respond “pending” are identified as not having a *hukou*. Note, this is not the same for those individuals whose *hukou* is currently suspended because of work or study abroad; their response is “currently live and work outside of the country, temporarily no *hukou*.” There are 593 (0.02%) respondents in the sample that fall into this category.

55 The pending category includes people without *hukou* and individuals in the process of changing *hukou* status. This category should be minimal given the short duration of the period between cancelling a former *hukou* and registering the new one. Also, given the sample focuses on children living with their parents, these forms of transfer should be less likely in the sample. The majority of respondents with *hukou* “pending” are individuals without *hukou* status on a more permanent timeframe. Interview with a municipal government official in southern China, 2014.

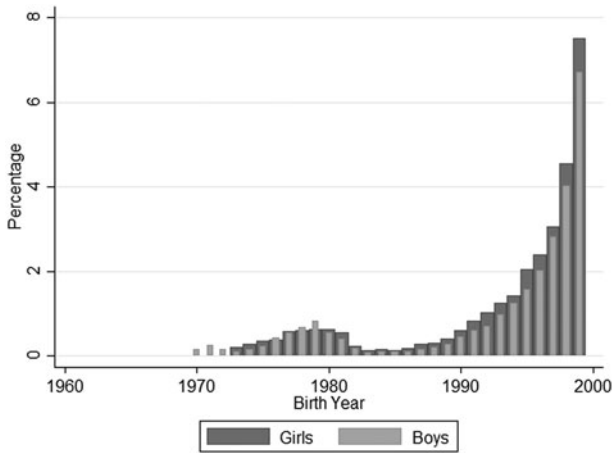
Figure 1: **Regional Variation in Unregistered Population Percentage***Notes:*

Based on populations living in the province in 2000.

Figure 1 highlights the variation in registration rates across provinces. Hebei province has the lowest rate of unregistered children at just 0.39 per cent. Conversely, both southern Guangdong and north-west Xinjiang have rates over 3 per cent, with 3.22 per cent and 3.56 per cent unregistered respectively. This regional variation may be owing to migration patterns: Guangdong and Zhejiang on the east coast are common migration destinations, while the central government has encouraged migration of Han populations, the majority ethnic group in China, to the ethnically diverse province of Xinjiang for decades. Because of this, province controls will be essential controls for the analysis.⁵⁶

The vast majority of individuals without *hukou* were born after 1970. In the final sample of children matched with their mothers, the unregistered population is 1.32 per cent (34,321). The 1980s saw a push for registration, as was necessary for the implementation of birth planning policies. While there is a spike in the years leading up to the implementation of the one-child policy, the number of reported children without *hukou* status in the 1980s is relatively low (Figure 2). The clear trend during the 1990s is an increase in unregistered children. The share of unregistered children is less than 1 per cent among children born in

56 The impact of provincial attributes on registration rates is beyond the scope of this analysis.

Figure 2: Percentage of the Population without *Hukou* over Time

Source:
2000 census sample.

1990; the share of unregistered children born in 1995 is 1.83 per cent and 7.67 per cent in 1999.⁵⁷ Because a 1 per cent sample has not been released from the 2010 census, and the population being statistically small, there are no good estimates of how the unregistered population has changed since 2000. Most likely, the population has increased, given the higher rates of migration. Relaxations in birth planning policies should improve registration rates, but the impact of these policies as migration increases is yet unknown.

In the 2000 census sample, children born to local mothers are registered at a rate of 98.90 per cent, while children born to migrant mothers are registered at a rate of 92.18 per cent, a statistically lower rate ($p > 0.00$). Descriptively, the impact of migration also appears to vary by *hukou* status: children born to rural migrant mothers have the lowest registration rates; children born to local rural mothers have the highest registration rates (Table 2). To measure the impact of a mother's migration status, the key variable of interest is an indicator variable for the mother being a migrant (*migrant mother*), where migrant is defined as a mother whose registration location is not located in the household's municipality (*dijishi* 地级市).

The other key political determinant of registration status is the legality of birth. Whether a child is born within birth planning regulations is dependent upon the year of birth, the mother's registration location, mother's household registration status, ethnicity and birth order. Generally, three key policy types fall under the

⁵⁷ While parents are supposed to register children within one month of birth, there are many institutional factors that may hinder this process. More than 22% of children born in 2000 lacked *hukou* at the time of the census. Children born in 2000 are excluded from this analysis because of the time lag necessary for obtaining a *hukou*.

Table 2: Percentage of the Population Registered in the *Hukou* System in the 2000 Census

	Urban	Rural
Local	98.89% (CI: 98.86–98.92)	98.99% (CI: 98.97–99.00)
Migrant	94.77% (CI: 94.44–95.09)	91.50% (CI: 91.29–91.71)

Notes:

All categories are statistically different ($p > 0.00$) based on two sample t-test results.

umbrella of the one-child policy: (1) the strict one-child policy, where couples are only allowed one child (SOCP hereafter),⁵⁸ (2) the one-and-a-half-child policy, where rural *hukou* holders are allowed a second child if their first child is a daughter (OHCP hereafter),⁵⁹ and (3) two- and three-child policies, which allow for up to three children per couple (TCP hereafter).⁶⁰ Under the SOCP, children with any older siblings are formally out-of-plan, as are children with more than two siblings under the TCP. The OHCP allows rural mothers whose first-born child is a girl to legally have a second child after a sufficient period of time. Most provinces required a spacing delay of four years for the second child during the period of study.⁶¹ Second-born children with an older brother are considered out-of-plan, as are second-born children who are born too soon after the first child. Most provinces have applied the SOCP to urban populations, OHCP to rural populations and TCP to ethnic minorities.⁶² For this analysis, I identify illegally born children as *out-of-plan* children based on their family composition (number of reported older siblings), year of birth, mother's registration type (urban or rural) and location, and ethnicity (Han or minority).⁶³

58 Urban areas were more likely to have strict one-child policies with no exceptions. According to the China Health and Nutrition Community Survey in 1991, more than 90% of urban communities surveyed were allowed only one child, with minimal exceptions. See Short and Zhai 1998. In the late 1990s, approximately 35% of the population lived under the SOCP.

59 The one-and-a-half child policy began after 1984, and implementation varies by province. Local governments were allowed to relax the strict one-child policy to the one-and-a-half child policy and approximately 19 provinces chose to do so, although they did so at varying times. See Bongaarts and Greenhalgh 1985; Ebenstein 2010. Provincial-level coding from Gu et al. 2007. In the late 1990s, approximately 53.6% of the population lived under the OHCP.

60 Mostly ethnic minorities and populations living in border provinces come under the two- or three-child policies. Approximately 11% of the population qualify for the TCP. Gu et al. 2007. There are many more specific policy arrangements, such as the three-child policy for certain rural couples who have children with non-hereditary handicaps, and the singleton policy where two only-children are allowed to have two children. For a full overview, see Gu et al. 2007.

61 The only exception is for Shanxi, where there is no such spacing requirement. Jilin, Shanghai and Hainan were the first provinces to drop spacing requirements in 2002, after the period of study. See Gu et al. 2007.

62 Beijing, Tianjin, Shanghai, Jiangsu, Sichuan and Chongqing apply the SOCP to both urban and rural populations and have never implemented the OCHP. Hainan, Yunnan, Qinghai, Ningxia and Xinjiang all allow rural populations to have two children. See online Appendix Table A2 for a full birth planning policy breakdown by province and the years of OHCP implementation. Gu et al. 2007.

63 Given that children born to unwed mothers and to mothers younger than the marriage age (20) are not considered to be legal births, I include these births as out-of-plan births. As a robustness check, I separate this population out and run the regression with two indicators: one for illegality owing to birth planning policy and one owing to mother's age/marriage status. The results do not change.

Given traditionally held preferences for sons,⁶⁴ barriers to registration are assumed to disproportionately hurt daughters.⁶⁵ I explore the interaction between gender and illegal births by interacting the two indicator variables in the second analysis.

Important controls for this analysis include the child's age at the time of the census, birth order, mother's demographics and household income. Children born outside of birth planning may be able to register after paying fees or bribes. This means that the older the child is, the more chances the mother will have to register the child.⁶⁶ Children with many older siblings may be less likely to be registered, in part because of the likelihood that higher order births are often out-of-plan.⁶⁷

Additional controls of interest include the mother's demographic controls, date of birth and mother's education, as well as socio-economic status.⁶⁸ Income information is not collected in the census short form. To proxy for household income level, I include a categorical variable for house price as measured in the census (0–9). Renters who do not include a housing price are coded as “0” for the reference category.⁶⁹ It is expected that housing price, as a proxy for income, will be positively correlated with registration rates, as wealthier families should have the financial capital to pay fees for extra children and therefore less incentive to hide them.

Results

Table 3 presents the primary models for analysis. Columns 1–3 present results from logit models on the census sample and columns 4–6 present results with imputed data for underreported children. Each model includes controls for mother's demographics, province controls and which birth planning policy the child was born under. The table presents odds ratios. An odds ratio estimates the odds that one outcome – being registered – will occur compared to the alternative outcome – not being registered. An odds ratio below one means being registered is less likely, while an odds ratio greater than one means registration is more likely.

The impact of being born to a migrant mother is consistent across all models, with the exception of the imputed urban model. In the aggregate imputed model (column 4), children born to a migrant mother are four times more likely to be

64 Banister 2004; Li, Jiali, and Cooney 1993; Loh and Remick 2015; Murphy 2003.

65 Banister 2004; Greenhalgh 2003; Li, Jiali, and Cooney 1993; Loh and Remick 2015.

66 Shi and Kennedy 2016.

67 Ebenstein 2010.

68 Mother's demographics are included because, until 1999, national regulations allowed children to take their mother's *hukou* status and not their father's. As a robustness check, I re-ran the models with father's demographics. The results remain substantively the same.

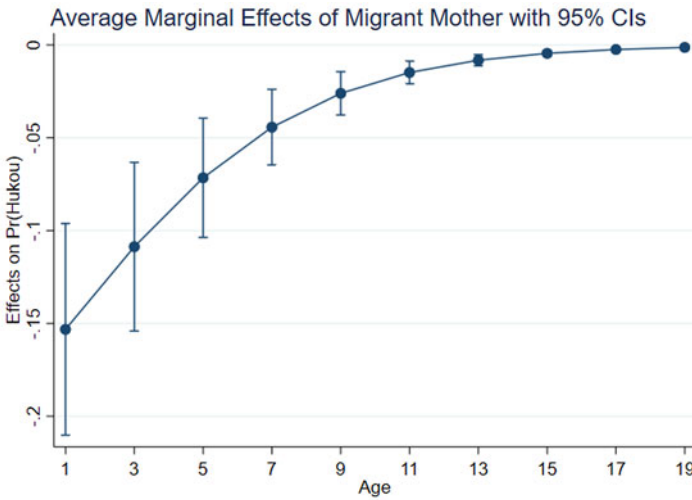
69 An alternative measurement strategy would be to drop renters from the sample as renters account for less than 9.13% of the sample and the rent price collected provides little information that can be substantively compared with housing costs. The results remain largely the same for this coding of the housing price variable.

Table 3: Odds Ratios from Logit Models on the Impact of Migration and Policy on *Hukou* Registration

VARIABLES	Census Sample Only			Census Sample with Imputation		
	(1) Pooled	(2) Rural	(3) Urban	(4) Pooled	(5) Rural	(6) Urban
Migrant Mother	0.248*** (0.0561)	0.244*** (0.0574)	0.290*** (0.0566)	0.276*** (0.0510)	0.262*** (0.0508)	0.504*** (0.1129)
Out-of-plan	0.736*** (0.0345)	0.814*** (0.0432)	0.412*** (0.0452)	0.0214*** (0.0044)	0.024*** (0.004)	0.011*** (0.005)
Female	0.790*** (0.0168)	0.795*** (0.0155)	0.748*** (0.0415)	0.774*** (0.0264)	0.763*** (0.0265)	0.860*** (0.0266)
Age	1.629*** (0.0596)	1.595*** (0.0635)	1.775*** (0.0504)	1.279*** (0.108)	1.289*** (0.1233)	1.488*** (0.0574)
Age squared	0.985*** (0.00216)	0.986*** (0.00240)	0.980*** (0.00157)	0.983*** (0.004)	0.982*** (0.004)	0.984*** (0.002)
Birth order	0.827*** (0.0241)	0.817*** (0.0237)	0.791*** (0.0578)	0.810** (0.052)	0.798*** (0.0519)	0.794** (0.086)
Mother <i>hukou</i> type	1.168 (0.139)			0.811 (0.178)		
House price	1.040** (0.0193)	1.032 (0.0224)	1.053*** (0.0175)	1.024 (0.029)	1.025 (0.035)	1.062** (0.0153)
Constant	4.399e + 07 (5.877e + 08)	4.114e + 09 (6.046e + 10)	2.064 (30.17)	1.82e + 14 (4.60e + 13)	2.17e-16 (5.78e-15)	3.15e + 11 (1.34e + 13)
Observations	2,397,678	1,961,052	436,626	3,043,347	2,574,206	466,656
Province controls	Yes	Yes	Yes	Yes	Yes	Yes
Policy controls	Yes	Yes	Yes	Yes	Yes	Yes
Mother controls	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.189	0.197	0.179			

Notes:

Odds-ratio reported: greater than one means positive relationship whereas below one means negative relationship. Robust standard errors clustered at the province in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Policy controls include indicator variables for the policy (OCP, OHCP, TCP) children were born under. Mother controls include mother's year of birth and education level

Figure 3: Marginal Effect of Migration on *Hukou* Registration by Birth Year

Notes:

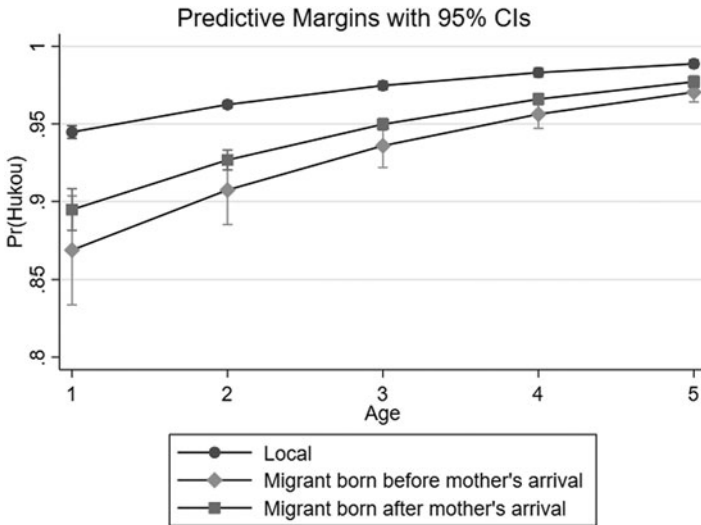
Calculated from Table 3, column 1.

unregistered than registered. This impact remains roughly constant across both rural and urban subpopulations with and without the imputed data, suggesting the migration penalty for registration is not simply a tax on rural migrants moving into the city, as is often assumed, but rather a systematic discrimination against all migrant populations.

The marginal effect of being born to a migrant mother is significant for the entire time frame (Figure 3). While more children are registered later, suggesting delayed registration, Figure 2 shows that the marginal effect of being born to a migrant mother affects all ages. The magnitude increases significantly for younger children: five-year-old migrants are 7.15 per cent less likely to be registered than non-migrant five-year-olds; newborns are 15 per cent less likely to be registered than non-migrant one-year-old infants. While all children have greater odds of being registered later, migrant children face greater delayed registration. This primarily keeps them out of early childhood healthcare and potentially delays educational opportunities.

All models in Table 3 show a gender penalty. As expected, daughters are registered at lower rates than sons. In both census-only and imputed models, daughters are 1.26 times less likely to be registered than sons. Age has a non-linear relationship registration. The youngest children and those who are older than 16 are the least likely to be registered, suggesting delayed registration for some children while others face barriers and may never get registered.⁷⁰

70 Calculated from Table 3, column 1.

Figure 4: **Predictive Probabilities of Being Registered If Local and Migrant***Notes:*

Calculated using the census sample without imputed data.

It is possible that migration status only has a temporary impact on registration rates: it may be that children born after a mother arrives in a new location face barriers to registration, but, given enough time, they will all get registered when the mother eventually returns home. If this were the case, barriers to registration through the local administration of the *hukou* system would be relatively simple to address. I narrowed the sample to children born between 1995 and 1999, a period for which we know when a migrant mother arrived in her current location. I re-run the models with the migrant category divided between children born before and after their mother migrated to the current location. As seen in Figure 4, children of migrants are less likely to be registered than local children regardless of the timing of their birth. The overall trend is for children born before their mother migrated to be registered at lower rates than those born after, but the difference between the two groups is not statistically distinguishable. This suggests the barriers faced by migrants are not purely based on physically being away from home for the birth of a child.

Being born out-of-plan is significant in all models regardless of the sample. In the census sample, unplanned children were 1.36 times more likely to be unregistered than registered (Table 3, column 1). The impact is much larger – odds ratio closer to zero – in the imputation models, as would be expected. In the pooled imputation model (column 4), out-of-plan births are 46 times more likely to be unregistered than registered. Being born out-of-plan has a larger impact in the urban subpopulation than rural population. This finding is in line with the idea that birth planning policies were implemented more strongly in urban areas than rural areas, as discussed above.

Table 4: **Logit Model Interaction Terms for Gender and Out-of-plan Birth**

	Rural (1)	Urban (2)
Out-of-plan	-3.66*** (0.182)	-4.48*** (0.439)
Female	-0.129*** (0.030)	-0.109** (0.051)
Out-of-plan X female	-0.156*** (0.029)	-0.059 (0.057)
Observations	2,574,206	466,656

Notes:

Log-odds ratio reported. Calculated with imputed data. Robust standard errors clustered at the province in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Full model included variables from Table 3 models, full results table available in the Appendix.

There is an assumed gender penalty for girls for both reporting and registering.⁷¹ To explore this, I re-run the models with an interaction between gender and the out-of-plan indicator for the subsample born after 1980. Table 4, presenting the main and interaction effects of being born out-of-plan on registration, shows that in both subpopulations all children born out-of-plan are registered at a lower rate, with a slightly higher negative impact of illegality for urban populations. Daughters born out-of-plan are registered at a lower rate than daughters born in-plan for both rural and urban populations, but rural daughters bear an extra burden of illegality: being born out-of-plan has a larger effect for girls than boys in rural populations, given the negative coefficient on the interaction term in column 1 compared to the statistically insignificant coefficient in column 2.

Limitations

The one-child policy incentivizes both officials and individuals to underreport births, especially those births in violation of the policy, which means estimates for out-of-plan children are underestimates of the true impact of birth planning policies.⁷² One common mode of underreporting children is parents sending unregistered first-born children to live with relatives, such as grandparents, thus avoiding fees for the second child. These instances are not observed in the sample used here. Likewise, children both unregistered and not enumerated in the census are captured only in estimate in the imputation models. Given that little is known about these uncounted people, conclusions are limited to the unregistered population enumerated in the census. The study identifies systematic patterns that are consistent in both the reported census sample and the imputation models. While data limitations exist, this impacts the magnitude of the patterns identified rather than the patterns themselves.

⁷¹ Goodkind 2011; Greenhalgh 2003.

⁷² Merli 1998.

Migrant women also have lower incentives to register their children, either planned or unplanned. The discrimination faced by women and their children when not in their place of registration led many women to reduce fertility while migrating and opt instead to return home before starting a family.⁷³ Additionally, the higher bureaucratic costs of registering children while migrating reduces the incentives for women to register their children. This mechanism cannot be directly tested in the data used in this paper as the lack of difference between migrant children born before and after mother's migration suggests lower registration is a phenomenon related to all migrants, rather than birth timing reducing incentives.

Both migration integration policies and birth planning policies are constantly in flux in China, and the data used here are limited to children born in the 1980s and the 1990s. The timeframe limitations restrict generalization to the first two decades of the birth-planning policy era. Trends in the first two decades of the 2000s are likely to be similar, but more evidence is necessary for broader generalizations. The announcement in 2015 of a relaxation of the one-child policy to allow for two children still creates out-of-plan children but will likely lead to significantly fewer children without *hukou*. Additionally, the amnesty-like announcements of registering the unregistered in 2016 will change these dynamics.

Discussion and Conclusions

As recognized by numerous scholars, China's citizenship regime involves a complicated web of political institutions that create varying classes of citizenship. Individuals without local urban *hukou* are second-class citizens while those without any registration status are non-citizens in their own country. Children bear the greatest burden of non-citizenship. Even when mothers are able to register their children later by paying bribes or social fees, being unregistered at a young age means foregoing government-provided healthcare services such as vaccines and early childhood education opportunities, creating further socio-economic costs. Children facing delayed registration lack access to government protections such as poverty protection, cost-of-living subsidies and rural land allocation, which in many places is calculated by family size.⁷⁴

The government primarily attributes the unregistered population to politically driven local officials who deny children born outside of birth planning policies the right to registration, as low fertility rates reflect well on local officials. This analysis demonstrates that all children born out-of-plan suffer "illegality" discrimination, with a greater gender penalty against girls in rural areas and the greatest penalty for all children in urban areas.

Overlooked yet critical to understanding the determinants of registration is the management of the *hukou* system itself. Because rights are almost fully localized in China, movement outside of one's place of registration blocks access to rights,

73 Jacka and Gaetano 2004; Zhang, Kangqing 1998.

74 Li, Shuzhuo, Zhang and Feldman 2010; Shi and Kennedy 2016.

including the ability to pass citizenship identity on to one's children. Local officials both in migrant-sending and migrant-receiving areas lack the incentive to register children of migrants, as larger populations equate to a larger social welfare burden and both areas benefit from outsourcing education and healthcare services for children. Migrant parents, too, are not incentivized to register their children until support from government services is needed, at which point they may face additional administrative barriers to registering. This study demonstrates that children born to migrant mothers, regardless of whether they were born before or after their mother's latest move, are approximately four times more likely to be unregistered than registered.

This discrimination against mobile populations is not isolated to rural populations, nor is it gender specific. The substantial, consistent and broadly identified impact of migration on reducing registration indicates a systematic problem within the *hukou* system itself, a problem that will persist until significant reforms dismantle the foundational concept upon which the *hukou* system is built: the localization of citizenship.

The state focus on birth planning as the culprit for the unregistered population is unsurprising. While there was plenty of contention over birth planning policy, the fundamental blame falls on individuals: smaller families are necessary for development and an unregistered population results both from individuals choosing to have extra children and local-level officials who implement deleterious restrictions on registration. The disregard of migration as a determinant of the unregistered phenomenon is a repudiation of the consequences of the state's own actions. Economic policies encourage and facilitate migration but do not bureaucratically resolve unintended consequences of the state's own policies.

The implications brought to light by this research point to three areas for further research. First, as the unregistered population gains greater attention in systematic research, the rates of registration after the 2000 census should be examined. Second, which barriers are easier to overcome for registration later in childhood deserves greater attention to determine concrete policies to reduce the detrimental impact of local management of the household registration system. Finally, future research should explore the impact of not being registered on the socio-economic outcomes for such populations, particularly the cost of missing early-life healthcare services and early childhood education on later-life outcomes.

Acknowledgements

I thank Rikhil Bhavnani, Fiona Cunningham, Dominic Desapio, Scott Gehlbach, Wendy Leutert and Melanie Manion for their comments on earlier drafts of this paper.

Supplementary material

Supplementary material is available online at <https://doi.org/10.1017/S0305741018001716>.

Biographical note

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摘要: 中国人口中大约有 1300 万人没有户口, 属于户籍制度外人口。户口的缺失意味着权利的缺失。户籍制度外人口无法享受社会福利, 无法申办身份证, 也不能在国有部门就业。政府官方对此的解释是违反计划生育政策是户口缺失的首要原因, 但是这一解释忽略了流动人口因素的影响。由于公民权利以及户口制度是由当地政府管理, 外来流动人口往往不能给予子女在当地上户口。本文对户口缺失的政治决定因素进行了系统的分析研究。根据对 2000 年人口普查中 250 万儿童的样本进行 logit 分析, 本文作者发现违计划生育政策的超生儿童的户口登记率偏低。在流动人口儿童中, 没有户口儿童是有户口儿童的四倍。在户口缺失这一问题上, 政府仅仅对计划生育政策的影响加以关注, 而忽略了户口制度本身所固有的制度性障碍。

关键词: 黑户; 户籍制度; 流动人口; 生育计划政策

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