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Consumption and savings of migrants in China – social cohesion perspective

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ABSTRACT

Boosting domestic demand is the task of China's sustainable economic development, and in particular, China has become an important global consumer market and the savings patterns should be more cohesive and without discriminations. Using data of China Migrants Dynamic Survey, the paper provides new evidence on internal migrants' savings in China from the perspective of homeownership and family migration. We find that migrants' savings are 5.25–6.60 percentage points higher than *hukou* population even when controlling for working, social status, and social insurance coverage which means the migrant will save 1019.88–1647.10 yuan in 2010 price more monthly. Furthermore, we discover housing could partly explain the saving gap, while when we take remittance and family migration into account, the saving rate differences between migrants and *hukou* population disappears, which means migrants may save to consume when they go back to their hometown with their family members instead of consuming later in the resident cities. The research is carried out taking into account the objectives of social cohesion policy identified at national and international level and their involvement in consumption and saving processes. Our empirical results reveal that homeownership, remittance motive and family migration play important roles in shaping saving behaviour of migrants.

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1. Introduction

China's high saving rate has attracted much attention and been blamed for the persistent and widening global imbalance as well as the international financial crisis (Song et al., 2011). According to the National Bureau of Statistics (NBS) of China, the national saving rate in China shows a rising trend over time, from 37.9% in 1978 to 50.2% in 2013, overtaking Singapore as the top Asian saver. The saving glut outside of the prediction of a wide range of econometric models is renamed as China's

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high saving rate puzzle (Ma & Yang, 2014). Many reasons have been proposed to explain the high savings of households, including housing prices, financial constraints, financial underdevelopment prevails in China, ageing problems, sex ratio, *hukou* system, medical condition and social insurance systems (Chamon et al., 2013; Chamon & Prasad, 2010; Feng et al., 2011; Tan & Liu, 2020; Wang & Wen, 2012; Wei & Zhang, 2011; Xu & Gong, 2020).

Migration plays a vital role in the Chinese economy over the past three decades (K. H. Zhang & Song, 2003). According to the data released from Chinese NBS, the total number of migrants increases from 120 million in 2000 to 245 million in 2017,[1] and to 376 million in 2020. Therefore, the contribution of migrants' saving to the national saving is an unignorable force. According to China Migrants Dynamic Survey (CMDS) in 2017, the annual saving per capita of migrants is 22.08 thousand nominally, combined with the number of migrants 245 million in 2017, which implies the migrant saving could be 5.41 trillion annually, accounting for 14.4% of the national saving[2] in 2017.

In addition, there is less concern on explaining the mechanisms of migrants' saving behaviour from the perspective of social cohesion which could not be neglected under *hukou* system. Multiple concerns are observed to establish common priorities on social cohesion policy for sustainable growth (Friedkin, 2004; Klonowska-Matynia & Radlinska, 2018). The size and importance of social cohesion policies and how they influence consumption and savings are treated separately depending on the region in which they apply (Forte, 2017). Relevant are the statements regarding the consideration of social cohesion as an important element for human well-being (Fan et al., 2020), and thus, during the process of urbanization social cohesion could be crucial for us to deal with the migrant high savings problems. Concerning for remittance and housing condition which are essential for social cohesion policies, this paper attempts to understand the channels through which social cohesion influence the saving behaviour of migrants,[3] using CMDS in 2010, 2013, 2015 and 2017. With the detailed household expenditure information only presented in 2013 sample, we find that the precautionary saving motive of migrants caused by real estate purchase desire partly explains the high savings of migrants, while remittance for consumption motive could explain the remaining saving rate differential between migrants and local *hukou* population. This suggests that migrants' precautionary saving motive from the perspective of remittance for self and family consumption motive and housing condition, could explain the high saving rate of migrants to a large extent in China.

The studies most directly related to our research are B. Chen et al. (2015) and X. Chen (2018). Our paper is distinguished from the above studies in two key ways. First, we use the latest survey data include both migrants and the local *hukou* population in China. The sample size of migrants is larger and more representative than the data used by B. Chen et al. (2015) and X. Chen (2018). Moreover, the survey used in this paper includes both migrants and the local *hukou* population. As suggested by Heckman et al. (1999), data for participants and non-participants should stem from the same sources in the comparative case study. Second, we investigate the differential in saving rate between local *hukou* and non-local *hukou* (migrants) population, as

well as migrants with agriculture *hukou*, migrants with non-agricultural *hukou*, and local *hukou* population and thereof render the evidence that *hukou* status not only agricultural and non-agricultural difference, but also local and non-local matters. Third, from the perspective of social cohesion, we take into account the effect of both sides together, that is, the local-residence factors, such as social insurance and housing, and the hometown factors, such as remittance and family migration. It concludes that in respect to migrants' precautionary saving motive, the remittance for self and family consumption motive, family migration and housing condition are the most important factors for cities to lower the high savings of migrants and to implement the social cohesion policies.

The remainder of the paper is organized as follows. Section 2 introduces the background of China's migrants and *hukou* system impacts. Section 3 reviews the related literature. Section 4 shows our datasets and the econometric specification. Section 5 tests the hypothesis empirically. Section 6 discusses the results, and Section 7 concludes.

2. Institutional background

In China, migration and migrant savings are tightly connected with *hukou* system. According to the 7th China Population Census, the number of migrants grows from 102 million in 2000 to 376 million in 2020, while the ratio of migrants to total population raises from 7.90% in 2000 to 26.62% in 2020, which means that more than 26 per cent of the total population migrate from villages, towns, or small cities to the current residence with their *hukou* registered in their hometown (Su et al., 2018). Another perspective is urbanization. The gradually increasing migration is coupled with urbanization since the reforming and opening-up policies enacted in 1978. Massive migration from rural to urban areas has been part of the great economic transformation in China over the past four decades rendering the lower-cost labour forces and enhancing the comparative advantage in manufacturing (H. Li et al., 2012). The recent wave of redevelopment of large-scale urban villages in major Chinese cities has generated not only the reconstruction of the physical environment, but also a development of social cohesion which has favoured migration in spite of the existing *hukou* system (Y. Q. Liu et al., 2017). Between 1978 and 2020, the urban population in China increased from 172 million to 902 million. In 2011, the urban population in China exceeded the rural population for the first time, with an urbanization rate of 51.3%. The number of rural-urban migrants reaches 200 million in 2010 compared with only 136 million rural-urban migrants in 2000, according to the estimation of K. W. Chan (2012).

Although the migration surges in recent years, population mobility before the 1980s was highly restricted in China by the *hukou* system since if one leaves their *hukou* registered place, he or she will not get a job or even food under rationing system in the planned economy (Z. Liu, 2005). After many years of reform, although people move freely, the *hukou* system, a legacy of the socialist era of central planning, still blocks migration indirectly. *Hukou* is a record in the system of household registration required by law in China, by which the welfare and social public service are provided nowadays. It is always not easy for migrants to access the public services provided by the local government where their *hukou* is not registered according to

different local policies. As well, most of the migrants cannot transfer their identity and thus obtain a local urban *hukou*. Thus, working and residence place is separated from where they are entitled to social welfare for migrants, such as house purchase rights, the cheap rental housing, the economical and comfortable housing (Deng et al., 2011), children education, subsistence allowances and so on (Vendryes, 2011). *Hukou* system can also enhance the labour market segmentation (J. Li et al., 2015), under which migrant workers are always in the inferior, second-class labour market of the urban sector, with low income, insufficient social security or social insurance coverage and poor quality of life (Cai, 2011). As a result, the *hukou* system exerts significant influences on the Chinese economy, for example, rural-urban inequality (Z. Liu, 2005), undersized cities with high costs (Au & Henderson, 2006), deteriorating resource misallocation (Whalley & Zhang, 2011).

3. Literature review and theoretical framework

Our paper first contributes to literature on the relationship between migration and saving behaviours. An effective way to avoid the fluctuations of household income is migration when the income shock is local (Rosenzweig & Stark, 1989; Stark & Levhari, 1982). Studies have tried to reveal the saving differences between migrant and local residents, and find that migrants save more for precautionary motives Galor and Stark (1990), since migrants are always faced with lower income or less social welfare (Aliyev et al., 2021; Krutova, 2019). For example, by exploiting a natural experiment from the change in nationality law in Germany, Piracha and Zhu (2012) find that if the immigrants obtain German citizenship, the saving, as well as remittance, will be reduced. However, there is another brunch of literature argues that migrants are saving less than their hometown counterparts who do not migrate (Rosenzweig & Stark, 1989), also less than the local residents (Amuedo-Dorantes &

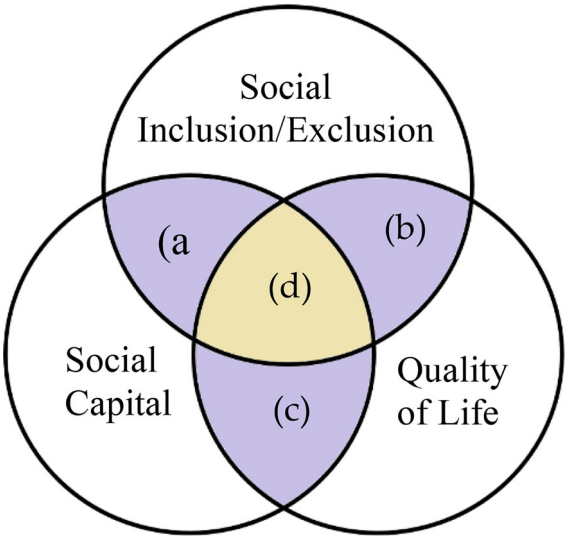

Figure 1. Relation between components of social cohesion in authors' interpretation.
Source: Drawn by the author.

Pozo, 2002), for the reason of effective risk diversification. In conclusion, for high savings' motives, there are two kinds of factors driving the saving motives of migrants. One is the connection with hometown, such as remittance (Dustmann & Mestres, 2010). Zhu et al. (2012) find that remittance is primarily used for consumption purposes, which implies that migrants will save for the consumption of household members at home. The other one is the connection with local place, such as labour market conditions and access to the local public service. Dustmann (1997) establishes a life-cycle model based on Galor and Stark (1990). In his framework, if the return plan is considered as an endogenous variable, migrant savings could be higher in some circumstances. Therefore, the conclusion that migrants save more depends on the connection between hometown and present residence, such as the size of the wage differential, the relative risk in different labour markets and cities, as well as social cohesion policies which has been neglected relevantly.

The objectives of social cohesion policies are analysed to define variables usable in empirical research and their correlation with variables specific to consumption and savings (Y. Chen & Li, 2009). Social cohesion is a state of affairs that concerns both vertical and horizontal interactions between members of society characterized by a series of attitudes and norms that include a sense of belonging and willingness to participate, trust, as well as their behavioural manifestations (J. Chan et al., 2006).

Social cohesion of consumption and saving encourages migrants and the local *hukou* population to collaborate, communicate, carry out common social projects with concrete effects on every aspect of economic life, including innovation, accessibility, education, enterprises, employment, consumption or environment (J. Chan et al., 2006; Friedkin, 2004). The main concepts related to social cohesion synthesized based on the specialized works analyzed are: social inclusion/exclusion, social capital and quality of life. The greater the absolute value of the implementation of these policies, the more inclusive society is and the greater the degree of social cohesion. Measuring the influence of social cohesion policies on migration and saving is done based on sets of variables defined for each concept (Figure 1):

- Social inclusion/exclusion: human rights, communication, public policy, unemployment, migration.
- Quality of life: education system, health services, social responsibility, infrastructure, pollution.
- Social capital: culture, human relation, social insurance, investments, savings.

Theoretical research leads to the identification of several types of regions, depending on the accentuated or reduced application of a type of social cohesion policies.

a. the area meaning the type of region in which cohesion policies do not take inhto account the quality of life, with the effects of policies specific to social capital and social inclusion being felt. The lack of variables for the interpretation of quality of life leads to increased migration in search of a better life.
b. area which means the type of region which pursues social integration through specific policies but does not take into account insurance, safeguarding systems

and does not address the quality of relationships and interactions between persons. Migration is determined by both professional and social reasons, consumption is high, but savings are declining.

c. the area that means the type of region that does not deal with social inclusion/exclusion policies and, therefore, occupational migration is accentuated by migration for reasons of social affiliation and reduces consumption as active policies that lead to growth savings.

d. the area which means the type of convergence society in which all types of social policies meet. In this case, social and professional migration is present, and consumption and saving are frequent.

This analysis allows the identification of variables in accordance with the objectives of our study such as: savings or consumption, self migration or family migration, working condition, housing condition, insurance policy, education, remittance *et al.*

4. Data and estimation strategy

4.1. Data

Our data are from China Migrants Dynamic Survey (CMDS)[4] collected by National Health Commission of China from 2009 to 2017, and we mainly use CMDS of 2010, 2013, 2015 and 2017 in this paper because in these years both the information of *hukou* population and migration are surveyed. There are two kinds of data in these years, one is a larger sample covering the whole country with fewer variables, and the other one is a smaller sample, including some cities with more variables, and the latter is used in the paper. The variables used also fall within the sets of variables defined above for the concepts of social cohesion. For more detailed information of consumption, remittance and housing condition, we could only use CMDS in 2013.

According to the CMDS documentation, only the people aged 16–59 are selected randomly to answer the questions about individual information and household information. There is no clear information on whether the selected respondent is household head or not. Therefore, we adopt the following strategies to detect the household head, as suggested by Zhou (2014). First, we drop all students from the sample. Among the whole sample, only 1.039% of respondents are students. Second, we drop the respondents who live with a sibling or with working parents under 60 years old. Fortunately, only 2.265% of the respondents live with a working parent under the age of 60, and only 2.116% of the respondents live with siblings. We get information on 107,572 individuals and their household conditions and 317,210 family members. Not each of the variables used in this paper is surveyed in all sampling years, the description and observations are presented in Table 1.

4.2. Estimation strategy

The empirical research is based on three steps. First, the ordinary least squares (OLS) is employed to identify the difference in saving rates between migrants and local *hukou* population, and the robustness of results will be investigated by considering

Table 1. Variable description.

Variable	Definition	Observations
A: 2010, 2013, 2015 and 2017		
Saving rate	1-consumption/disposable income	107,216
Ln(saving)	Ln((disposable income- consumption/CPI) + 1), monthly, household	105,555
Migrant	=1 if migrant	107,572
Farmer	=1 if agricultural *hukou* status	100,393
Ln(real income)	Ln(household disposable income/CPI + 1), monthly, household	107,429
Family scale	Number of family members	107,572
Sex	=1 if male	107,572
Age	Age in survey year	107,572
Education	Years of education in survey year	107,572
Marriage	=1 if married	107,572
Blue collar	=1 if blue-collar workers	107,572
B: 2013		
Saving rate2	1-consumption/Disposable Income (Winsorized at 5%)	21,681
Ln(income transfer)	Ln(income from hometown/CPI + 1), monthly, household	21,677
House owned	=1 if having an apartment or house in local place	
Employed	=1 if employed	21,681
Youth dependency ratio	Young (of working-age population)	21,681
Old-aged dependency ratio	Elders (of working-age population)	21,681
Accident & unemployment insurance	=1 if insured	21,681
Pension insurance	=1 if insured	21,681
Health insurance	=1 if insured	21,681

Note. *, for migrant sample, the data in 2010, 2013, 2017; for local *hukou* population, the data in 2010, 2013.
Source: China Migrants Dynamic Survey.

remittance. Second, the quantile regression method will be applied to identify the saving rate differential at different quantiles of the conditional saving rate distribution, since many discriminations happen when migrants are at a lower level of social status (Cai, 2011). Lastly, identifying the effect of remittance on saving gap with a stepwise regression method using the sample of 2013. The local saving behaviour will also to be studied separately.

To compare the saving patterns of migrants and local *hukou* population, we adopt the traditional economic model of saving behaviour, such as Zhou (2014), and estimate the following function form controlling the possible variables that could lead to potential selection bias:

$$Saving\ \ rate_{ict} = \beta_0 + \alpha_1 Migrant_{ict} + X'_{ict}\beta + \lambda_t + \mu_c + \varepsilon_{ict}, \quad (1)$$

where subscript i refers to a household and individual, c denotes a city, and t denotes the year of 2010, 2013, 2015 and 2017, β_0 is a constant, ε_{ict} is an error term, and X_{ict} is a vector containing the basic information of the household and individual characteristics. The main dependent variable is $Saving\ rate_{ict}$, calculated as one minus the ratio of consumption to disposable income. Besides, we winsorize saving rate at 5% to eliminate the outliers, denoted as $Saving\ rate2_{ict}$. We also use the other two dependent variables for robustness checks, the first is $Ln(saving)_{ict}$ and the other is $local\ saving\ rate_{ict}$. The key variable for Equation (1) is the migrant dummy, which takes a value of one for migrants and zero for local *hukou* population. In our full sample, migrants account for 58.83%. Control variables on household include real household disposable income, and we take the logarithm form of (disposable income/CPI + 1), the number of family members. Control variables on individuals include a

Table 2. Data description.

	All		Migrant	Local *hukou* population	Mean difference
	Mean	Standard deviation	Mean	Mean	Migrant-local *hukou* population
A: 2010, 2013, 2015 and 2017					
Saving rate	0.4577	0.3030	0.4854	0.3987	0.0867***
Ln(saving)	7.6104	1.4468	7.7148	7.3845	0.3303***
Migrant	0.6807	0.4662			
Farmer	0.6636	0.4725	0.8196	0.2664	0.5532***
Household income in 2010 price (month)	6,724.05	9,747.27	6,691.49	6,793.45	−101.95***
Ln(real income)	8.5733	0.7138	8.5795	8.5600	0.0195
Family scale	3.1249	1.1337	3.0895	3.2004	−0.1110***
Sex	0.5040	0.5000	0.5046	0.5026	0.0020***
Age	37.4149	11.7078	35.6678	41.1391	−5.4713***
Education	10.5079	2.9697	9.9717	11.6509	−1.6792***
Marriage	0.8237	0.3811	0.8370	0.7954	0.0416***
Blue collar	0.5274	0.4992	0.6127	0.3458	0.2669***
B: 2010 and 2013					
Remittance in 2010 price	5,920.54	12,020.65	6,937.43	2,538.47	4,398.96***
Ln(remittance)	6.3638	3.6560	6.6028	5.5688	1.0340***
C: 2013					
Saving rate			0.510	0.453	0.057***
Saving rate2			0.512	0.461	0.051***
Age			33.255	37.829	−4.574***
Sex			0.527	0.536	−0.009***
Marriage			0.810	0.841	−0.031***
Education			10.126	12.266	−2.140***
Employed			0.910	0.770	0.140***
Ln(real income)			8.511	8.707	−0.196***
Income gotten in 2010 price			1,947.45	2,770.53	−823.08***
Ln(income transfer)			2.3045	3.9294	−1.6249***
Youth dependency ratio			0.349	0.233	0.116***
Old-aged dependency ratio			0.053	0.208	−0.155***
Household scale			3.004	3.379	−0.375***
House owned			0.087	0.837	−0.750***
Accident & unemployment insurance			0.166	0.334	−0.168***
Pension insurance			0.453	0.752	−0.299***
Health insurance			0.846	0.918	−0.072***

Note. ***, ** and * indicate significance by *T* test at the 1%, 5% and 10% levels, respectively.
Source: China Migrants Dynamic Survey.

dummy variable for sex which takes a value of one for males and zero for females, age, educational level,[5] a dummy for marital status with one for married persons and zero otherwise, and a dummy for employment status with one for blue-collar workers and zero otherwise.

In our total samples, migrants account for 68.07%, while there are 14800 migrants compared with 6881 local *hukou* people in the 2013 sample. Panel A of Table 2 provides descriptive statistics for both migrants and local *hukou* population in the full year sample. CPI is used to eliminate the price impact for all nominal variables with a real price of 2010. As shown, the migrants differ from the local *hukou* population in several aspects. First are the different saving behaviours. Migrant saving rate is 48.54%, which is significantly higher than that of local *hukou* population (39.87%). Second is a sharp distinction of family conditions. The migrant families show lower family incomes and family scales than their urban counterparts. Then in terms of

individual characteristics, migrants are younger, and less educated than *hukou* population. Besides, there are more agricultural *hukou* status, males, married persons, and blue-collar workers among migrants.

5. Empirical results

5.1. The different saving behaviours between migrants and hukou population with full sample

OLS regression results of Equation (1) are presented in Table 3. Columns (1) to (5) use the full year sample data of 2010, 2013, 2015, and 2017. The dependent variables of columns (1) to (3) are $Saving\ rate_{ict}$, and the dependent variables of columns (4) and (5) are $ln(saving)_{cti}$. All the control variables are included in columns (2), (3) and (5), and in columns (1) and (4), we control only the year and city fixed effects. It can be observed that there is a stable and significant positive saving rate gap between migrants and local *hukou* population, that is, on average migrants raise the saving rate by 5.24 percentage points than their urban counterparts as shown in column (2). This conclusion is also supported by social cohesion by the nature of social relations based on *hukou* status. The saving gap remains moderate in the annual estimation of Figure 2. In column (5), the estimation demonstrates that migrants save 22.61% more than *hukou* population, and given the average real household income in Table 2, from 2010 to 2017, the migrant will save 1019.88–1647.10 yuan (in 2010 price) more monthly.

Besides, in the benchmark model of column (2), it is shown that after controlling for year and city fixed effects, a 1% increase in real household income will lead to 0.1850 percentage points increase in saving rate significantly. The family-scale has a negative relation with saving rate, and one person more in a family will cause a 2.65 percentage points decrease in saving rate. With regard to the individual characteristics, male save 0.73 percentage points more than female, a year increase in educational level will lower the saving rate by 1.02 percentage points on average, and age

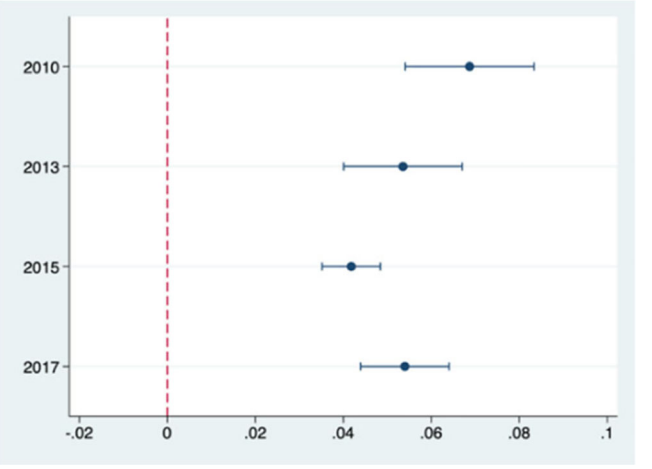

Figure 2. Coefficients of migrant dummy by year. *Note.* the dots stand for OLS coefficients for migrant dummy by year. The lines represent the 95% confidence intervals surrounding the point estimation.
Source: China Migrants Dynamic Survey.

Table 3. OLS results of different saving behaviours between migrants and local *hukou* population in urban area.

Dependent variable	Saving rate (1)	Saving rate (2)	Saving rate (3)	Ln(saving) (4)	Ln(saving) (5)
Migrant	0.0660***	0.0524***	0.0179***	0.1131***	0.2261***
	[0.0024]	[0.0026]	[0.0040]	[0.0114]	[0.0109]
Migrant × Farmer			0.0320***		
			[0.0065]		
Farmer			0.0288***		
			[0.0053]		
Ln(real income)		0.1850***	0.1870***		1.5055***
		[0.0052]	[0.0051]		[0.0101]
Family scale		−0.0265***	−0.0281***		−0.0719***
		[0.0015]	[0.0016]		[0.0047]
Sex		0.0073***	0.0055**		0.0194**
		[0.0021]	[0.0021]		[0.0087]
Age		−0.0000	0.0004***		−0.0004
		[0.0001]	[0.0001]		[0.0004]
Education		−0.0102***	−0.0074***		−0.0273***
		[0.0005]	[0.0005]		[0.0018]
Marriage		−0.0446***	−0.0439***		−0.1014***
		[0.0037]	[0.0037]		[0.0135]
Blue-collar		0.0642***	0.0630***		0.1747***
		[0.0025]	[0.0025]		[0.0099]
City FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
R^2	0.0360	0.1429	0.1437	0.0617	0.3825
Observations	107,216	107,216	100,078	105,557	105,557

Note. Robust standard errors in brackets. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Constants are included for all regressions.
Source: China Migrants Dynamic Survey.

has no statistically significant effect. Married people save 4.46 percentage points more than unmarried ones. The blue-collar workers save 6.42 percentage points more than the white collars. Not only *hukou* in separating local people and migrants as discussed, but another dimension of *hukou* system also arouses discussion in the field of savings, that is, agricultural and non-agricultural *hukou* status or rural and urban sectors (Pan, 2016). The conclusion underlines the particularly positive impact that the implementation of social cohesion policy will have on China's socio-economic context, the impact on different sectors or regions varies depending on the level of development of each. It is verified in column (3) that migrants with agricultural *hukou* will save 0.787 more than local *hukou* population with non-agricultural *hukou*, which is close to the saving gap between migrants and local *hukou* population in columns (1) and (2). As lots of evidence shows, *hukou* system strongly restricts the rural population from migrating to the urban area, furthermore, from staying at the urban area permanently (Whalley & Zhang, 2011), and migrants with non-agricultural *hukou* may have similar saving behaviour with local *hukou* population.

5.2. The effect of local public service and housing on saving gap

OLS regression results with 2013 for more detailed information are presented in Table 4. The dependent variables of columns (1)–(5) are $Saving\ rate_{ict}$, while the dependent variables of columns (6)–(10) are $Saving\ rate2_{ict}$. We observe a positive saving rate gap between migrants and local *hukou* population. If in the local *hukou*

Table 4. The importance of local public service and housing.

	Saving rate					Saving rate2				
Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Migrants	0.059***	0.056***	0.060***	0.027***	0.026***	0.052***	0.050***	0.054***	0.024***	0.024***
	[0.006]	[0.006]	[0.006]	[0.008]	[0.008]	[0.005]	[0.005]	[0.006]	[0.007]	[0.007]
Basic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Detailed backgrounds	No	Yes	No	No	Yes	Yes	Yes	No	No	Yes
Social insurance	No	No	Yes	No	Yes	No	No	Yes	No	Yes
House own	No	No	No	Yes	Yes	No	No	No	Yes	Yes
R^2	0.191	0.195	0.191	0.195	0.201	0.181	0.185	0.182	0.185	0.190
Observations	21,681	21,681	21,681	21,681	21,681	21,681	21,681	21,681	21,681	21,681

Note. Standard errors in brackets are clustered at county level. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Other variables include: Basic controls: male, age, age squared, marital status, years of education, employment status, logarithm of household income and city dummies; Detailed background: youth dependency ratio, old-aged dependency ratio, and household scale; Social insurance information: accident & unemployment insurance, pension insurance, and health insurance; Housing information: housing dummy. Constant are included for all regressions.
Source: China Migrants Dynamic Survey.

situation, social integration expresses the degree of attachment to certain communities/societies and determines a household to make consumption, in the case of migrants the economy is clearly constant even if there are specific variables of social cohesion. The coefficient of dummy for migrants is 0.059 as shown in column (1) and 0.052 as shown in column (6), and both are statistically significant at the 1% level. This means that on average, migrants raise saving rate by 5.2–5.9 percentage points, which is similar to the results of full sample in Table 3.

Columns (2) and (7) add a set of demographic and characteristics controls that could potentially influence household saving behaviour. These controls are youth dependency ratio, elderly dependency ratio, and household scale. Columns (3) and (8) add household's social insurance status: a dummy for whether covered by accident and unemployment insurance, a dummy for whether covered by pension insurance, and a dummy for whether covered by health insurance. According to Wei and Zhang (2011), columns (4) and (9) add household's housing characteristic, a dummy for whether own a house or not at the present residence.

In columns (2) and (3) of Table 4, the coefficients of dummy for migrants are very stable, changing only from 0.056 to 0.060. However, if household's housing status is taken into consideration, and the coefficient of dummy for migrants declines more than a half. As for $Saving\ rate_{ict}$ and $Saving\ rate\ 2_{ict}$, the coefficient drops from 0.060 in column (3) to 0.027 in column (4), and from 0.054 in column (6) to 0.024 in column (9), respectively. This implies that the social cohesion effect of housing as well as saving motive of buying a house works. After controlling all variables discussed above, we find that the coefficient of the dummy for migrant changes little compared with the coefficient in columns (4) and (9).

Additionally, migrants with different *hukou* will behave differently. Migrants with agricultural *hukou* may differ from migrants with non-agricultural *hukou* because there are lots of evidence that *hukou* system strongly restricts the rural population from migrating to the urban area, and from staying at the urban area permanently (Whalley & Zhang, 2011). However, even we restrict our sample to migrants with non-agricultural *hukou* and adopt the estimation strategy as used in the whole

Table 5. The importance of local public service and housing with comparison between non-agricultural *hukou* migrants and local *hukou* population.

	(1)	(2)	(3)	(4)	(5)
Migrants	0.041***	0.041***	0.042***	0.034***	0.034***
	[0.008]	[0.009]	[0.009]	[0.011]	[0.011]
Basic controls	Yes	Yes	Yes	Yes	Yes
Detailed backgrounds	No	Yes	No	No	Yes
Social insurance	No	No	Yes	No	Yes
House own	No	No	No	Yes	Yes
R^2	0.223	0.226	0.224	0.224	0.227
Observations	8,661	8,661	8,661	8,661	8,661

Note. Standard errors in parentheses are clustered at county level. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Control variables and other settings are the same as in Table 4.
Source: China Migrants Dynamic Survey.

sample, we still find that migrants' saving rate is still higher than local *hukou* population. Table 5 reports the results with $Saving\ rate_{ict}$ as the dependent variable[6] with the same model specifications used in Table 4. All coefficients of dummy for migrants are positive and statistically significant.[7]

The above regression results only reveal the average effects, which may disguise the potentially significant variation across different points of the distribution. With the quantile regression to capture the potential heterogeneity of saving gap, Table 6 reports quantile regression results for 10th quantile, 25th quantile, 50th quantile, 75th quantile and 90th quantile conditional on household characteristics, following Koenker and Bassett (1978).

Results show that migrants' saving rate is higher than local *hukou* population at each quantile of saving rate distribution. The saving gap is generally larger above the median of the saving rate distribution, also as shown in Figure 3. For example, at the 90th quantile, the saving gap is 3.6 percentage points, while at the 10th quantile, the saving gap is 2.2 percentage points. This implies that migrants with lower social status may suffer more discrimination and face greater uncertainty. Their stronger precautionary saving motive leads to greater saving gap at higher quantile of saving rate distribution.

5.3. The effect of hometown connection on saving gap

How does the saving gap change in respect to hometown connection? There may be potentially two reasons. First, migrants have stronger precautionary saving motive, because of the lack of social cohesion policies provided by local government (B. Chen et al., 2015) such as housing condition and social insurance. Table 4 provides the evidence. The application of social cohesion policy generates a range of attitudes and behaviours towards migrants within society. When social integration is too strong, the individual's attachment to the group is very pronounced, the behaviour is aimed at achieving the collective good which will influence the degree of saving (Yang et al., 2020). Furthermore, Table 4 also reveals that precautionary saving motive cannot explain the saving gap between migrants and local *hukou* population completely. A reasonable inference is that another force pushes the high saving rate of migrants. In fact, migrants could save and send the remittance back home. Remittance is used to support the consumption of family members in hometown (Zhu et al., 2012). In this case, remittance is considered as part of the consumption of migrants' household.[8]

Table 6. Quantile regression results of 2013 sample.

	Q (0.1)	Q (0.25)	Q (0.5)	Q (0.75)	Q (0.9)
Migrants	0.022**	0.020***	0.027***	0.028***	0.036***
	[0.008]	[0.006]	[0.005]	[0.005]	[0.005]
Basic controls	Yes	Yes	Yes	Yes	Yes
Detailed backgrounds	Yes	Yes	Yes	Yes	Yes
Social insurance	Yes	Yes	Yes	Yes	Yes
Housing	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.110	0.117	0.109	0.103	0.096
Observations	21,618	21,618	21,618	21,618	21,618

Note. Standard errors in brackets are clustered at county level. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Control variables and other settings are the same as in Table 4.
Source: China Migrants Dynamic Survey.

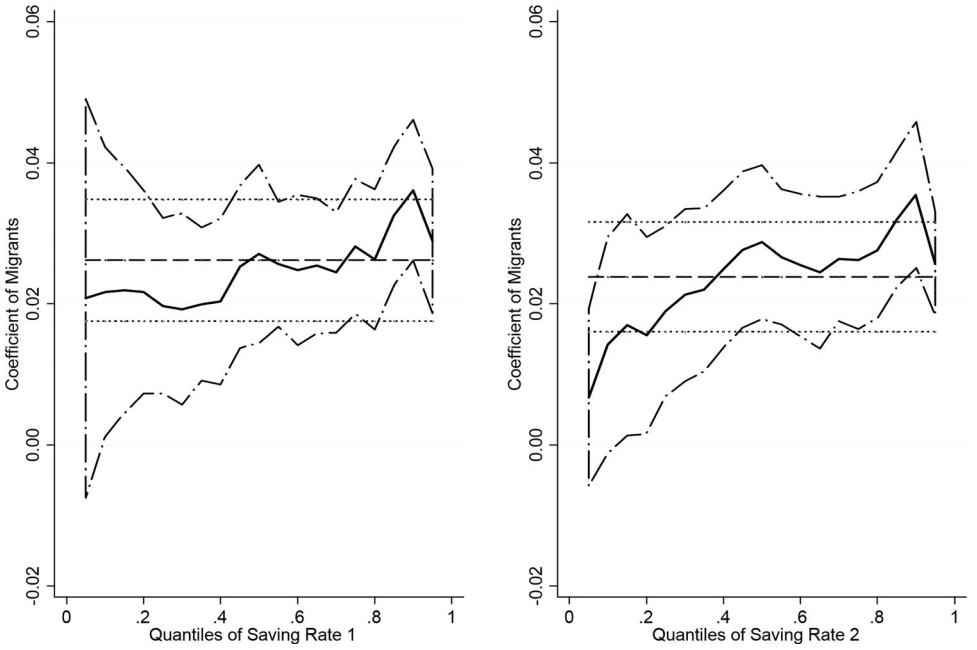

Figure 3. Quantile coefficients for migrant dummy. *Note.* the line stands for quantile coefficient for migrant dummy while the dashed line stands for OLS coefficient for migrant dummy. The dot represents the 95% confidence intervals surrounding them.
Source: China Migrants Dynamic Survey.

To identify the remittance for consumption motive, we firstly take remittance off. The method of adjusting the saving rate of migrants is given by the following formula:

$$Saving\ \ rate3 = 1-(consumption + remittance \times consumption\ \ ratio)/disposable\ \ income, \tag{2}$$

$$Saving\ \ rate4 = 1-(consumption + remittance)/disposable\ \ income, \tag{3}$$

Consumption ratio in this context is the consumption divided by disposable income minus remittance. When calculating $Saving\ rate3_{ict}$, we assume that the family members at hometown have the same consumption to income ratio as the family

Table 7. OLS regression results of remittance for consumption motive.

	Saving rate	Saving rate2	Saving rate3	Saving rate4
	Migrate with Family	Migrate with Family	Removing Remittance	Removing Remittance
Migrants	0.013	0.012	0.012	−0.011
	[0.009]	[0.008]	[0.009]	[0.008]
Basic controls	Yes	Yes	Yes	Yes
Detailed Backgrounds	Yes	Yes	Yes	Yes
Social insurance	Yes	Yes	Yes	Yes
Housing	Yes	Yes	Yes	Yes
R^2	0.236	0.221	0.190	0.182
Observations	12,049	12,049	21,681	21,681

Note. Standard errors in brackets are clustered at county level. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Control variables and other settings are the same as in Table 4.
Source: China Migrants Dynamic Survey.

members in the city. This assumption is also adopted by B. Chen et al. (2015). According to Zhu et al. (2012), remittance is mostly used for consumption, and thus, in $Saving\ rate4_{ict}$, we assume that all the remittance is used for consumption of family members at hometown. The same estimation strategy is adopted as shown in Table 4 with $Saving\ rate3_{ict}$ and $Saving\ rate4_{ict}$ as the dependent variables. Columns (3) and (4) of Table 7 report the results. The coefficients of dummy for migrants become statistically insignificant. These results mean that the remittance for consumption motive could explain the remaining saving gap between migrants and local *hukou* population.

For robustness check, we restrict our sample to the migrants who live with their couples as well as their children in local place if they have. When family migration happens, the remittance for consumption motive will be eliminated, and the remittance for consumption is transferred to local consumption right now. If remittance for consumption motive is enough to eliminate the remaining saving gap, then the estimated coefficient of dummy for migrants is predicted to become statistically insignificant. Columns (1) and (2) of Table 7 present the results. The dependent variables are $Saving\ rate_{ict}$ and $Saving\ rate\ 2_{ict}$, respectively. The sample size shrinks to 12049 (number of migrants). We find that the coefficients of the dummy for migrants drop and become statistically insignificant.

6. Discussion

The results above suggest that there is a significant gap between the migrant population and the *hukou* population in China in terms of saving rate, which is in line with the evidence provided by B. Chen et al. (2015) and X. Chen (2018). Our further analysis finds that this gap cannot be thoroughly explained by social security factors, and that housing conditions, remittance motivation and family migration play a significant role in shaping the saving behaviour of migrants.

By using an up-to-date and more representative dataset that includes both migrants and *hukou* population, we overcome the limitations in B. Chen et al. (2015) and X. Chen (2018) and directly compare the saving rate between migrants and local *hukou* population. We find a significant gap in the saving rate between migrants and local *hukou* population even after controlling for social security. Considering the

importance of remittances in studies of migrant savings (Zhu et al., 2012), we find this saving gap can be well explained from the perspective of social cohesion. Discriminatory policies based on *hukou* make it difficult for migrants to integrate into local cities, the lack of homeownership in local cities, family separation, and remittances to support family consumption in their hometowns limits migrant's consumption in local cities, which leads to the saving gap between migrants and local *hukou* population.

7. Conclusion

Boosting domestic demand is not only the task of China's sustainable economic development, but also an important guarantee for China to further upgrade to an important global consumer market from global manufacturing workshop, and in particular, China has become an important global consumer market.

The correlation of the social cohesion policy with the regional development policy in local residence for migrants could create the necessary synergy that would contribute both to the increase of consumption but also to the integration of migrants in the local community. As for institutional reason of *hukou* system, there is a paradox of migrant savings that with lower income, the migrants always have a higher marginal propensity to save than residents with local *hukou*. It is also verified solidarity and social inclusion can be encouraged and improved through measures and policies aimed at mutual acceptance and mutual aid for internal migrants, such as social insurance and affordable housing system.

Moreover, we concluded with the effects from the local and hometown side on the saving gap between migrants and local *hukou* population. First, since housing condition is relating to family migration (Wu, 2006), our empirical results reveal that promoting family migration could be an effective means to stimulate the migrants' consumption.

Second, if the factor of buying a house is determined by saving future consumption, the factor of remittance is determined by the lack of confidence in the potential of the local society and a greater need for economy. In both cases, the application of social cohesion policies not only for migrants themselves but also their families both in local residence and in hometown will lead to a change in the relationship of saving consumption for migrants. For *hukou* system as a push from the local city (H. Zhang, 2010), the rural land system as a pullback to hometown (Tao & Xu, 2007), migration plan of migrant workers in China is always not permanent. This means that firstly, migrants may save to consume when they go back to their hometown instead of consuming later locally; secondly, remittance is used for supporting the consumption of family members, and thus this should be regarded as a kind of consumption transfer.

There are some limitations of this study. Some in-depth analysis of the mechanisms of homeownership and social insurance on migrant savings, as well as the evaluation of social inclusion policy need to be carried out, which enlighten our future research.

Notes

1. Local *hukou* population refers to the population whose living and registering *hukou* are in the same place. Migrants basically refer to the population living in a place with *hukou* registered in another place.
2. National saving equals GDP by expenditure approach minus final consumption expenditures. Data Source: China's National Bureau of Statistics.
3. See more details of China Migrants Dynamic Survey in Section 4.
4. The program uses a probability-proportionate-to-size sampling technique. Probability proportional to size sampling includes a number of sample selection methods in which the probability of selection for a sampling unit is directly proportional to a size measure.
5. We consider the educational level as 6 years for a primary school level of education, 9 years for junior high school, 12 years for senior high school, 13 years for technical secondary school, 15 years for junior college, 16 years for college, and 19 years for graduate school.
6. Using $Saving\ rate2_{ict}$ as dependent variable, we get almost the same result.
7. We also use CMDS in 2010 and 2015, which have both *hukou* population and migrants' samples for comparison, the main conclusion remains the same. All these results are available. Since the remittance relating questions are only asked in the 2013 questionnaire, we just present the 2013 results for brevity.
8. It is noted that remittance could use for either saving or consumption at hometown. However, Zhu et al. (2012) find evidence supporting the view that remittance are used for consumption. In this part, we regard the remittance as consumption. In addition, we will split our sample to further analyze the role played by remittance in the next part.

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