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Drivers of housing choice among rural-to-urban migrants: Evidence from Taiyuan¹

Bingqin Li, Mark Duda, and Xiangsheng An

Abstract

Policies addressing the influx of rural migrants into Chinese urban areas have evolved over time from active opposition, through suspicious ambivalence, to wary tolerance, and now seem to have entered a new phase in which productive engagement is being attempted. Unfortunately, little information or experience is available to inform policy development in this new era. This paper helps address this knowledge gap by studying housing behaviour and choices among a sample of migrants in Taiyuan. The study's results suggest that migrants' housing outcomes in urban areas are influenced heavily by priorities linked to the transitional economic environment and individual migration characteristics. The analysis finds a more limited role for factors such as income and life cycle, which are central to housing choice in other contexts. We argue that migrants' housing outcomes cannot be explained without reference to the specific set of challenges they face, and the resulting decisions that they make, as a result of their immersion in the country's economic transition.

Key Words: Chinese cities, migration, housing policy

Introduction

By the 1990s, strong urban labour demand, vast disparities in rural and urban incomes, and widespread rural under-employment had combined to put a *de facto* end to China's regime of strict domestic mobility controls. The resulting internal migration has been the driving force behind the country's rapid urbanization, which has now reached 43.0 percent, up from 19.6 percent in 1980 and projected to exceed 70.0 percent in 2050. The majority of future increases will continue to be driven by migration rather than natural increase.

Rapid, migration-driven urbanization has placed enormous strain on Chinese cities. Urban officials complain that migration has stretched physical infrastructure, social welfare programs, and administrative capacity to the breaking point. Yet, these same officials have been under intense pressure to facilitate economic growth, among other things by ensuring the availability of a pool of low-cost labour. Over time, this reality has resulted in a shift away from rules designed to prevent migrants from living legally in

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cities. Recently, some cities have begun experimenting with various measures intended to help migrants to settle in during their spells of urban employment.

In the housing sector, this has meant a shift (albeit not a wholesale shift) away from the demolition of so-called ‘urban villages’ (*chengzhongcun*) and the decline of institutional mechanisms that formerly denied migrants access to urban housing. Going further, some cities have begun offering migrants access to housing finance and saving schemes (Ministry of Construction PRC 2005), though the extent to which these actually meet the needs of migrants is debatable. Other cities have taken a different tack, intervening in the low-cost rental market by building dormitories specifically for migrants and leasing them at nominal rates (Xiao 2006, Song 2007).

That even these latter policies – interventions in the low-cost rental market where many migrants find housing - have largely failed reflects the fact that policy development and implementation to date has taken place without the input of migrants themselves and without any grounding in policy-driven empirical research into the sources of migrant housing behaviour and preferences. Policymakers remain poorly informed about the type of interventions that could help integrate migrants into urban life and/or deal with the housing pressure posed by extremely rapid, migration-driven urbanization (Duda and Li, 2008).

The goal of this paper is to inform policymaking by providing information about the housing needs and preferences of low-income migrants, and the factors that drive their decision-making. The paper argues that these differ from the standard life cycle and economic explanations due to the pervasive influence that the transition context has on migrants’ livelihoods. Fieldwork took place in 2007 in Taiyuan, the capital of Shanxi Province where, up to that point, the state had not intervened in the provision of housing for migrant workers. Taiyuan therefore presents an example of ‘organic’ housing market development for rural to urban migrants.

Housing choice among rural migrants in Chinese cities

Studies in various countries have found that migrants tend to occupy less desirable housing than urban natives (*e.g.*, Goldscheider 1987, Dutt *et al.* 1994, Costello 1987, Sclar *et al.* 2005). This phenomenon has been consistently documented in China as well (Huang and Clark 2002, Wu 2002, Wu 2004, Huang 2003, Huang and Jiang 2007). Several Chinese studies have attempted to ascertain what factors explain these differences.

Perhaps the most prominent of the proposed explanations is institutionalised disadvantage linked to the *hukou* (urban household registration system), which Huang and Jiang (2007) call the ‘*hukou* inequality hypothesis.’ That study considers tenure choice in Beijing using data from 1995 and 2000, and finds that, relative to permanent urban residents, migrants with temporary, rural *hukou* status are significantly less likely to own privatized public housing and significantly more likely to end up in private rentals or the ‘other’ category, but not less likely to own private housing.

Another study from this perspective is that by Wu (2004), who models tenure choice of migrants (both with and without local *hukou*) and urban natives in Beijing and Shanghai. She finds that having local *hukou* (i.e., being a *non-migrant*) substantially increases the odds of being a homeowner. Similarly, in a national sample Huang and Clark (2002) find that, when other relevant factors are controlled, households without permanent residency are 78 percent less likely to own homes than those with local residency.

Huang's (2003) study looks at renters. She points out that because of the legacy of *hukou* system, migrant renters in the 1990s did not have access to urban subsidized rental housing and were therefore disadvantaged relative to urban citizens. She then argues that this differential access to subsidized rentals explains observed differences in housing choice and quality. Relatedly, Wu (2006) shows that having a rural *hukou* increases mobility, but that migrants who have been able to find housing in public sector rentals have lower mobility rates.

In addition to institutional factors, the research literature also suggests that migration characteristics can affect migrants' housing choice. Wu (2004) used two variables to examine the impact of migration on housing choice: duration of residence in city and plan to stay in city. She found that duration of residence is positively related to housing quality and plan to stay long term also improves housing quality and size. She concludes that migrants make housing decisions based on whether or not they intend to settle in the cities, and argues that granting only temporary urban residence permits to migrants helps steer them away from homeownership.

Building on insights from these earlier studies, which are based on data gathered during the 1990s, Duda and Li (2008) and Li, Duda, and Peng (forthcoming) have argued that, while important, the role that institutionalised disadvantage currently plays in causing housing disparities among migrants and urban natives may be overstated in the research literature. They suggest that other potentially important causal factors, such as cohort effects in housing attainment introduced by the privatization process and the intentionally temporary nature of many migrant spells in the city (Zhu 2007, 2003) have been under-examined. Ultimately, they argue that these other factors are important enough to drive differences in housing outcome between migrants and urban natives, even when the socio-demographic determinants of housing choice are controlled and in the absence of institutional constraints.

'Transition priorities' and migrant housing behaviour

Building on the arguments in our earlier papers, in this paper we develop an explanation of migrants' housing outcomes that is grounded in four 'transition priorities.' We use this term to mean a set of preferences linked directly to China's transitional economic environment, which drives much of the migration phenomenon itself. These 'transition priorities' reflect both migrants' coping strategies in the face of enormous change and uncertainty about the future, and a recognition of the temporary nature of many opportunities they perceive.

The first transition priority concerns employment. Although there are other considerations involved, most migrants are pushed out of villages and pulled to cities by rural urban wage/opportunity gaps. Further, once they land in the city they must earn money simply to survive, ensuring that employment swamps other concerns. As a result, migrants tend to make certain types of combined housing-employment choices, such as living in the housing offered by an employer, in order, for example, to maximize time available for work.

The second transition priority, seen among both recent and longer-term migrants, is a strong savings orientation. This 'savings priority' is associated with household-level strategies for diversifying risk across urban and rural income sources in the transitional economic environment. This not only allows them to work in the city but consume in the country but is also a general response to the reality that economic transition has been experienced by most rural people as a time of dramatically increased uncertainty.

The third priority is mobility. In pursuit of employment opportunities, migrants are mobile not only across jobs among different districts within a city, but also among different cities, and between cities and rural areas. This 'mobility priority' affects migrants' propensity to buy homes and makes them unwilling to commit to long-term rental contracts, both of which tend to reduce the quality of the housing they occupy relative to that of urban natives that are more connected to particular locations.

The fourth priority is family life. When the family of a migrant worker joins him/her in the city, employer usually does not offer housing to the family members and workplace housing is in any case typically unsuitable for families. Households that are initially split between rural and urban areas are thus must therefore consciously united only when it is determined that they can survive as a family in the city. Whether the family is separated or united, housing choices are highly attuned to and reflective of choices related to family situation.

These four transition priorities jointly influence housing decisions. All else equal, the employment, savings, and mobility priorities suggest that migrants will place relatively low value on housing quality and more emphasis on convenience and low cost. Because many housing options open to single persons (including adult family members not residing together) are unsuitable for couples or children, the family life priority indicates that united families will experience housing outcomes more like urban natives with similar economic and demographic characteristics.

Several hypotheses can be developed based on the discussion of transition priorities. First, we would expect that employment will be closely linked to any and all housing decisions made by migrants (employment priority). Second, we would expect that the association between income and housing choices will not be particularly strong (savings priority). Third, migrants will tend to live in housing linked to employment to the extent that it is available (employment, savings, and mobility priorities). Fourth, migrant families living together in the city will have made different housing choices than similarly situated single migrants (family life priority). The empirical analysis presented

later in the paper tests these hypotheses by examining the relationship between housing provider/cost and a series of independent variables.

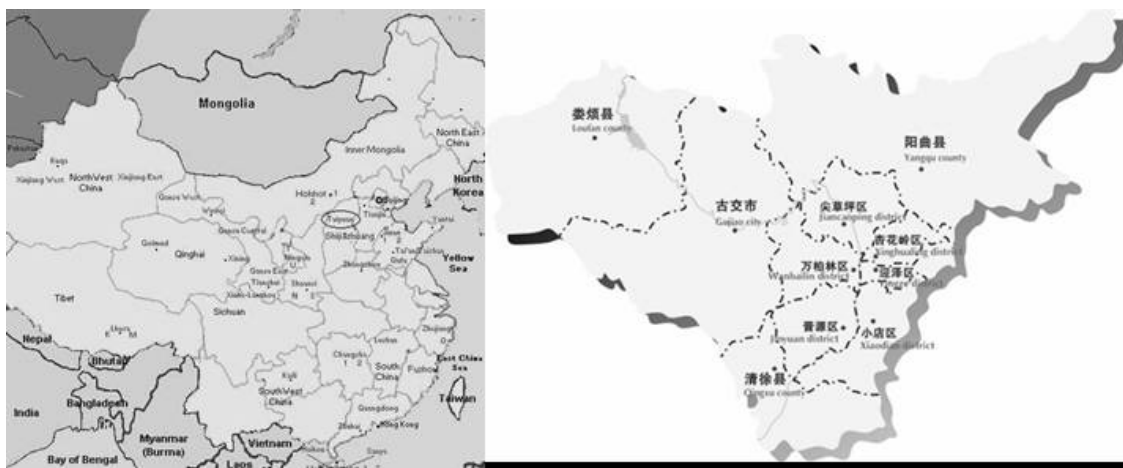
Study site: Taiyuan, Shanxi

The empirical results in this paper are based on a survey conducted in May/June of 2007 in Taiyuan, the capital of Shanxi Province (Figure 1A/1B). Not counting migrants, Taiyuan has 3.15 million inhabitants, of which 2.30 million reside in the core urban area. Official estimates put the migrant population at about 300,000 (Taiyuan Government, 2007). The city and suburbs together are comprised of six districts: Yingze, Xinghualing, Wanbolin, Xiaodian, Jiancaoping and Jinyuan.

Economically, Taiyuan is a commercial and industrial city known for heavy manufacturing and for being a centre of the coal industry. It is one of the major heavy industrial centres in China, dependent heavily on the resource sector. As such, it has greatly benefited from very strong resource demand by the rapidly growing Chinese economy. As the city has become wealthier, the service sector also grown and now attracts substantial numbers of migrants.

Unlike some cities, Taiyuan's government has historically not intervened in the housing provision for migrants.² At the time of our interviews, there was effectively no government housing policy that targeting migrants. As a result, the city presents an ideal testing ground for the investigation of housing preferences and behaviour of migrants in transitional China in the absence of policies designed to address them.

Figure 1A/1B: Taiyuan's Location in China and District Level Map



Source Figure 1A: China National Tourism Administration (2008). (www.china-travel-guide.com/chinamap2.htm).
Figure 1B: Source: Taiyuan Government (2006). Taiyuan Zhinan, www.tyzn.gov.cn/ShowArticle.asp?ArticleID=345.

² Late in 2007 (well after the completion of our fieldwork), local authorities began requiring employers that hire a large number of migrant workers to build more permanent dormitories for their employees.

Data collection

The study is based on series of in-person interviews with 805 migrants in various occupations in Taiyuan. In order to focus the sample on the most policy-relevant group of low-wage/low-skill migrants, respondents were screened to eliminate homeowners and anyone with Taiyuan *hukou*. The survey instrument was a structured schedule combining open- and closed-ended questions that had been previously deployed in a companion study conducted in Tianjin (Li, Duda, and Peng 2007). A team of graduate students under supervision of Professor Xiangsheng An of Taiyuan Normal University conducted the interviews.

The primary methodological challenge of the study stems from the fact that there is no sample frame of either housing units or migrants from which to draw a representative sample for the research. It was not possible to follow the approach of some earlier studies of urban residents (*e.g.*, Sato 2006) that use the housing unit data compiled by neighbourhood committees, because this excludes completely *in situ* employer-provided housing, which is one of the major sources of housing occupied by migrants. Similar challenges and limitations apply to assembling a sampling frame comprised of rural migrants, rather than of the housing they occupy, because migrants are highly mobile and frequently unregistered with local authorities.

To circumvent these problems we stratified our sample based on migrants' occupational distribution in research by the China Rural Survey Team (2005) that was focused on migrant employment in the central provinces.³ Our data collection was conducted so that industry sector (*e.g.*, manufacturing, construction) shares in the sample matched industry sector shares from the Rural Survey Team research. Respondents were identified at or outside their workplaces throughout the six urban and suburban districts. This approach to drawing a representative sample implicitly assumes that by accurately capturing the range of variation in migrant occupations, the sample will also capture the range of housing types occupied by the majority of rural migrants.

Ultimately, we view this sampling strategy as a defensible response to a situation that presents substantial methodological challenges for those seeking to use statistical methods. Nonetheless, it is important to acknowledge some potential impacts on the sample we procured of our approach. Because our interviewers identified many respondents on the street outside their workplaces, or as they moved through the city (in the case of street vendors and refuse collectors), there was little possibility to do follow-up visits to improve the response rate if the initial contact was unsuccessful. Interviewers instead identified and interviewed replacement interviewees from the same sub-district and employment category if the initial interviewee declined to participate. The sample is therefore biased toward those willing to be interviewed. (Interviewees were given a small gift in exchange for participation.)

³ Central provinces include Shanxi, Henan, Anhui, Hubei, Hunan and Jiangxi.

Unwillingness to participate was least problematic among self-employed individuals and more challenging among workers in more formal employment. Not only could members of this group (*e.g.*, factory workers) not be reached during working hours but in some cases employers tried to forbid interviewees from accepting interviews. It is possible that this is another source of bias as potential interviewees working in the least desirable conditions might be more likely to be excluded from the sample (though it is not clear what impact this might have on characteristics of housing units in the sample). In any case, we attempted to minimize this problem by having interviewers wait outside factories at the end of each working day and conducting interviews after work outside the workplace itself.

Table 1: Migrant Employment Distribution by Industry Sector
(about here)

Table 1 shows the distribution of migrant employment by industry sector. Restaurant/hotel and construction are the two largest groups with each about 20 percent of the total population. Manufacturing is the third largest sector. Although Taiyuan is known for its heavy industry, apart from coal mines, other heavy industries are dependent on skilled labourers with at least high school education, which excludes many rural migrants. The manufacturing sector is therefore less important for migrants in Taiyuan than in many coastal cities with higher shares of light industry.

Migrant housing quality and satisfaction in Taiyuan

As discussed above, migrants' housing quality in urban China is generally quite low in absolute and relative terms. This is of interest because this low quality is not strongly linked to typical causal factors, such as income. This section shows, however, that it is related in various ways to employment. The discussion here explores these issues in anticipation of the housing choice models presented in the next section.

Table 2 shows frequency distributions for a housing quality index and a scaled measure of housing satisfaction. The quality indicator is comprised of responses to five questions (no toilet, no tap water, no heat source, temporary structure, and building used for other purposes), with the respondent allocated a point for each positive response (*i.e.*, for each problem the respondent faces).⁴ The table shows that more than two-thirds of migrants confront at least one of these quality problems, and that more than one-quarter face two or more. Meanwhile, the satisfaction results show that only 3.0 percent are very unsatisfied (note that 8.9 percent faced three or more of the quality index problems), and that 83.9 percent of respondents are either satisfied or have 'no strong opinion.' Taken together, these results suggest that migrants' housing quality is modest but that low quality is met with ambivalence.

Table 2: Migrant Housing Quality and Satisfaction
(about here)

⁴ See the appendix for detailed response information for the index components.

Table 3 cross-tabulates quality index score with household income. The upper panel, which includes all respondents, indicates little relationship between the two variables. The share of respondents facing ‘no problems’ is actually lowest in the lowest income group, with the highest income group second highest. Among those facing severe problems, the highest earners have the smallest share but are only slightly ahead of the lowest earners.

The middle panel of Table 3 shows only respondents occupying housing provided through their employer. Here the lowest earners are again most likely to avoid quality problems, and trends are again indistinct across income groups. It is only in the private rental market (bottom panel) that the income/quality relationship appears more typical. That is, among migrants participating in the low cost rental market, quality problems are most prevalent among the lowest earners and least common for those earning the most.

Table 3: Housing Quality and Household Income

(about here)

Table 4 pursues the link between employment and quality further by cross-tabbing housing quality and industry sector. The table shows that those in the service sector face the fewest quality problems, followed by manufacturing, self-employed and construction. Each of these four industry sectors seems to have a distinct quality profile, which is consistent both with anecdotal evidence on the quality of housing for migrants in various occupations, and with our previous work in Tianjin ((Duda and Li, forthcoming).

Table 4: Housing Quality by Industry Sector

(about here)

Analyzing the data for the drivers of housing satisfaction yields similar levels of ambiguity and insight. Cross-tabulating satisfaction with whether or not the respondent pays rent shows that a very high percentage (44.2 percent) of those not paying rent are ‘very satisfied,’ compared to 24.3 percent of those that do pay rent. Among those getting housing via their employers, however, there is almost no variation at all based on whether the employee pays rent or not. (Only 6.5 percent of those getting housing through employers reported paying for it.) Similarly, among those paying rent in the private market there is little variation in satisfaction level based on how much rent is paid.

Overall, these descriptive comparisons hint that relationships between housing quality and satisfaction and their expected drivers such as income and rent levels do not follow standard patterns. They further suggest that this is likely caused by employment intervening in migrants’ housing choice. The next section tests this proposition by modelling two elements of housing choice relevant to migrants’ particular choice context in urban China.

Research findings on housing choice

The dataset used in the modelling captures information on four sets of migrant characteristics: socio-demographic information on the interviewee; individual/household income data; employment information on the interviewee (and spouse if living in Taiyuan); and information on the interviewee's migration characteristics. In this section, these migrant characteristics are used as independent variables in logit models of housing cost and housing provider.

Variables Used in the Analysis

Table 5 shows characteristics of respondents in the sample. About two-thirds of respondents are men. Average age is about 32 with the youngest being 17 and the oldest 72. The education profile shows that 22 percent of the respondents completed primary school or less, whereas two-thirds completed secondary school. Only 13.3 percent went beyond secondary school, the majority of which (11.6 percent), completed high school. Most of the interviewees (61.9 percent) are married, and 61.4 percent of these live together with their partners. A majority (59 percent) of respondents have children, among whom 218 have children in Taiyuan. Of these 218 families, 158 had school age children.

The survey captures both individual and household monthly income. For interviewees themselves, the monthly median was 1,000 yuan. For households it was slightly higher, at 1,200. Most migrants (48.8 percent) earn their living in the private sector, followed by self-employed (37.3 percent) and the state sector (13.8 percent). In terms of the four industry sectors discussed above, the sample is comprised of roughly half service workers, one-fifth each for manufacturing and construction, and one-tenth street business.⁵

Most migrants had left their villages relatively recently (median time outside the village is 5 years) and in Taiyuan for even less time (median time in Taiyuan is 3 years). Slightly less than one-third of respondents plan to stay in Taiyuan permanently. More than 60 percent send monthly remittances home, with the median (mean) amount of these remittances being 417 yuan (437 yuan).

Table 5: Migrant Characteristics

(about here)

The two indicators used as dependent variables in the analysis are whether housing is sourced from the market or employers, and whether or not the respondent pays rent. These overlap because employers that provide housing typically do not charge for it directly, though housing provision is almost certainly reflected in wage levels, and we are aware anecdotally of employers that offer migrants either housing or a higher monthly wage.

In our sample, 38.0 percent of respondents get their housing through their employer, the private market supplies 59.0 percent and the remaining 3.0 percent receive housing from

⁵ 'Services' combines wholesale/retail, restaurant, and domestic services. 'Street business' combines recycling, street vending, and other. Manufacturing and construction are unadjusted.

a combination of friends, relatives, and government, or have built their own home. Overall, a majority of all respondents (61.5 percent) pays rent and the rest do not. Of those not paying rent, over 90 percent get housing through their employer. Among rent payers, the monthly median amount paid is 100 yuan for people who do not live with their family/spouse and 200 RMB for those who do.

Table 6: Housing Source/Cost
(about here)

Models of housing provider and rent payment

As noted at the outset of this paper, our goal is to inform policy development by presenting information about the housing process pursued by migrants in urban areas. Developing successful policies depends on understanding the determinants of housing outcomes in the absence of effective interventions. To this end, we model housing cost (free vs. rented) and provider (market vs. employer) by a set of migrant individual characteristics to better understand what factors determine their housing outcomes. Independent variables are grouped so as to allow for the testing of the four ‘transition priorities.’ The impact of the model results on these hypotheses is discussed at the end of this section.

In the provider model (left panel of Table 7), socio-demographic characteristics have little effect on the odds that respondents found housing through their employer. Only age is meaningfully related to housing provider, with each extra year reducing the likelihood of getting housing through one’s employer. As suggested by the earlier descriptive analysis, income is also not related to housing outcomes, in this case provider. For household structure, having one’s partner in Taiyuan raises the odds that the respondent rents housing in the market substantially. However, having a spouse working in Taiyuan raises the odds of living in employer-provided housing more than 1,000 percent. The likely explanation is that couples where both spouses are in the city working are likely to live separately in employer provided housing. Interestingly, simply being married and/or having children in Taiyuan do not influence housing provider.

Two of the four migrant characteristics we examined are shown to influence housing provider. Each year as a migrant raises the odds of getting housing from one’s employer by 8.0 percent, whereas each year in Taiyuan has a comparably sized opposite effect. Neither sending remittances nor planning to settle permanently in Taiyuan has any impact. All of the employment variables in the provider model have significant effects. Working in the state sector increases the odds that housing will come via one’s employer by about 95 percent. And, relative to working in construction, manufacturing, service, and street sector employees are progressively more likely to find housing in the private market.

Table 7: Housing choice logistic regression results
(about here)

In the ‘cost’ model (right panel of Table 7), we look simply at whether housing is provided for free (38.5 percent) or rented (61.5 percent). (Note that it does not make sense to model the amount of rent paid as a function of these independent variables because housing may be a form of compensation for some but not all of those that are not charged rent.)

Socio-demographic results differ somewhat from the provider model. Gender becomes significant, with men’s odds of paying rent more than 50 percent higher than those of women. Each additional year of age increases the odds of paying rent 26 percent, which is consistent with older people being more likely to participate in the private rental market, as indicated in the provider model. Education and income are once again not significant. Being married raises the odds of paying rent more than 80 percent, as does having one’s partner in the city, while having one’s partner working has a substantial negative effect.

In terms of migration characteristics, each additional year in Taiyuan raises the odds of paying rent about 9 percent and planning to stay in the city permanently increases it over 80 percent. Each year as a migrant has a modest negative effect. The employment panel of the table shows that working in the state sector reduces the odds of paying rent for housing, whereas the odds of paying rent steadily increase for workers in the manufacturing, services, and street business sectors relative to those doing construction.

Discussion

As noted above, the provider and cost models measure similar things because more than 90 percent of employer provided housing would register as ‘free’ on our ‘pay rent or not’ indicator. This notion is supported by the fact that all of the significant variables in the provider model are also significant in the cost model and have opposite signs (sign changes reflect the fact that ‘employer’ is coded ‘1’ in the provider model and ‘pay no rent’ is coded ‘0’ in the cost model).

The model results offer support for the ‘transition priorities’ scheme outlined earlier in the paper. The first hypothesis emerging from this scheme links employment concerns to housing outcomes, arguing essentially that the former trump the latter. Support for this can be clearly seen in the industry sector results, where the respondent’s occupation is shown to be very strongly associated with the source/cost of housing. Our hypothesis regarding the second transition priority, savings, anticipated that income variation would not be closely linked to housing outcomes as migrants respond to uncertainty about the future and/or a desire to build permanent homes in rural areas by spending as little as possible on housing. In both models, neither income nor income squared have any impact at all, confirming the notion that migrants’ savings motivation swamps the temptation to improve urban living standards as income increases.

The third transition priority – mobility - implies that migrants want to live as close to work as possible and not commit to housing contracts that cannot be severed if job opportunities open up elsewhere. The model results tend to support this claim, as the odds

of living in employer provided housing seems to be most strongly influenced by whether or not the employer offers housing, which varies by industry sector. It is worth noting that, beyond being convenient to work, employer provided housing is linked to employment status and, therefore, subjects the migrant to no risk of being tied to a rental contract while not employed. The appeal of this arrangement is consistent with migrants' savings priority. In terms of the 'family life priority,' the model results support the claim that migrants in different stages of intentional temporary family separation and/or planned reunification in urban areas will make housing choices accordingly. Specifically, couples that are both working in Taiyuan behave like two single people with respect to housing, whereas those with one earner tend to live in the privately provided rental housing.

In addition to the model results supporting our transition priorities arguments, these hypotheses are bolstered by a results from a section of the survey in which we asked respondent about their reasons for choosing their current housing. By an overwhelming margin, the top response was 'convenient to work,' followed by 'low cost.' These two were followed only distantly by 'close to friends and family' and 'safety,' with other choices still farther back. This rank ordering is consistent with the influence that priorities emerging from the transition environment exert on migrants housing choices being substantial, as argued in our transition priorities explanation for observed housing outcomes.

Conclusion

The analysis in this paper indicates that many migrant housing choices are driven by a set of priorities that are derived from the role they occupy in Chinese society during this period of economic transition. Because it increases their need for income and makes them vulnerable to persistent and unexpected changes, the transition environment makes it imperative that migrants in urban areas find work, have the flexibility to leave it, and save as much of their income as possible. In a context where different industries have markedly different propensities to offer housing to their workers, this means that the propensity of migrants themselves to occupy employer provided housing vary markedly as well. For those working in construction, for example, very little in the way of 'housing choice' exists.

If it is true that housing outcomes are based on priorities emerging from the transitional economic environment, this has several important implications for migrant housing policy development. The first of these is that migrant behavior in the housing market is driven by factors that are specific to the transitional environment and thus is likely to change over time. Policies should anticipate that such changes and emphasize flexibility in response to the ever-evolving transitional economy. The second important implication is that migrants' housing decisions are still in many cases subsidiary to employment considerations. Housing policies must therefore avoid obstructing migrants' ability to obtain and change employment.

A third implication is that employment linked housing has a particular appeal that is hard to compete with in that it eliminates housing expenses during any periods of unemployment or job changes. Job-linked housing suits the requirements of many migrants because they do not need to sort out termination of an existing lease or acquire new housing elsewhere if a better employment opportunity arises. To the extent possible, policymakers should attempt to replicate this characteristic, which is consistent with both intra- and inter-urban labour mobility, if they choose to intervene in the low-cost rental sector.

Another implication of the current research for policy development is that, to the extent that policymakers are concerned with migrant housing quality, they might best begin by regulating the pool of employer provided housing. Minimally, this would have the advantage of affecting a majority of housing units occupied by migrants. A final implication of the work here is that policymaking should not facilitate mobility at the cost of making long-term settlement in urban areas more difficult for migrants. To this end, it is critical that policies help reduce costs of urban living, such as school fees and medical insurance, that will provide migrants with more disposable income to devote to currently unmet housing needs.

In closing, it is important to note that these results are for a single city in a particular region of the country. They are broadly consistent with our earlier work in Tianjin, however, conditions may be quite different in other cities or regions. For example, we have been told anecdotally that the link between employment and housing is much looser in southern cities. Examining this issue systematically would be an important area for future research.

In general, the study of migrant housing conditions and choices is a rich area for policy relevant research that has been largely ignored to date. Among the many areas for future research would be studies more directly targeted at understanding variation in the housing needs within the migrant pool. Such work should specifically consider the different needs of those planning to settle permanently in urban areas and those planning to work for a while and return home.

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Appendix: Housing Quality

Housing Quality Problem	Count	Share (%)
*Not heated	65	8.1
*Building also used for other purposes	81	10.1
Very noisy/noise disturbs sleep	93	11.6
*Structure is temporary	112	13.1
Cold in winter	146	18.2
Damp	220	27.3
*No interior tap water	253	31.4
*No interior toilet	399	49.6
No kitchen	510	63.4
No shower	716	89.2
Median living space (sq m/person)	3.0	
Mean living space (sq m/person)	5.8	

Note: Starred characteristics are used in the housing quality index.

Table 1: Migrant Employment Distribution by Industry Sector

	Taiyuan Sample Composition		Rural Survey Team
	Frequency	Percentage	Percentage
Manufacturing	145	18.0	18
Restaurant/hotel	162	20.1	20
Wholesale/retailing	125	15.5	15
Construction	162	20.1	20
Domestic and other services	130	16.2	18
Street vending	49	6.1	5
Recycling	32	4.0	4
Total	805	100	100

Note: Data in the column of Rural Survey Team has been re-categorised to match the fit into the categories listed on the left column.

Table 2: Migrant Housing Quality and Satisfaction

Housing Quality	Count	Percent	Housing Satisfaction	Count	Percent
No problems	249	30.9	Very unsatisfied	24	3.0
Some problems (1 problem)	341	42.4	Unsatisfied	88	11.0
Significant problems(2 problems)	143	17.8	No strong opinion	199	24.8
Severe problems (3-5 problems)	72	8.9	Satisfied	236	29.4
			Very satisfied	257	32.0
Total	805	100.0	Total	804	100.2

Table 3: Housing Quality and Household Income

	Percent						
ALL RESPONDENTS	Severe problems	Significant problems	Some problems	No problems	Total		N
<800	8.8	21.4	25.3	44.5	100.0		182
800 to 1,200	21.6	19.1	26.6	32.7	100.0		199
1,200 to 2,000	14.3	19.2	37.9	28.6	100.0		182
>2,000	7.0	18.2	32.2	42.6	100.0		242
Total	12.7	19.4	30.6	37.4	100.0		805
N	102	156	246	301	805		
EMPLOYER HOUSING	Severe problems	Significant problems	Some problems	No problems	Total		N
<800	9.2	15.3	20.4	55.1	100.0		98
800 to 1,200	30.6	20.4	22.4	26.5	100.0		98
1,200 to 2,000	27.1	24.3	30.0	18.6	100.0		70
>2,000	25.6	23.1	25.6	25.6	100.0		39
Total	22.3	20.0	23.9	33.8	100.0		305
	68	61	73	103	305		
RENTAL MARKET	Severe problems	Significant problems	Some problems	No problems	Total		N
<800	9.2	30.3	32.9	27.6	100.0		76
800 to 1,200	10.4	18.8	32.3	38.5	100.0		96
1,200 to 2,000	3.9	17.5	44.7	34.0	100.0		103
>2,000	3.0	17.1	33.7	46.2	100.0		199

Total	5.7	19.6	35.7	39.0	100.0	474
	27	93	169	185	474	

Table 4: Housing Quality by Industry Sector

	Severe problems	Significant problems	Some problems	No problem	Total	N
Services	2.9	16.6	29.3	51.3	100.0	417
Manufacturing	12.4	22.8	33.1	31.7	100.0	145
Self-employed	21.0	21.0	38.3	19.8	100.0	81
Construction	34.0	22.8	27.8	15.4	100.0	162
Total	12.7	19.4	30.6	37.4	100.0	805
N	102	156	246	301	805	

Table 5: Migrant Characteristics

SOCIO DEMOGRAPHIC	Count	Percent	HOUSEHOLD STRUCTURE	Count	Percent
Gender (1 = male)	530	65.8	Married	498	61.9
Age (mean=31.9)			Partner lives in Taiyuan	309	61.4
<= 20	134	16.7	Partner works in Taiyuan		
20-30	278	34.5	Children studying in Taiyuan		
30-40	231	28.7	None	647	80.4
40-50	119	14.8	One or more	158	19.6
50-60	34	4.2			
>60	9	1.2			
Education			MONTHLY INCOME (RESPONDENT ONLY)		
Primary school or less	177	22.0	Median	1,200	
Secondary school	520	64.8	Mean/Standard Deviation	1,544	1,446
High/Vocational/Polytech sch.	106	13.3	Min/Max	100	20,000
EMPLOYMENT			MIGRATION		
Employer Type			Permanently in Taiyuan (1=yes)	239	29.7
State/collective	111	13.8	Send monthly remittance	503	62.5
Private	393	48.8	Years outside village		
Self employed/no employer	300	37.3	Median	5	
Industry Sector			Mean/Standard Deviation	6.4	5.8
Manufacturing	145	18.0	Years in Taiyuan		
Construction	162	20.1	Median	3	
Services	417	51.8	Mean/Standard Deviation		
Street business	81	10.1			

Table 6: Housing Source/Cost

PROVIDER	Count	Percent	MONTHLY RENT		
Private market	474	59.0	Singles		
Employer	305	38.0	Median	100	
Other	24	3.0	Mean/St. Dev.	169	(213)
RENT			Min/Max	15	2,000
Pay rent	495	61.5	Families		
Free	310	38.5	Median	200	
<i>Employer</i>	287	93.2	Mean/St. Dev.	289	(257)

<i>Relatives</i>	13	4.2	Min/Max	30	1,500
<i>Friends</i>	3	1.0			
<i>Government</i>	5	1.6			

Table 7: Housing choice logistic regression results

	Housing Provider (1 = employer; 0=market)			Pay rent or not (1 = yes)		
	coefficient	odds ratio		coefficient	odds ratio	
SOCIO-DEMOGRAPHIC						
Gender (1 = male)	-0.21	0.82		0.45	1.57	**
Age	-0.23	0.80	***	0.23	1.26	***
Age squared	0.00	1.00	***	0.00	1.00	***
Education (ref: primary or less)						
Secondary school	0.16	1.18		-0.15	0.86	
High Sch./Vocational/Polytech	-0.06	0.95		0.06	1.07	
INCOME						
Household income	0.00	1.00		0.00	1.00	
Household income sq	0.00	1.00		0.00	1.00	
HOUSEHOLD STRUCTURE						
Marriage status (1 =married/cohabit)	-0.11	0.89		0.59	1.81	*
Partner in Taiyuan (1 = yes)	-3.67	0.03	***	3.34	28.24	***
Child studying in Taiyuan (1=yes)	0.50	1.66		0.07	1.07	
Partner is working in Taiyuan (1=yes)	2.61	13.53	**	-2.17	0.11	**
MIGRATION						
Plan to settle in Taiyuan permanently (1 = yes)	-0.23	0.79		0.59	1.81	**
Years as a migrant	0.08	1.08	***	-0.05	0.95	**
Years in Taiyuan	-0.12	0.89	***	0.09	1.09	**
Send remittances (1 = yes)	-0.26	0.77		0.29	1.33	
EMPLOYMENT						
Working for the state sector (1 = yes)	0.61	1.85	**	-0.49	0.61	**
Industry sector (construction omitted)						
Manufacturing industry	-0.52	0.60	*	0.99	2.70	***
Service industry	-1.73	0.18	***	2.04	7.71	***
Street vendors	-4.29	0.01	***	4.01	54.95	***
CONSTANT						
	6.38		***	-6.66		***
Log likelihood	-323.78			-340.67		
LR chi square /degrees of freedom	385.81	19		382.11	19	
Pseudo R2	0.373			0.359		
N	772			798		

Note: */**/** denote significance at 0.10/ 0.05/0.01 levels.