Research Article

Old age insurance participation among rural-urban migrants in China

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Abstract

BACKGROUND
The Chinese government has been introducing reform policies to improve the existing social security system, including the old age insurance schemes for rural-urban migrants. However, there are still challenges in the current system that hinder migrants who move frequently from participating in old age insurance schemes.

OBJECTIVE
The objectives of this paper are to describe the current coverage of old age insurance amongst migrant workers and examine the associated individual, household, and geographical factors, and to predict the probability of old age insurance participation among rural-urban migrants by province and relevant migrant characteristics.

METHODS
Data for the analysis are drawn from the 2011 Migrant Dynamics Monitoring Survey in China. The sample consists of 110,005 migrant workers with rural household registration. The analysis considers multinomial logistic regression with type of old age insurance as the outcome variable.

RESULTS
Of all rural-urban migrant workers nationwide, 16.4% have participated in the *Basic Pension Insurance* for urban employees, 9.8% in the *New Old Age Pension* scheme for rural residents, 3.3% are covered by both schemes, and 70.5% have no coverage with any old age pension scheme. Migrants moving within provinces or from relatively wealthy households are more likely to participate in an old age insurance scheme than those moving across provinces or from relatively poor households. Migrants'

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occupational status also influences their participation in old age pension schemes. The predicted probability of participation varies across China by province.

1. Introduction

With rapid economic growth, China has experienced unprecedented rural-urban migration during the past decades. According to the 2010 population census, migrants constituted 16.5% of the total population and the number of migrant workers reached around 166 million in 2013 (Zou 2011; NBSC 2014). Based on the analysis of census and inter-census survey data since the 1980s, Duan et al. (2008) reported nine specific trends in internal migration in China over the previous three decades: a sharp increase in absolute size; a mature shift in migrants' age structure, with the percentage of people aged 15−64 increasing from below 60% in 1982 to over 84% in 2005; an overt increase in the proportion of female migrants; independent movement of people between cities; higher educational attainment among migrants; longer duration of stay in destination cities; people migrating primarily to look for work; people congregating towards coastal cities; and people migrating with families.

Historically, China's social welfare system developed on the basis of a household registration system that divided people into urban and rural residents, and the difference between urban and rural residential statuses continues to shape current reforms. For decades, social welfare has been designed to benefit local citizens almost exclusively, without considering migrants to urban areas who do not have urban residence registration. Migrants do not share the same benefits as urban residents, even though they have made a significant contribution to China's economic development (Smart and Smart 2001; Watson 2009). However, there is a gradual change in policies and reforms aimed at migrant welfare, especially regarding protection of their social rights by guaranteeing a minimum wage and medical care and enabling access to housing, schooling, and social insurance. During the late 1990s the government introduced a series of policies to reform and improve the social security system, including old age pensions for migrants, particularly the Basic Pension Insurance for urban employees and the New Old Age Pension scheme for rural residents.

This research has two objectives: i) to describe the current coverage of old age insurance amongst migrant workers and examine the associated individual, household, and geographical factors, and ii) to predict the probability of old age insurance participation among rural-urban migrants by province and relevant migrant characteristics. The paper first presents an overview of recent developments in the

pension system for migrants, then a description of data source and methodology, and finally the results and conclusion.

2. Pension systems for migrants

This section provides the features of and background information to the two main pension systems for migrants examined in this study.

2.1 Basic pension insurance for urban employees

China's urban pension system has been through a series of reforms since it was established in 1951. In the beginning it covered only the state and urban collective sectors, but it later expanded to cover all employees working in cities and towns, regardless of the ownership of the enterprise or organization (Friedman et al. 1996; World Bank 1996). In January 1999 the State Council issued the *Tentative Rules on the Payment of Social Security Dues*, which was a government policy directive designed to speed up the inclusion of non-state-owned enterprises and migrant workers in the pension system (State Council 1999). This policy is generally termed Basic Pension Insurance for urban employees.

In recent years this scheme has been slowly opened to include workers in other rapidly growing urban sectors, mainly foreign-funded enterprises, private enterprises, and the self-employed (Zhao and Xu 2002). Under this scheme, both the employer and employee can make contributions and the government acts as pension guarantor. Currently, employers contribute 12% or more of the total employee payroll and employees contribute 4%−8% of their wages. Generally, the retirement age is 60 years for men and 50 years for women, the exception being women in certain managerial positions or researchers for whom it is 55 or 60 years. Employees with less than 15 years of contributions are not entitled to any basic pension. Accumulations in individual pension accounts are refunded as a single lump sum. In principle, when migrants move to another province, their personal pension account and employer contribution is transferred (State Council 2000, 2009b).

2.2 New old age pension scheme for rural residents

For a long time, China's old age social security system was only accessible to urban employees, leaving the rural population with little or no coverage. In 2009 the

government introduced a nationwide experimental rural social pension scheme. A major feature of this *New Rural Pension* scheme is that the government makes direct contributions: local and central government finance a basic pension component and registered individuals contribute to their personal account (State Council 2009a). The central government contributes 55 Yuan per month (about USD8) to the basic pension component, which approximately translates to the amount that demarcates the poverty line in rural China. It is a voluntary programme in which all rural residents aged 16 and above are encouraged to participate. To access the benefit men must be at least 60 years old and women at least 55 years old, and they must have worked for at least 15 years. Those who were already 65 years old when the scheme was introduced can receive the basic pension benefit of 55 Yuan per month without any contributions as long as at least one of their family members aged 16 and over is participating in the pension scheme.

Under the existing framework, rural-urban migrant workers are eligible for Basic Pension Insurance or the New Rural Pension scheme, but are not allowed to join both schemes at the same time. However, there are still obstacles in the current system that make it difficult for migrants who move frequently to participate in the pension schemes, as eligibility is based on household registration and only operates at the local level. Yang (2011) reported an increase in old age insurance coverage of rural-urban migrants who moved to seek a job, from 6.7% in 2006 to 10.7% in 2008, and coverage increased from 9.8% in 2009 to 14.3% in 2012 (NBSC 2013). However, old-age pension coverage among migrant workers in urban areas remains substantially lower than among the local (non-migrant) population that has urban household registration. In 2010 about 63% of the working-age population with urban household registration had old-age pension coverage (Lu 2012).

2.3 Challenges to old age pension enrolment

The government-sponsored old age insurance systems are voluntary endowment schemes that are made available to migrants. While it is generally considered a rational choice for migrants to enrol in these schemes, the decision is also influenced by the nature of the policy, family circumstances, and migrants' economic status, life plans, and expectations in old age.

The factors that influence migrants' decision to participate in old age insurance schemes are both individual and institutional. Employers are reluctant to pay insurance contribution for migrants because of their high degree of mobility. Migrants themselves are unwilling to participate in the insurance schemes, as they require stable employment and regular payments. It is also difficult to transfer the insurance when migrants decide to move to another province (Li 2009; Zheng 2008). A recent study by Yang (2011)

illustrates that rural-urban migrants are doubly disadvantaged because they hold rural household registration and are not registered in urban areas, so they cannot use urban facilities. Without being registered as a permanent local household, migrants are not able to fully access local public services and social welfare, such as children's education, medical insurance, and welfare housing, which has a negative impact on migrants' settlement and stable employment. Compared to local urban residents and even other urban-urban migrants they have less chance of securing old age insurance. Other studies suggest that individual characteristics of migrants such as age, gender, education, and employment status can determine their participation in old age insurance schemes (Lv and Li 2012; Zhang, Gao, and Hou 2007; Nielsen et al. 2005). However, regional disparity exists even after controlling for individual characteristics (Li 2009).

3. Data and methods

This section describes the data source, analytical approach, and operational definitions and coding of variables considered in the study.

3.1 Data source

Data for this study are drawn from the 2011 Migrant Dynamics Monitoring Survey in China (MDMS), conducted in migrants' destination cities. The survey was conducted in May 2011, commissioned by the National Population and Family Planning Commission of China and coordinated by the China Population and Development Research Centre. MDMS is a nationally representative sample survey, conducted every year since 2010 (piloted in five cities in 2009), aimed at examining the social and economic status of migrants, including their social welfare and participation in insurance schemes in destination cities.

The 2011 MDMS adopted a stratified three-stage probability-proportional-to-size (PPS) sampling method. Each provincial unit was taken as a stratum with a total of 32 strata. Within each stratum, a specified number of neighbourhood committees or townships were chosen as the Primary Sampling Units based on the listing of total number of migrants, resulting in a total of 3,200 units nationwide. Two communities or villages were selected from each neighbourhood committee or township and 20 eligible individual migrants were randomly selected from each community. The eligible migrants were aged between 16 and 59 years, had moved across a county (Xiàn) boundary from their registered household, and had been in their current destination for more than one month. The eligibility criteria also included the purpose of moving,

which was to seek a paid job. Spouses of migrants were not included. A total of 128,000 migrant workers were interviewed face-to-face by trained interviewers using a structured questionnaire. The sample was designed to be nationally representative and was selected using a probability sampling method. Qi and the team reported that the 2011 MDMS sample was a good representation of the population, with sampling errors being relatively small and in the acceptable range. For example, for the indicators the proportion of unmarried, the proportion of employed, and the proportion of those with old-age pension coverage the sampling error was 0.028, 0.003, and 0.025 respectively (Qi, Qin, and Li 2014).

The subjects in our study were rural-urban migrant workers with rural household registration, which is the most vulnerable group in terms of social protection (Zhang 2007; Zheng 2008). Migrant workers with urban household registration who are not entitled to the New Rural Pension were excluded from this study. As very few rural-urban migrant workers participate in old age insurance programmes run by private companies (Zhang 2007; Yang 2011) they were not included in the current study. The final analysis sample comprised 110,005 observations of migrants aged 16−59 years holding rural household registration, who had moved across county boundaries to seek a paid job and had resided at their current destination for more than one month.

3.2 Analytical approach, variables, and operational definition

To identify the factors influencing participation in old age insurance schemes, multinomial logistic regression was carried out, with old age pension insurance participation as the dependent variable, coded into four categories: basic pension insurance, new rural pension scheme, both basic and new rural pension scheme, and no participation (reference category).

The robust standard errors were obtained by considering the clustering effect associated with the sampling design. Theoretically, the cluster robust standard errors should be larger to account for serial correlation and heteroskedasticity, thereby resulting in a less biased estimation of variance and test of statistical significance. After fitting the multinomial logistic regression model, the probability of old age pension insurance participation among rural-urban migrants by province and relevant migrant characteristics was predicted, as explained in Appendix B.

The main explanatory variables were i) type of migration categorised as cross-province and within-province migration; ii) length of time spent in the current destination coded as less than one year, 1−5 years, 6−15 years, and 16 years or more; and iii) respondents' attitudes towards the place of destination. The attitude towards destination was measured based on a score variable constructed from five attitude-type

questions. These included respondents' specific preference and liking for their destination city, their concerns about living in their current city, their willingness to integrate into the city's society, their expectation of being welcomed by local residents, and concerns that the local community was unwilling to accept migrants. The response options were completely disagree, disagree, agree, and completely agree. A maximum score of 4 was given to the most positive response to each question. For example, a score of 4 was given if a respondent answered positively and reported "completely agree", whereas a "completely disagree" answer received a score of 1. On the other hand, if the response was negative it would score 1 for "completely agree" and score 4 for "completely disagree". Finally, the scores for the five questions are summed and recoded to 1 if the sum is lower than the median reflecting relatively negative attitude, and recoded 2 if higher than the median reflecting relatively positive attitudes.

In addition, the analysis considered individual attributes, including respondents' age (coded into four categories: 16−24, 25−34, 35−44, and 45−59); gender (male, female); marital status (unmarried, married); number of children (no child, one child, two or more children); education (primary, junior middle, senior middle school and above); employment sector (manufacturing, construction, service sector, finance/health/science and technology, transportation/communication, other); type of occupation (professional/clerical, service provider, manufacturing, construction/ transportation, other); ownership of enterprise (state-owned, own small business, private, foreign-invested enterprise/joint multinational business, other). The type of occupation is different from employment sector. For example, a migrant employed as a manager or professional technician in the manufacturing sector belongs to the occupational category of professional/clerical. In the multinomial regression model, for employment sector we set manufacturing sector as the referent category in order to compare the manufacturing sector, in which a large proportion of rural-urban migrants are employed, with other sectors; while for occupation we aimed to explore the contrast between professional/clerical, likely occupied by non-migrants, and other occupations likely occupied by migrants, so we set professional/clerical as the referent group. The selected household attribute was the consumption expenditure per capita (coded as 0−500 Chinese Renminbi (RMB), 501−1000 RMB, and 1000 RMB and above). Finally, a dummy variable was created to identify the 32 provinces to capture the variation across provinces.

4. Results

4.1 Social and demographic characteristics

All the rural-urban migrants in the sample migrated to seek a paid job, and 51% are male and 49% are female (Table 1). Their mean age is 31.7 years. More than a third of the migrants are aged between 25 and 34 and about 77% are ever married. About 86% of the ever married have moved to their current destination with their spouse or at least one child (data not shown separately). More than half of rural-urban migrants have education up to senior middle-level school.

Seventy-one per cent have migrated across province. Of these, about 87% have flowed into the five coastal provinces of Guangdong, Zhejiang, Jiangsu, Shanghai and Fujian, and the capital Beijing (data not shown separately). More than half of the rural-urban migrants have lived in their current destination for more than 2 years. About 30% have stayed for more than 5 years. The above figures reiterate the increasing trends of feminisation and family migration in China, with long duration in the destination.

Table 1:   Selected socio-demographic characteristics of rural-urban migrants (*n*=110,005)

Characteristic	%
Age group (in years)	
15−24	25.7
25−34	36.1
35−44	29.8
45−59	8.5
Gender	
Male	51.0
Female	49.0
Marital status	
Never married	22.8
Ever married	77.2
Education	
Primary school	17.4
Lower secondary	58.5
Upper secondary and above	24.0
Type of migration	
Cross province	70.5
Within province	29.5
Duration of current residence (in years)	
Less than 1	23.0
1−5	47.4
6−15	25.8
16+	3.9

Note: mean age of respondents: 31.7 years; median duration of residence: 2 years.

4.2 Participation in old age pension schemes

Overall, about 71% of the rural-urban migrant workers are not participating in any old age pension scheme, 16.4% are participating in Basic Pension Insurance, 9.8% in the New Rural Pension scheme, and 3.3% in both schemes. These figures show an increasing trend compared to about 11% participation in Basic Pension Insurance in 2008 (Yang 2011).

Old age insurance participation varies considerably by province, particularly in Guangdong, Zhejiang, Jiangsu, Shanghai, Fujian, and Beijing, where the number of intra-province rural-urban migrants is substantial (Figure 1). For example, in Jiangsu province, Basic Pension Insurance participation is as high as 26%, whereas in Fujian the New Rural Pension coverage is about 16%.

On the other hand, the percentage of migrants not covered by any scheme varies between around 79% in Zhejiang and 59% in Jiangsu. Interestingly, a reasonable proportion of migrants are covered by both schemes; for example, about 6% in Guangdong. This is not in line with the official recommendation that migrants participate in only one scheme at a time.

Figure 1:   Percentage of migrants participating in old age insurance in selected provinces and at the national level
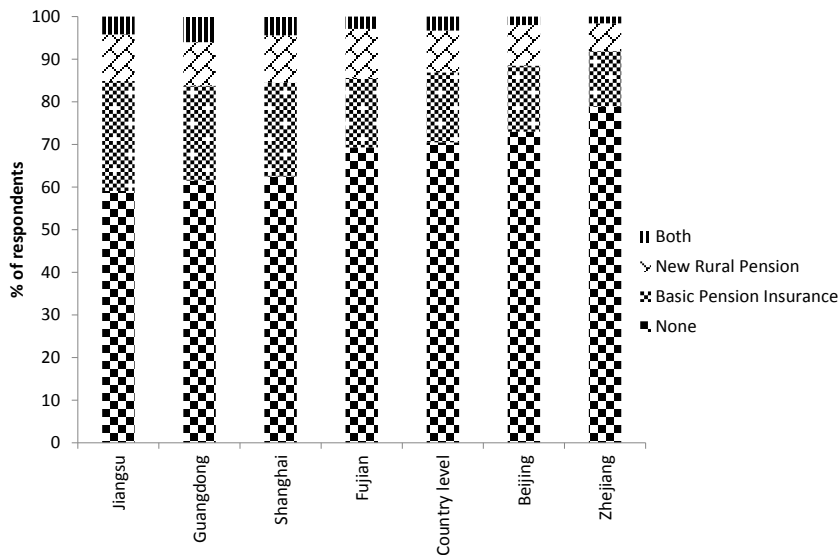
4.3 Multinomial regression

The results of the multinomial logistic regression are shown in Table 2. The dependent variable has four categories, with the most represented category "no participation" as the reference group. Three models are estimated comparing no participation with Basic Pension Insurance, New Rural Pension, and participation in both schemes. The parameter estimates are relative to the reference group, the standard interpretation of the multinomial logit is that for a unit change in the predictor variable, and the logit of outcome relative to the referent group is expected to change by its respective parameter estimate (which is in log-odds units), given that the variables in the model are held constant (Hosmer and Lemeshow 2000). We present the Relative Risk Ratios (RRR) for the predictors rather than logit, for ease of understanding. The RRR are the exponentials of the coefficients, indicating how the risk of the outcome falling in the comparison group compared to the risk of the outcome falling in the referent group changes as the predictor variable changes by one unit (Garson 2011). For example, in Table 2, RRR for female migrants who participate in the Basic Pension is 1.07 with a standard error of 0.04. The RRR indicates that the relative risk of female migrants participating in the Basic Pension over not participating in an insurance scheme is 1.07 times that of male migrants. The difference between female and male migrants is statistically significant at the 5% level.

Migrants moving within province are significantly more likely to participate in an insurance scheme than those moving across provinces. Interestingly, those migrating within province are also more likely to participate in both schemes than cross-province migrants. Those who have remained in their destination longer than one year are significantly more likely to participate in the Basic Pension Insurance or both schemes. However, they are significantly less likely to participate in the New Rural Insurance scheme than those who have stayed less than a year. This is clearly illustrated in Figure 2, which shows that the probability of participating in the New Rural Insurance scheme tends to decrease among migrants with the increase in duration of current residence, and vice versa for the Basic Pension Insurance scheme. Migrants with positive attitudes towards their destination city are also likely to participate in Basic Pension Insurance or both schemes. The attitude effect is not significant for those participating in the New Rural Insurance scheme.

Table 2: **Relative risk ratio and robust standard errors from multinomial logistic regression showing the effect of selected variables on migrant participation in insurance schemes**

Characteristic	Basic Pension	New Rural Pension	Both scheme
		Ref: no insurance scheme	
Cross-province (ref)			
Within province	1.57 (0.07)***	1.19 (0.05)***	1.31 (0.11)**
Duration in the current destination (ref: <1 year)			
1−5	1.81 (0.09)***	0.96 (0.04)	1.44 (0.15)***
6−15	2.56 (0.15)***	0.90 (0.05)*	1.85 (0.21)***
16+	3.30 (0.28)***	0.81 (0.06)**	2.02 (0.33)***
Attitude towards destination: negative (ref)			
Positive attitude towards destination	1.32 (0.05)***	0.95 (0.04)	1.27 (0.12)*
Age group in years: 15-24(ref)			
25−34	1.52 (0.07)***	1.37 (0.06)***	1.39 (0.13)***
35−44	1.65 (0.09)***	1.86 (0.09)***	1.59 (0.17)***
45−59	1.25 (0.09)**	2.31 (0.13)***	1.58 (0.21)***
Gender: Male (ref)			
Female	1.07 (0.04)*	1.02 (0.03)	1.09 (0.07)
Education: Primary school (ref)			
Lower secondary	1.71 (0.08)***	1.21 (0.04)***	1.56 (0.13)***
Upper secondary+	4.09 (0.23)***	1.39 (0.61)***	3.35 (0.36)***
Employment sector: Manufacturing (ref)			
Construction	0.24 (0.03)***	1.10 (0.09)	0.46 (0.09)***
Finance/Health/Science	0.98 (0.09)	1.05 (0.12)	0.73 (0.13)
Transportation/Communication	0.85 (0.09)	1.23 (0.12)*	0.57 (0.11)**
Service	0.69 (0.05)***	1.04 (0.08)	0.58 (0.08)***
Other	0.76 (0.06)**	1.05 (0.10)	0.59 (0.09)**
Unemployed	0.01 (0.00)***	0.82 (0.11)	0.03 (0.01)***
Type of occupation: Professional/Clerical (ref)			
Service provider	0.57 (0.03)***	0.90 (0.06)	0.58 (0.06)***
Construction/transportation worker	0.61 (0.04)***	0.84 (0.06)*	0.58 (0.08)***
Manufacturing worker	0.62 (0.05)***	0.82 (0.08)	0.55 (0.09)***
Other	0.38 (0.04)***	0.88 (0.08)	0.45 (0.08)***
Ownership of enterprise: State enterprise (ref)			
Small business	0.04 (0.00)***	0.94 (0.10)	0.11 (0.02)***
Foreign-invested enterprise	0.88 (0.10)	1.30 (0.24)	1.13 (0.25)
Private enterprise	0.21 (0.02)***	0.90 (0.10)	0.27 (0.04)***
Household consumption expenditure per capita: 0-500 RMB (ref)			
501−1000 RMB	1.40 (0.06)***	1.07 (0.04)	0.94 (0.10)
1000+ RMB	1.87 (0.10)***	1.19 (0.07)**	1.38 (0.16)**
Number of children: No children (ref)			
1	1.03 (0.05)	1.34 (0.06)***	1.20 (0.12)
2+	0.84 (0.05)**	1.26 (0.07)***	1.02 (0.12)
Intercept	0.31 (0.05)***	0.07 (0.01)***	0.06 (0.02)***

Note: ref.: reference category; ***p<0.001; **p<0.01; *p<0.05. The estimates for the 32 provinces are not included separately.

With regard to the employment sector, migrants working in the manufacturing sector are more likely to participate in the Basic Pension Insurance scheme or both schemes compared to those employed in other sectors. The results differ by type of occupation. Migrants who have professional or clerical designations are more likely to

participate in the Basic Pension Insurance scheme or both schemes than manufacturing workers and other occupations. The relative risk of a rural-urban migrant as a manufacturing worker participating in the basic pension insurance is 62% of that of a migrant who is a professional or clerk. For manufacturing workers the predicted probability of participating in the Basic Pension Insurance is 0.102, which is slightly higher than for service providers (0.096) but lower than for professionals/clerks (0.134) (data not shown separately). Migrants employed in state-owned enterprises are significantly more likely to participate in an insurance scheme than migrants in small businesses or private enterprises (not foreign).

Figure 2: **Predicted probability of migrant participation in old age pension by duration of current residence**
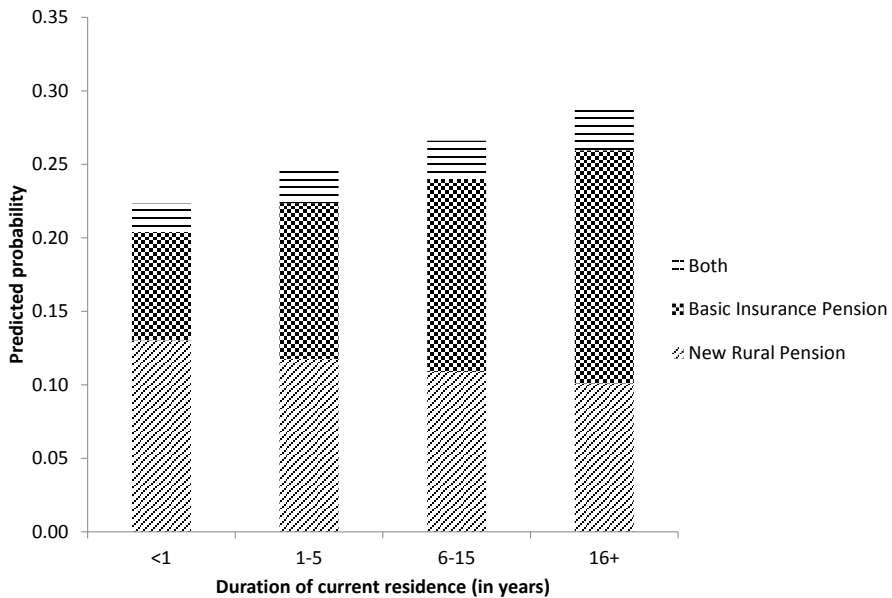
Migrants living in households with consumption per-capita expenditure of over 500 RMB are significantly more likely to participate in the Basic Pension Insurance scheme compared to those with no insurance. However, households with consumption per-capita expenditure of 1000 RMB or over are highly likely to participate in an insurance scheme and are likely to participate in both schemes.

The estimates for the provinces are not shown separately but are presented as predicted probabilities in Table 1A (see Appendix A). The predicted probability for each province varies largely across the country. For instance, rural migrant workers in Shanghai and Jiangsu have the highest probability of participating in Basic Pension Insurance, which is more than 13 times that in Xizang and almost 7 times that in Heilongjiang.

5. Discussion and conclusion

Our results show that migration factors influence old age insurance participation. Rural-urban migrants moving within province are more likely to participate in Basic Pension Insurance and New Rural Pension schemes, or even both schemes, than those moving between provinces. This is probably due to the institutional obstacles associated with inter-provincial transfer of pension insurance. Those who have stayed in their current city for a longer period and have a relatively positive attitude towards that city are more likely to participate in the Basic Pension Insurance scheme. This group of migrants has a positive attitude and is more determined, with a greater ability to settle down in cities. Those who have stayed in their current location for a shorter period are more likely to participate in the New Rural Pension scheme. The pilot for this scheme began in 2009, and migrants who have been in their current location for a short period of time may have participated in the scheme in their hometown before they moved to their current residence. However, due to inefficient publicity and drawbacks of the scheme such as low pension amounts, inconvenience in paying the premium, and lack of portability (Gao, Su, and Gao 2012), migrants who left their hometown many years ago may be unaware of the new scheme or may not have had the time to return home to enrol.

Occupation and the ownership of the employing body significantly influence migrants' old age insurance programme participation. Service providers and construction workers have a lower probability of participating in Basic Pension Insurance compared to migrants in more professional occupations. Migrants in small businesses and private enterprises have a lower probability of participating in Basic Pension Insurance compared to workers employed by state-owned enterprises. A possible explanation for this is that service industries and construction are volatile and the workers change jobs frequently, so both employers and migrants are reluctant to contribute to or participate in the insurance schemes. The problem with small business owners is that they have to contribute both as employers and employees, which might induce them not to participate in insurance schemes (Sun, Du, and Tang 2011; Li 2006; Watson 2009; Zhang 2007).

Household consumption expenditure per capita has an important influence on migrants' old age insurance participation. Higher per capita household consumption expenditure leads to higher participation in any kind of old age insurance programme. This is probably explained by more consumption meaning more income and therefore greater capability for allocating resources for social security. Therefore special attention needs to be paid to old age security for poor rural migrants in urban destinations, given that they are less likely to be covered by any kind of old age insurance programme. They have little opportunity to benefit from the schemes which exclusively target the poor, such as the Urban Minimum Living Standards Scheme, the Rural Minimum Living Standards Scheme, and the Five Guarantees Scheme for Rural Residents (Lu 2012), since these schemes are bounded by the household registration. Moreover, insurance premiums are higher for urban residents than for rural residents.

The variation between provinces in participation in old age insurance partially reflects the influence of different social security regulations at the provincial level. In practice, the lack of a nationwide social security regulation that differentiates between the total amount contributed by the individual and the different old age benefits for rural migrant workers and urban non-migrant employees provided by some provinces, discriminates against rural migrant workers, ultimately influencing their willingness to participate (Huang and Ga 2011; Yang and Guo 2006).

We conclude that even though available data shows a trend of increasing coverage of old age insurance for migrants, the current level and probability of old age pension participation are still low among rural-urban migrants. A significant proportion of migrants do not participate in any old age insurance scheme, particularly those who live in poorer households, who move frequently between provinces, and who work in private enterprises, small businesses, the construction sector, and the service industry. Pension regulations differ between provinces, which implies institutional obstacles and weaknesses in the promotion and coverage of old age insurance schemes. To improve this situation, more migrant-friendly reforms are needed, which should particularly focus on cross-province migration, economically disadvantaged migrant families, migrants working for private enterprises and small businesses, and migrants in the construction and service industries. A positive development is that the Chinese Ministry of Human Resources and Social Security recently issued the *Interim Measures on the Convergence of Rural and Urban Old-age Insurance Systems*, which was implemented on July 1st, 2014 and clears the way for the convergence of the two pension insurance schemes. There is an urgent need to reform policies and expand old age insurance coverage, targeting rural-urban migrants. Transfer and continuation of old age insurance will hopefully become easier in the near future. Hopefully, the new policy will spur migrant workers to participate in the old age pension schemes. In the long run,

establishing a nationwide unified social security system would benefit Chinese migrant workers substantially. Further study is needed to follow up the impact of the reform.

Rural migrant workers often have low social and legal status in urban destinations. Historically, this has been due to dualistic social and economic structures and policies, especially among those employed in informal, contracted, and casual employment sectors. Rural migrants in urban areas are generally marginalised, insecure in the social security system, and are often confronted with identity issues as belonging to neither urban nor rural society. Low old age, medical, work injury, and unemployment insurance coverage is just one aspect of migrants' vulnerability (Zheng 2002). Other dimensions include discrimination in employment opportunities and public services, underpayment and wage default, long work hours without overtime payment, and lack of work safety protection (Lan 2009). The household registration system and social policies that favour the urban are other challenges that hinder equal employment opportunities and general social treatment of rural migrant workers. These challenges are internal and specific to China but resemble issues and debates concerning international migrant workers, the difference being that in China the household registration system imposes internal migration restrictions (Zheng 2002; Ginneken 2013). The vulnerabilities of rural migrant workers in China highlight substantial unmet need for social protection. Targeted interventions are needed to integrate migrants into urban society and provide them with equal opportunities and economic benefits. Although the newly amended Labour Contract Law and the Employment Promotion Law, both adopted in 2007, and the Social Insurance Law adopted in 2010 are reassuring in terms of securing social protection for migrant workers, there still is a long way to go before social policies are detached from household registration and an efficient, attractive, and nationwide social security scheme is established.

6. Acknowledgements

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Appendix A

Table 1A: Predicted probability of participation by type of insurance scheme and province

Province	Basic Pension		New Rural Pension		Both schemes	
	Probability	SE	Probability	SE	Probability	SE
Beijing	0.131	0.010	0.104	0.013	0.018	0.005
Tianjin	0.099	0.009	0.091	0.009	0.016	0.004
Hebei	0.070	0.008	0.129	0.019	0.020	0.011
Shanxi	0.057	0.007	0.116	0.014	0.012	0.003
Neimenggu	0.072	0.011	0.066	0.008	0.011	0.002
Liaoning	0.076	0.007	0.101	0.016	0.004	0.002
Jilin	0.037	0.007	0.029	0.007	0.004	0.003
Heilongjiang	0.024	0.005	0.042	0.008	0.004	0.002
Shanghai	0.165	0.012	0.130	0.013	0.035	0.005
Jiangsu	0.160	0.008	0.135	0.011	0.029	0.005
Zhejiang	0.119	0.009	0.076	0.007	0.015	0.004
Anhui	0.094	0.007	0.096	0.010	0.009	0.002
Fujian	0.109	0.012	0.131	0.013	0.022	0.006
Jiangxi	0.061	0.010	0.105	0.012	0.018	0.004
Shandong	0.132	0.012	0.175	0.018	0.028	0.005
Henan	0.043	0.006	0.064	0.009	0.003	0.001
Hubei	0.095	0.009	0.084	0.013	0.009	0.003
Hunan	0.046	0.006	0.171	0.019	0.027	0.005
Guangdong	0.142	0.007	0.119	0.010	0.041	0.006
Guangxi	0.095	0.010	0.043	0.006	0.014	0.005
Hainan	0.113	0.012	0.163	0.018	0.035	0.011
Chongqing	0.152	0.012	0.179	0.015	0.016	0.003
Sichuan	0.132	0.013	0.081	0.013	0.012	0.003
Guizhou	0.073	0.008	0.097	0.012	0.020	0.005
Yunnan	0.034	0.005	0.088	0.014	0.010	0.003
Xizang	0.012	0.005	0.192	0.034	0.017	0.005
Shanxi	0.042	0.008	0.173	0.019	0.025	0.005
Gansu	0.045	0.005	0.121	0.017	0.008	0.002
Qinghai	0.058	0.019	0.225	0.034	0.029	0.007
Ningxia	0.053	0.010	0.142	0.020	0.009	0.003
Xinjiang	0.131	0.012	0.079	0.012	0.039	0.012
Xinjiang production and construction area	0.124	0.022	0.099	0.020	0.014	0.004

Note: SE: Standard Error

Appendix B

In order to describe the predicted probability of old age insurance participation by province and relevant migrant characteristics such as duration of current residence and occupation (manufacturing workers), the 'margins' command of statistical software STATA (StataCorp. 2011) was used after fitting the multinomial logistic model. Below is an example. The dependent variable "old age pension insurance participation" is named "outcome"; "basic pension insurance participation" is assigned value label 1; "new rural pension scheme participation" is assigned value label 2; "both basic and new rural pension scheme participation" is 3, "no participation" is 0, and the two explanatory variables are "duration" and "province".

We fit the multinomial logistic model first
. mlogit outcome i.duration i.province…
then using 'margins' to obtain the probability that outcome = 1
. margins duration, predict(outcome(1))
and to obtain the margins for the probability that outcome = 2
. margins duration, predict(outcome(2))
and to obtain the margins for the probability that outcome = 3
. margins duration, predict(outcome(3))

For each 'margins' command, Stata output presents a table with the margins, the standard errors, and the confidence intervals of the margins. Below is the output table of the command. margins duration, predict(outcome(1)).

	Margin	Delta-method Std. Err.	z	P>z	[95% Conf.	Interval]
duration						
1	0.0687838	0.0024577	27.99	0.000	0.0639668	0.0736009
2	0.1017399	0.0021587	47.13	0.000	0.0975088	0.1059709
3	0.1257632	0.0028006	44.91	0.000	0.1202741	0.1312523
4	0.1472964	0.0057771	25.50	0.000	0.1359735	0.1586192

Margins are eventually the average of the predicted probabilities of all observations. For each individual in the dataset, his/her probability associated with the outcome (participation in basic pension insurance scheme, or in new rural pension scheme, or in both basic and new rural pension scheme) is estimated from the previously fitted multinomial logistic model at fixed values of the variable "duration" (1 or 2 or 3 or 4), holding other controlling variables such as "province" at their observed values. Then the average of predicted probabilities of all observations are estimated.