

Do languages matter? The impact of local dialect proficiency on multidimensional poverty alleviation among rural-to-urban migrants in China

Zhibin Li^a, Shunyu Yao^{b,*}

^a Department of Sociology, School of Sociology and Anthropology, Xiamen University, People's Republic of China

^b Department of Sociology, School of Sociology, Nankai University, People's Republic of China

ARTICLE INFO

Keywords:

Local dialect proficiency
Language skills
Multidimensional poverty
Rural-to-urban migrants
Urbanization

ABSTRACT

Language plays a crucial role in poverty among migrants. However, the relationship between language skills and poverty among internal migrants in developing countries has received limited attention. Using data from 11,789 rural-to-urban (RTU) migrants in the China Migrants Dynamic Survey, this study empirically assesses the impact of local dialect proficiency (LDP) on multidimensional poverty alleviation among migrants and further investigates potential mediators of this association. The results indicate that enhanced LDP significantly reduces the prevalence of multidimensional poverty among RTU migrants, with speaking proficiency having a more significant effect than listening proficiency. Moreover, three key mechanisms contribute to multidimensional poverty alleviation through LDP: the expansion of social networks, enhancement of urban identity, and improvement of employment quality. Heterogeneity analyses reveal that the impact of LDP on multidimensional poverty alleviation is more significant in regions characterized by higher dialect diversity and lower popularity of Mandarin, as well as among males, older generations, and RTU migrants with lower levels of education. In conclusion, this study advances understanding of the role of language proficiency in poverty alleviation among migrants by constructing a cultural-linguistic theoretical framework.

1. Introduction

In recent decades, China has experienced the world's largest and fastest urbanization (SCPRC, 2022). This process has led to a large number of rural residents migrating to cities in pursuit of non-agricultural employment opportunities, forming a special group of migrants, namely rural-to-urban migrants¹ (hereinafter RTU migrants). Although this migration has resulted in a significant increase in income (NBSPRC, 2023), it does not mean that migrants have been lifted out of poverty. Sen's capability theory (Sen, 1999) suggests that individual

poverty should be assessed through a multidimensional lens, encompassing various dimensions beyond income, such as education, health, social opportunities. In the context of China, the institutional barriers imposed by the *hukou* system present inherent challenges to the lives of RTU migrants² (Chen et al., 2018; Wang & Fan, 2012; Wu & Zhang, 2018). For example, RTU migrants cannot access to the same healthcare, employment and housing services as urban residents. Moreover, cultural barriers, such as customs, language, and habits, also hinder their urban integration (Sun et al., 2022; Yang et al., 2020). Consequently, there is a greater probability of poverty among RTU migrants (He et al., 2008;

* Corresponding author at: School of Sociology, Nankai University, 38 Tongyan Road, Haihe Education Park, Tianjin 300350, People's Republic of China.
E-mail address: shunyu.yao95@gmail.com (S. Yao).

¹ The National Bureau of Statistics of the People's Republic of China (NBSPRC) established a monitoring survey system for rural-to-urban migrant workers, defining RTU migrants as internal migrant workers whose household registrations remain in rural areas while they are engaged in non-agricultural industries and work outside their rural birthplaces for at least six months per year. As of 2021, the number of RTU migrants reached 292.51 million, accounting for 20.72 % of China's total population (NBSPRC, 2022).

² The *hukou* (户口, household registration) system is an administrative system implemented by the Chinese government in 1958 to cope with demographic pressure generated by rapid industrialization. Differences in *hukou* status constitute the primary institutional barrier for RTU migrants in cities. An individual's *hukou* is registered at their birth location, categorizing them as either having agricultural (rural) *hukou* status or non-agricultural (urban) *hukou* status. Individuals with rural *hukou* status may encounter numerous difficulties in terms of rights and welfare when residing in cities. Regulations concerning the conversion of *hukou* status were historically stringent, although recent reforms have relaxed the conditions for conversion.

Shen et al., 2019).

Language proficiency plays a role in facilitating cross-cultural interactions, particularly within the context of migration. Scholars increasingly underscore its significance in social integration and poverty among migrants (Auer, 2018; Chiswick & Miller, 1995; Dierckx & Van Dam, 2014; Kim & Go, 2016). However, existing research exhibits several limitations. Firstly, many studies predominantly rely on income as the sole metric for assessing migrant poverty, thereby overlooking other critical dimensions (Chen et al., 2014; Chiswick et al., 2019), thus failing to provide a comprehensive understanding of migrant poverty. Secondly, it is imperative to acknowledge that the acquisition of language skills is intricately intertwined with cultural contexts. Nevertheless, previous research has predominantly centered on transnational migration, with limited empirical studies dedicated to internal migrants within the Chinese context (Chen et al., 2014; Gao & Smyth, 2011). Notably, despite Mandarin's official status, dialectal variations persist in everyday communication across China (Huang & Fang, 2021; Wang & King, 2022). Consequently, the potential impact of local dialect proficiency (hereinafter LDP) on migrant poverty within urban China remains an unresolved inquiry deserving further exploration. Thirdly, there is still a lack of comprehensive analysis regarding the underlying mechanisms through which language skills affect poverty among migrants. While scholars acknowledge the importance of language proficiency, there remains a gap in understanding how exactly language skills mediate socio-economic outcomes for migrants.

To address these research gaps, this study utilizes data from the China Migrants Dynamic Survey to empirically assess the impact of LDP on the multidimensional poverty alleviation of RTU migrants and investigates potential mediators of this association by constructing a cultural-linguistic theoretical framework.

2. Literature review and conceptual framework

2.1. Language and migrant poverty

Language barriers caused by migration are an important factor contributing to the poverty of migrants. While empirical research on the relationship between language skills and migrants' poverty remains limited, a wealth of economic literature on language skills and income provides valuable estimates of the effects of language proficiency on labor market outcomes for migrants (Chen et al., 2014; Chiswick & Miller, 1995; Gao & Smyth, 2011). Furthermore, language plays a pivotal role in determining access to resources. Particularly for migrant workers, a deficiency in language skills poses a formidable obstacle to accessing the resources necessary for achieving social integration in a new environment (Chen et al., 2014; Tang et al., 2022; Wang & Fan, 2012). Existing research underscores that immigrants' lack of familiarity with the host location's language contributes to both direct and indirect challenges. These encompass limited access to employment opportunities, public services, and social welfare, as well as barriers to educational opportunities for their children, establishing social networks, and shaping a collective social identity (Dierckx & Van Dam, 2014; Kim & Go, 2016; Wei et al., 2018). In short, proficiency in the local language emerges as a key determinant of sociocultural adjustment among migrants, otherwise placing them at a distinct economic, social, and cultural disadvantage across multiple dimensions. Specifically, deficiencies in local language proficiency impact variables such as income growth, access to resources, establishment of social networks, and integration into the cultural of the host society. These interconnected factors collectively contribute to the multidimensional poverty among migrants.

Although previous research has investigated the impact of language skills on the lives of migrants, few studies have specifically focused on how these skills affect the multidimensional poverty of migrants. Notably, there are three important gaps in the existing research: Firstly, the pathways through which language skills impact migrant poverty

have been inadequately explored. Secondly, the impact of local language skills on poverty among internal migrants in developing countries, especially within multilingual nations characterized by diverse dialects like China, has received limited attention. Thirdly, existing studies often adopt a qualitative approach, resulting in a scarcity of empirical research using nationally representative data. Given these research challenges, this study aims to contribute to existing knowledge by systematically examining the relationship between language skills and multidimensional poverty among RTU migrants using nationally representative data from China.

2.2. Pathways through which language impacts migrant poverty

To construct a conceptual framework, we initiated the framing process by considering the social attributes of language, specifically focusing on its two fundamental functions: as a tool for interpersonal interaction and as a symbolic system (Schiffman, 1996; Trofimovich & Turușeva, 2015). Firstly, language serves as a primary medium for interpersonal interaction, and language disparities can lead to communication barriers. It is known that individuals typically prefer to interact with those who speak the same language to minimize communication costs (Mayhew et al., 1995). Conversely, cultural segregation or conflicts arising from linguistic differences can escalate communication costs and subsequently impact social interaction among different groups (McPherson et al., 2001). Secondly, language serves as a symbol that represents collective identities. Social identity theory posits that individuals primarily derive their identity from their geographical and social affiliations (Tsui & Farh, 1997). In this context, physical characteristics, particularly linguistic disparities, often serve as the basis for forming initial impressions of others (Tsui & Farh, 1997). In other words, individuals utilize language use, tone, and other linguistic cues to discern differences in social status and group affiliation. Consequently, the greater the linguistic similarity between two parties, the stronger their mutual identification (Chen et al., 2014). For migrants, acquiring local languages not only facilitates direct interaction with local residents but also signifies assimilation into an in-group identity as the native population. This is crucial for enhancing migrants' social adaptation and reducing the risk of poverty.

Moreover, when considering the economic attributes of language, it is crucial to recognize that language capital constitutes a significant component of human capital (Zwysen, 2019). In the context of globalization, multilingualism emerges as a prevalent feature of the market environment, highlighting the pivotal role of language within the domain of human capital. Economic literature predominantly focus on understanding the impact of language skills on migrants' performance in the labor market. It demonstrates that immigrants who acquire proficiency in the local language can significantly enhance their economic outcomes, particularly in terms of income (Chen et al., 2014; Chiswick et al., 2019; Chiswick & Miller, 1995; Gao & Smyth, 2011). Furthermore, language proficiency increases the probability of migrants engaging in entrepreneurship (Wei et al., 2018) and facilitates their entry into white-collar professions of higher occupational status and prestige (Schmaus, 2019). Additionally, migrants who possess proficiency in multiple languages are better equipped to negotiate with employers and advance their careers (Pun, 2005).

By integrating the social and economic attributes of language, this paper aims to construct a comprehensive theoretical framework for examining the relationship between language skills and migrant poverty (see Fig. 1). As a medium of communication, language proficiency contributes to poverty alleviation by enhancing migrants' social interactions. As a cultural symbol, language proficiency plays a critical role in poverty alleviation by facilitating migrants' assimilation into local identities. As a component of human capital, language proficiency alleviates poverty by enhancing migrants' performance in the labor market.

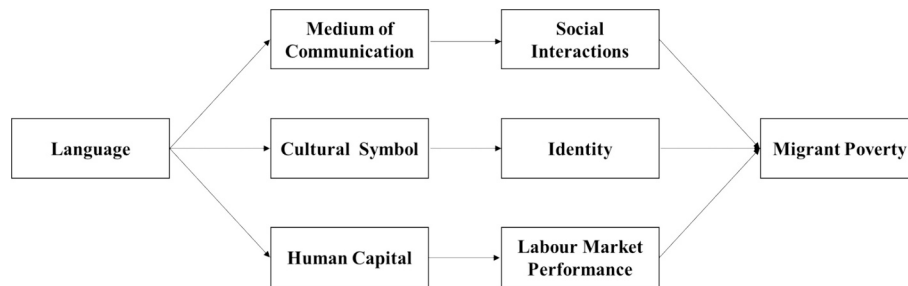


Fig. 1. Conceptual framework.

2.3. Dialects and poverty among RTU migrants in China

Existing research on migrants consistently underscores the pervasive challenge of language barriers, arising from differences between the native languages of migrants and those spoken in their destinations (Auer, 2018; Kaida, 2013). This observation also applies to internal migration within China, where language barriers often stem from dialectal disparities between migrants' places of household registration and their chosen destinations (Wei et al., 2018). China's vast and diverse landscape, characterized by a rich history and encompassing 56 ethnic groups, complex and varied linguistic environment. Language categories in China include Mandarin Chinese (the official language, known as *Putonghua*), minority languages (e.g., Uyghur), and regional dialects (e.g., Wu, Jin). According to the *Language Atlas of China*, there are 10 major Chinese dialect regions, including Mandarin, Jin, Hui, Xiang, Wu, Gan, Min, Yue, Hakka, and Ping (CASS & CUHK, 2012), some of which are spoken by millions of people.³

While some scholars argue that the popularity of Mandarin, along with increased urbanization and internal migration, leads to a decline in the prevalence of dialects in daily life (Ng & Zhao, 2014; Wang & King, 2022), it is important to acknowledge that dialects continue to play a significant role in many domains, e.g., cultural preservation, diversity promotion, and the enhancement of cultural experiences (Gao, 2014). Furthermore, dialects remain a primary mode of communication for many Chinese people in their daily lives, with approximately 90 % of households using them (Huang & Fang, 2021). Therefore, this study adopts an extended definition of local dialects, categorizing them as vernacular languages. This classification is based on the frequent mutual unintelligibility observed between various dialects and Mandarin, underscoring that attaining LDP involves a process akin to language acquisition. As such, the inclusion of LDP as an independent variable in this study not only offers a profound reflection of the multi-linguistic nature deeply ingrained in Chinese culture but also represents a further elaboration in integrating language variables within urban poverty research.

Extensive research acknowledges the impact of dialect the lives of internal migrants, which underscores the significance of LDP in urban life of RTU migrants. The existing research can be categorized into two main threads. The first thread focuses on the impact of dialects on personal development and urban integration among RTU migrants, encompassing areas such as health and well-being (Jia et al., 2022), aspirations for long-term migration (Chen & Liu, 2016; Yang & Curdt-Christiansen, 2021), and multidimensional integration (Liu et al., 2020; Tang et al., 2022; Xu et al., 2023). The second thread approaches the issue from an economic development perspective, focusing on income (Chen et al., 2014; Wei et al., 2019), employment opportunities, and labor market performance (Si et al., 2023). By incorporating these

dialect-specific studies on RTU migrants, we argue that LDP significantly impacts the prevalence of multidimensional poverty of migrants, identifying three distinct pathways: (1) social interactions as a medium of communication; (2) identity as a cultural symbol; and (3) employment quality as a form of human capital.

Firstly, as a medium of communication, LDP enhances the quality and efficacy of social interactions for RTU migrants in their daily lives (Liu et al., 2020; Lu et al., 2013; Tang et al., 2022). In the challenging process of adapting and integrating into local social networks in destination cities, the ability of migrants to use the local dialect serves a dual purpose: firstly, it provides RTU migrants with enhanced capability to communicate with social contacts both within and beyond the workplace (Xu et al., 2023); secondly, it fosters interactions that have the potential to develop into stronger social connections within the local community (Liu et al., 2020; Lu et al., 2013; Mai & Wang, 2022). Particularly outside of work, LDP helps RTU migrants narrow the social distance between themselves and local residents, establishing an integrated living circle (Huang et al., 2023). In other words, increased communication proficiency provides RTU migrants with access to social capital, which in turn facilitates their economic and social integration, thereby mitigating the multidimensional risks of poverty.

Secondly, as a cultural symbol, LDP facilitates the dynamic formation of a local identity for RTU migrants, aligning them with the local community and culture (Liu et al., 2020; Tang et al., 2022; Yang & Curdt-Christiansen, 2021). Research suggests a pathway from linguistic assimilation to social inclusion, enabling migrants to cultivate shared identities (e.g., 'in-group') and emotional cohesion (e.g., social trust), thus countering the discriminatory 'outsider' status (Chen et al., 2014; Yang & Curdt-Christiansen, 2021). In addition to the intra-group identification, the local dialect serves as a significant marker that enhances internal migrants' attachment to the local culture and place, indicating another aspect of collective identity construction (Du et al., 2018). Consequently, migrants with higher LDP demonstrate a greater willingness to settle and higher social adaptation (Wang & Fan, 2012). In this sense, the acquisition of LDP by RTU migrants serves as a signaling mechanism in the formation of their identities, marking their adaptation to new roles as locals and emotionally bonding them to the destination cities, thus enhancing their multidimensional preparedness for the risks of poverty.

Lastly, as a form of human capital, LDP empowers RTU migrants to enhance their income and employment quality (Chen et al., 2014; Wei et al., 2019). Language proficiency emerges as a crucial determinant for migrants seeking integration into the labor market. Mastery of the local dialect not only broadens job opportunities but also enhances bargaining power during salary and benefits negotiations with employers (Pun, 2005). Numerous studies consistently affirm that dialect proficiency is significantly associated with increased income for migrants (e.g., Chen et al., 2014; Gao & Smyth, 2011). However, one study found that migrants with higher LDP earned less than those with lower dialect proficiency because they tended to trade short-term income for long-term employment security (Wei et al., 2019). Consequently, LDP not only directly impacts migrants' income but is also intricately linked to

³ According to the *Language Atlas of China*, Mandarin has the highest proportion of speakers in Mainland China (800 million), followed by Min and Wu with over 70 million speakers, and Hui has the lowest number of speakers at around 3.3 million (CASS & CUHK, 2012).

various labor market outcomes, particularly in terms of social welfare. Migrants face challenges compounded by China's *hukou* system in accessing the same welfare entitlements and benefits as urban residents, rendering them vulnerable in their career advancement (Wang et al., 2015). This vulnerability includes longer working hours and difficulties in safeguarding labor rights (Démurger et al., 2009; Knight & Yueh, 2004). Notably, language proficiency plays a substantial role in shaping labor market segregation and the prevalence of nonstandard employment arrangements and benefits (Schmaus, 2019). Unfortunately, the undervaluation of the language barriers experienced by RTU migrants persists in the labor market, perpetuating their disadvantages and contributing to their experience of poverty.

Based on the above discussion, we propose the following hypotheses:

Hypothesis 1. LDP is negatively associated with RTU migrants' multidimensional poverty.

Hypothesis 2. LDP reduces the incidence of RTU migrants' multidimensional poverty through three pathways: expanding social networks, enhancing urban identity, and improving the quality of employment.

3. Data and methods

3.1. Sample

The data for this study were obtained from the China Migrants Dynamic Survey (hereinafter CMDS), which was conducted in May 2014 by the China Health and Family Planning Commission's Migrant Service Centre. This survey covered eight cities in Mainland China: Beijing, Jiaxing, Xiamen, Qingdao, Zhengzhou, Shenzhen, Zhongshan, and Chengdu. It was based on the principle of probability proportionate to size sampling (PPS) and focused on migrants aged 15 to 59 who had resided in the destination city for over one month and were not registered in the *hukou* system of their current district. The sampling procedure utilized the township (street) as the primary sampling unit, followed by the selection of the village (neighborhood committee) as the secondary sampling unit. Twenty respondents were randomly chosen from each village/neighborhood committee. Specifically, on the basis of a count of migrants in the selected village/neighborhood committee, the number of survey groups (comprising 150 people per group) was determined and a group was randomly selected as the survey group. The interviewer compiled a respondent list considering gender, age, and time of arrival in the local area. Finally, 20 individuals were randomly selected from this list for the survey, ensuring that only one migrant aged 15 to 59 per household was surveyed. A sample of 2000 individuals was drawn from each city, resulting in a total sample size of 16,000 for the survey.

To define RTU migrants, we followed the specific criteria set by the Statistical Bureau of the People's Republic of China, which includes individuals whose household registration is in rural areas, who are engaged in non-agricultural occupations, and have a migration duration of six months or more. After excluding the missing samples, a total of 11,789 RTU migrants were included in the final analysis.

We selected the CMDS 2014 dataset for this study based on three primary considerations. Firstly, the CMDS survey is a meticulously designed, large-scale micro-survey dedicated to China's migrant population. And its demographic composition closely mirrors that of the sixth national census of China conducted in 2010 (Xu et al., 2022). Secondly, the dataset provides crucial core variables that align with the objectives of this study, particularly the multidimensional poverty index for RTU migrants. Moreover, the dataset facilitates the exploration of the mechanisms underlying the impact of LDP on multidimensional poverty. Thirdly, this dataset covers multiple regions in eastern, central, and western China, including the Pearl River Delta Economic Zone, the Yangtze River Delta Economic Zone, and the Circum-Bohai Economic Zone, with good sample representation.

3.2. Measures

3.2.1. Dependent variable

The dependent variable of this study is multidimensional poverty of RTU migrants, which is assessed using a comprehensive multidimensional poverty index. This index is constructed based on the framework of the global Multidimensional Poverty Index (MPI),⁴ which evaluates poverty across three dimensions: health, education, and living standards, and is widely used in global poverty assessments. However, given the unique challenges faced by migrants within the Chinese context, particularly in comparison to urban residents, it is imperative to adapt the MPI to accurately capture the poverty among RTU migrants. In China, the entrenched *hukou* system presents a significant barrier, denying migrants access to urban *hukou* status. This classification as “non-citizens” results in primary poverty, extending beyond mere economic deprivation to include deficits in welfare security and opportunities for social participation (Wang & Fan, 2012). Moreover, empirical findings underscore the significant role of social security and social participation as essential dimensions in the multidimensional poverty profile of migrants (Bhuiyan et al., 2023; Bhuiyan et al., 2024). Therefore, this study aims to construct a multidimensional poverty index specific to RTU migrants using data from CMDS. This index encompasses five dimensions: education, health, living standards, social security, and social participation, to better capture the delicacy within the context-specific poverty dynamics.

Within the dimension of education, years of education serve as a foundational component of human capital for RTU migrants. Additionally, participation in training programs significantly impacts their capacity for life skills enhancement and career advancement (Yuan, 2021). Therefore, both years of education and participation in training programs are selected as indicators within this dimension.

Within the health dimension, beyond assessing physical health, a focus is placed on mental health and well-being. RTU migrants encounter heightened levels of social discrimination in urban areas due to their outsider status, which is intricately linked to self-reported health outcomes and psychological distress (Deng & Law, 2020). Therefore, self-reported health, mental health, happiness, and sense of gain are selected as indicators within this dimension.

Within the living standards dimension, the analysis extends beyond economic indicators, to include the consumption patterns and housing circumstances of migrants. The *hukou* system in China imposes significant constraints on migrants' access to public services and housing. Empirical studies show that migrant consumption is notably lower than that of local urban residents, with a consumption structure primarily oriented towards essential needs such as food, housing, and transportation (Chen et al., 2015). Moreover, urban access standards and the lack of land rights significantly hinder migrants' ability to attain stable housing (Wu & Zhang, 2018). Therefore, household income, Engel coefficient, rent-to-income ratio, and housing situation are selected as indicators within this dimension.

Within the social security dimension, migrants often encounter exclusion from welfare systems or are selectively granted access to welfare provisions, such as medical insurance (Wang et al., 2015). Their eligibility for the comprehensive “Five Social Insurances and One Housing Fund” scheme in China, which includes endowment insurance, medical insurance, unemployment insurance, work injury insurance, maternity insurance, and housing fund, remains limited. Furthermore, due to the absence of the health records in inflow cities, RTU migrants exhibit lower utilization of health services compared to urban residents (Lu et al., 2015). Therefore, social insurance, housing fund, and health record are selected as indicators within this dimension.

Within the social participation dimension, migrants classified as

⁴ The global Multidimensional Poverty Index, see more at <https://ophi.org.uk/global-mpi>.

Table 1
Multidimensional poverty index for RTU migrants.

Dimension	Indicator	Deprivation threshold	Weight
Education	Education level	<9 years of education	1/10
	Training	No participation in training programs	1/10
Health	Self-reported health	Self-reported health as fair or poor	1/20
	Mental health	Experiencing feelings of nervousness, hopelessness, restlessness, irritability, depression, struggling to accomplish tasks, and worthlessness constantly or for most of the past 30 days (scoring <19 out of 30)	1/20
Living standards ^a	Happiness	Self-reported life satisfaction (score <5 out of 7)	1/20
	Sense of gain	Agreeing with the statements “So far, I’ve gotten the important things I want in my life” and “If life could start all over again, I wouldn’t change anything” (scoring <9 out of 14)	1/20
	Family income	The ratio of monthly total household income to total expenditure is less than or equal to 1	1/20
	Engel coefficient	Monthly household food expenditure as a percentage of total expenditure is >60 %	1/20
	Rent-to-income ratio	The proportion of monthly household rent expenditure to total expenditure is >30 %	1/20
Social security	Housing situation	No stable housing	1/20
	Endowment insurance	No endowment insurance	1/35
	Medical insurance	No medical insurance	1/35
	Unemployment insurance	No unemployment insurance	1/35
	Work injury insurance	No work injury insurance	1/35
Social participation	Maternity insurance	No maternity insurance	1/35
	Housing fund	No housing fund	1/35
	Health records	No health records	1/35
	Community cultural activities	No participation	1/15
	Community election	No participation	1/15
	Community management	No participation	1/15

^a Based on previous research (Bolton et al., 2015; Xie et al., 2023), households with an Engel coefficient exceeding 60 % and those allocating >30 % of their total income to housing payments are classified as economically challenged families. This study followed this standard when determining the threshold for the indicators.

“non-citizens” under the *hukou* system face significant barriers to their involvement in community affairs, resulting in their exclusion from participation channels, especially in community management and decision-making processes. Consequently, certain migrants may resort to passive or symbolic involvement in community activities (Chen et al., 2023; Li et al., 2020). Therefore, participation in cultural activities, involvement in electoral processes, and engagement in community administration are selected as indicators within this dimension.

For the weight setting of indicators in each dimension, this study follows the design of the MPI and adopts the equal weight distribution method, setting the weight of each dimension to 1/5. The specific indicators and weight settings are presented in Table 1.

For the assessment of multidimensional poverty, we employed the double critical value method, commonly referred to as the A-F method, developed by Alkire and Foster (2011). In this approach, the first critical value is used to assess the poverty status of RTU migrants across various indicators, while the second critical value is used to ascertain whether RTU migrants experience multidimensional poverty. Our identification and evaluation of multidimensional poverty followed these three steps:

Suppose an $n \times m$ dimensional matrix $X = [X_{ij}]$ represents the state of n individuals in m dimensions, n represents the sample size, m represents the number of dimensions, X_{ij} represents the state of individual i under the j th indicator, and Z_j represents the deprivation threshold under the j th indicator ($Z_j > 0$).

First, we assess whether individual i is poor on the j th indicator. Define the deprivation matrix $g^0 = [g^0_{ij}]$. If $X_{ij} < Z_j$, then $g^0 = 1$, indicating that individual i is in poverty on the j th indicator. If $X_{ij} \geq Z_j$, then $g^0 = 0$, indicating that individual i is non-poor on the j th indicator.

Second, we calculate the deprivation count function for multidimensional poverty. Each dimension is assigned a weight W_j , where $0 < W_j < 1$ and $\sum_{j=1}^m W_j = 1$. The deprivation count function of individual i is then calculated as $c_i = \sum_{j=1}^m W_j g^0_{ij}$. A higher deprivation score indicates more severe multidimensional poverty faced by the individual.

Third, we determine whether individual i is in multidimensional poverty. Suppose the critical value of multidimensional poverty is k , and the identification function of multidimensional poverty is $\rho_k\{X_i, Z\}$. If $c_i \geq k$, it means that the individual i is in multidimensional poverty; conversely, if $c_i < k$, it means that the individual i is not in multidimensional poverty.

Through the above three steps, we can determine whether an RTU migrant was in multidimensional poverty. If, out of n individuals, q is identified as being in multidimensional poverty in the third step, then the multidimensional poverty headcount ratio is $H = q/n$.

However, as the multidimensional poverty incidence H may be less sensitive to changes in the deprivation indicators, Alkire and Foster (2011) proposed another index, known as the adjusted multidimensional poverty incidence M_0 , also referred to as the Multidimensional Poverty Index. M_0 is calculated as $M_0 = HA$, where A represents the average deprivation share across the multidimensionally poor, and $A = \sum_1^q c/q$.

According to the multidimensional poverty identification method proposed by Alkire and Foster (2011), we calculated the H , A , and M_0 for multidimensional poverty under different poverty cutoffs (k) (see Appendix A). When the poverty deprivation cutoff value k was set to 0.6, both the prevalence of multidimensional poverty and the multidimensional poverty index showed a significant decrease, with the prevalence of multidimensional poverty (H) being 0.3365. This indicates that RTU migrants were already experiencing severe deprivation at this threshold. Additionally, to ensure the robustness of our research findings, we adjusted the value of the deprivation critical threshold (k) in the regression analysis section for further testing.

3.2.2. Independent variable

The independent variable of this study was LDP, which was assessed

by asking respondents “How well do you know the local dialects?”. Participants responded using a four-point Likert-type scale ranging from “1 = do not understand” to “4 = understand and speak”, with higher scores indicating better LDP. Additionally, dialect proficiency was further divided into two indicators to compare the differential impact of listening and speaking proficiency in dialects on the poverty of RTU migrants (Chen et al., 2014). This was assessed by asking respondents, “Do you understand the local dialect?” and “Do you speak the local dialect?”, with “yes” coded as 1 and “no” coded as 0.

3.2.3. Mediator variables

As shown in Fig. 1, we selected three variables - social networks, urban identity, and employment quality - to examine the pathways through which LDP impacts the poverty of RTU migrants. Social networks were assessed by asking respondents “Do you perceive that you or your family members have established positive relations with local residents?”. Responses were recorded on a five-point scale ranging from “1= few contacts” to “5= very harmonious”, with higher scores indicating a greater likelihood of migrants and locals forming social networks. Urban identity was assessed by asking respondents “Do you consider yourself as a local resident?”, with “yes” coded as 1 and “no” coded as 0. Migrants who identified as locals exhibited a stronger sense of urban identity. Employment quality was assessed by three indicators: work remuneration, work intensity, and labor rights protection. Work remuneration was quantified using personal income, with the logarithm of income included in the analysis. Work intensity was evaluated based on weekly working hours, adhering to the stipulations of the “Labor Law of the People's Republic of China”, which specifies that weekly working hours should not exceed 44 h. Weekly working hours exceeding 44 was coded as 1; otherwise, the indicator was coded as 0. Labor rights protection was measured by whether a labor contract had been signed, with “yes” coded as 1 and “no” coded as 0. These three indicators were standardized to calculate the employment quality index. The summed scores ranged from 0 to 100, with higher scores indicating better quality of employment for RTU migrants.

3.2.4. Control variables

We controlled for various variables that may affect the multidimensional poverty of RTU migrants, including: gender (1 = male, 0 = female), age, ethnicity (1 = *Han*, 0 = ethnic minorities), marital status (1 = married, 0 = unmarried/divorced/widowed), duration of stay in the city, employment status (including employed, employer, self-employed), the number of family members, family labor-to-population ratio (calculated as the number of laborers aged 18 to 65 in the family divided by the total family population), family dependency ratio (determined as the ratio of the sum of family members aged 0 to 14 and

over 65 years old to the number of working-age individuals in the family), land ownership in the area of household registration (hereinafter land) (1 = land owned, 0 = no land), and residential area in the place of household registration (hereinafter residential area). Additionally, to account for regional disparities across various cities, we included regional fixed effects for eight cities in the form of dummy variables. The descriptive characteristics of the respondents are presented in Table 2.

3.3. Data analysis

Firstly, descriptive statistical analysis was employed to present the distributional characteristics of the sample.

Secondly, multidimensional poverty was represented as a binary dummy variable in this study. Therefore, we employed the probit model to analyze the associations between LDP and multidimensional poverty of RTU migrants, which was defined as follows:

$$P(\text{poverty}_i = 1) = \Phi(\alpha + \beta \cdot \text{dialect}_i + \gamma Z_i + u_c + \varepsilon_i)$$

where the dummy variable poverty_i represents whether RTU migrants i are in multidimensional poverty; dialect_i represents the LDP of migrants; Z_i represents individual and household-level control variables; u_c represents city fixed effects; α , β , and γ represents the parameters to be estimated; and ε_i represents the random error term. Moreover, to ensure the reliability of the results, we conducted robustness and endogeneity tests.

Lastly, the Kohler-Harwood-Blaskovich (KHB) mediation analysis method proposed by Kohler et al. (2011) was employed to examine the pathways through which LDP impacts the multidimensional poverty of RTU migrants. All statistical analyses were performed using Stata 17.0.

4. Results

4.1. Regression analysis

Table 3 presents the results concerning the impact of LDP on multidimensional poverty among RTU migrants. Model 1 does not include any control variables, while Model 2 introduces individual and household-level controls, and Model 3 further incorporates fixed effects of inflow cities. The results from Models 1 to 3 indicate that LDP can reduce the prevalence of multidimensional poverty among RTU migrants. Moreover, the results from Models 4 and 5 indicate that both listening proficiency and speaking proficiency contribute to reducing the prevalence of multidimensional poverty among RTU migrants, with speaking proficiency exhibiting a stronger effect than listening proficiency. Hypothesis 1 is supported.

In Model 3, the analysis of control variables reveals a distinct “U-shaped” association between age and multidimensional poverty. RTU migrants who are female, of *Han* ethnicity, married, employed or employers, and do not own land exhibit a lower prevalence of multidimensional poverty compared to their counterparts who are male, single/divorced/widowed, self-employed, ethnic minorities, and own land in their registered household location. Additionally, the longer the duration of urban residence, the smaller the family size, the higher the household labor-to-population ratio, and the larger the residential area in the place of household registration, the lower the prevalence of multidimensional poverty. However, there was no statistical significance between the family dependency ratio and multidimensional poverty among RTU migrants.

4.2. Robustness checks

4.2.1. Reassessing the dependent and independent variables

Firstly, we adjusted the deprivation critical value k to assess the experience of multidimensional poverty among RTU migrants, setting it

Table 2
Descriptive characteristics of variables ($N = 11,789$).

Variable	Mean	SD	Min	Max
Multidimensional poverty	0.337	0.473	0	1
LDP	2.850	1.084	1	4
Listening proficiency	0.856	0.351	0	1
Speaking proficiency	0.615	0.487	0	1
Gender	0.550	0.498	0	1
Age	33.150	8.591	15	59
Ethnicity	0.966	0.181	0	1
Marital status	0.764	0.424	0	1
Migration duration	4.738	4.408	0.500	33.333
Employment status				
Employed	0.607	0.488	0	1
Employer	0.071	0.256	0	1
Self-employed	0.232	0.422	0	1
Family size	2.964	1.215	1	9
Household labor-to-population ratio	0.749	0.208	0	1
Family dependency ratio	0.410	0.427	0	2.500
Land	0.898	0.302	0	1
Residential area	4.813	0.737	0	6.888

Table 3

Results of the impact of LDP on multidimensional poverty ($N = 11,789$).

	Model 1	Model 2	Model 3	Model 4	Model 5
LDP	−0.055*** (0.011)	−0.053*** (0.011)	−0.044*** (0.015)		
Listening proficiency				−0.072*** (0.031)	
Speaking proficiency					−0.092*** (0.038)
Gender		0.015* (0.024)	0.017* (0.025)	0.017* (0.025)	0.016* (0.025)
Age		−0.027*** (0.012)	−0.024*** (0.013)	−0.025*** (0.013)	−0.024*** (0.013)
Age squared/100		0.039*** (0.017)	0.036*** (0.017)	0.037*** (0.017)	0.036*** (0.017)
Ethnicity		−0.137*** (0.065)	−0.076*** (0.067)	−0.077*** (0.067)	−0.077*** (0.067)
Marital status		−0.055*** (0.050)	−0.048*** (0.052)	0.047** (0.052)	0.046** (0.052)
Migration duration		−0.002* (0.003)	−0.001 (0.003)	−0.002* (0.003)	−0.002 (0.003)
Employment status					
Employed		−0.010*** (0.027)	−0.0136*** (0.029)	−0.135*** (0.029)	−0.135*** (0.029)
Employer		−0.052*** (0.0500)	−0.071*** (0.051)	−0.071*** (0.051)	−0.072*** (0.051)
Family size		0.024*** (0.019)	0.006 (0.020)	0.007 (0.020)	0.007 (0.020)
Household labor-to-population ratio		−0.068*** (0.107)	−0.082** (0.108)	−0.082** (0.108)	−0.081** (0.109)
Family dependency ratio		0.020 (0.054)	0.007 (0.055)	0.010 (0.055)	0.006 (0.055)
Land		0.018 (0.041)	0.048*** (0.043)	0.051*** (0.043)	0.050*** (0.042)
Residential area		−0.008 (0.017)	−0.018*** (0.018)	−0.018*** (0.017)	−0.017*** (0.017)
Inflow area fixed effects	No	No	Yes	Yes	Yes
Pseudo R ²	0.013	0.029	0.088	0.086	0.086

Note: the values in parentheses are robust standard errors; the results reported by the probit model are marginal effects.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

Table 4

Robustness tests: substitution variables and models ($N = 11,789$).

	Model 6	Model 7	Model 8
	$k = 0.55$	$k = 0.65$	PCA
LDP	−0.049*** (0.014)	−0.019*** (0.017)	−0.036*** (0.015)
Communication in local dialect			−0.068*** (0.037)
Control variable	Yes	Yes	Yes
Pseudo R ² /Adj R ²	0.111	0.064	0.125
			0.020
			0.088

Note. To save space, results of control variables are not reported in the table.

*** $p < 0.001$.

to both 0.55 and 0.65. Subsequently, we utilized principal component analysis (PCA) to replace the previously employed equal weights setting. The results of Model 6 in Table 4 indicate that LDP can reduce the prevalence of multidimensional poverty among RTU migrants.

In addition, LDP was reassessed by asking respondents about their preferred language for communication with local residents, coded as “1” for the local dialect and “0” for other languages. The results of Model 7 indicate that migrants who communicate in the local dialect with local residents experience a lower prevalence of multidimensional poverty compared to those who do not.

4.2.2. Replacing model

Logit regression was used instead of probit regression to reassess the results of Model 3 presented in Table 3. The results of Model 8 in Table 4

indicate that LDP continues to effectively reduce the prevalence of multidimensional poverty among RTU migrants.

4.2.3. Changing the sample size

China's rich linguistic and cultural diversity, as discussed in Section 2.2, emphasizes the importance of investigating the impact of LDP on multidimensional poverty among migrants traversing regions characterized by diverse dialects. Several factors significantly contribute to the vulnerability of RTU migrants to poverty and could potentially influence the outcomes of the model. Firstly, migrants face greater challenges in acquiring language skills when relocating across distinct dialect regions compared to those migrating within the same linguistic context. Secondly, the dialect of the Beijing region, closely resembling Mandarin, presents fewer obstacles to language acquisition than the more diverse

Table 5

Robustness tests: changing sample sizes.

	Exclusion of samples from same dialect region	Exclusion of samples from Beijing	Exclusion of samples from intra-provincial mobility	Exclusion of samples from migration duration of less than one year
LDP	−0.045*** (0.016)	−0.043*** (0.015)	−0.051*** (0.022)	−0.045*** (0.016)
Control variable	Yes	Yes	Yes	Yes
Pseudo R ²	0.089	0.096	0.077	0.086
Observations	8582	10,574	6273	10,493

Note. To save space, results of control variables are not reported in the table.

*** $p < 0.001$.

Table 6

Instrumental variable estimates ($N = 11,789$).

	The first stage	The second stage
	LDP	Multidimensional poverty
Number of local theatrical genres	0.009*** (0.002)	
LDP		−2.369*** (0.4854)
Control variable	Yes	Yes
F-value	36.96	
Wald test of exogeneity		134.07***
AR/Wald		116.99***/23.82***

Note. To save space, results of control variables are not reported in the table.

*** $p < 0.001$.

dialects found in other regions. Thirdly, language skill acquisition is expedited in cases of intra-provincial migration, where migrants share the same dialect group, compared to inter-provincial migration. Lastly, short-term migration is less advantageous for the acquisition of language skills compared to long-term local residency in the inflow city.

Consequently, we re-evaluated the results from Model 3 in Table 3 by excluding samples from the following categories: same dialect region, Beijing, intra-provincial mobility, and migration duration of less than one year. The results in Table 5 indicate that LDP reduces the prevalence of multidimensional poverty among RTU migrants.

4.2.4. Instrumental variables

Despite the robustness tests previously conducted on the initial estimation results, it is crucial to acknowledge the potential existence of endogeneity issues between LDP and multidimensional poverty among RTU migrants. These issues may involve unobservable omitted variables and bidirectional causation. In response to these concerns, we introduced the number of local theatrical genres as an instrumental variable for LDP.⁵ Local theatrical performances typically require the use of local dialects, providing migrants with opportunities to familiarize themselves with these dialects during the dissemination phase. Importantly, there is no discernible correlation between the number of local theatrical genres and poverty. Therefore, the number of local theatrical genres serves as an appropriate instrumental variable, satisfying the criteria of correlation and exogeneity.

Table 6 presents the results of the IV-probit model. The Wald test of exogeneity is 134.07 ($P < 0.001$), which rejects the exogeneity hypothesis. The AR and Wald values of the weak instrumental variable test are 116.99 ($P < 0.001$) and 23.82 ($P < 0.001$), respectively, indicating the absence of a weak instrumental variable problem. Therefore, the instrumental variable is deemed valid. The results of the first stage

⁵ The data on the number of local theatrical genres were collected from the census conducted by the Ministry of Culture of the People's Republic of China between July 2015 and June 2017. To better capture the distinctiveness of regional cultures, this study excluded local theatrical genres that were prevalent in more than two provinces, autonomous regions, or municipalities.

Table 7

Results of mediation analysis.

	Social networks	Urban identity	Employment quality
Reduced	−0.124*** (0.015)	−0.126*** (0.015)	−0.128*** (0.020)
Full	−0.102*** (0.015)	−0.107*** (0.015)	−0.109*** (0.020)
Diff	−0.023*** (0.003)	−0.019*** (0.003)	−0.018*** (0.004)
Conf-Pct	18.29 %	15.06 %	14.31 %
Pseudo R ²	0.100	0.090	0.110
Observations	11,789	11,789	7158

Note. To save space, results of control variables are not reported in the table; results reported are average local effects.

*** $p < 0.001$.

indicate a significant positive association between the number of local theatrical genres and LDP. The results of the second stage reveal a significant negative association between LDP and multidimensional poverty. Notably, that the regression coefficient in this model demonstrates an increase compared to the probit model presented in Table 3 (Model 3), implying that the previously estimated effect of LDP on multidimensional poverty alleviation was underestimated.

In conclusion, after subjecting the analysis to rigorous robustness and endogeneity tests, the findings of this study remain consistent with those presented in Model 3 of Table 3. This consistency demonstrates the robustness and reliability of our results after addressing the concerns related to variable measurement errors, sample selection bias, omitted variables, and reverse causality.

4.3. Pathways of LDP on multidimensional poverty

Table 7 presents the results of the mediation analysis. The results indicate significant negative coefficients at the 1 % statistical level for social network, urban identity, and employment quality, suggesting the presence of a mediating effect. The explanatory power of these mediating effects is 18.29 %, 15.06 %, and 14.31 %, respectively. These results reveal that LDP can reduce the prevalence of multidimensional poverty among RTU migrants by expanding the social network with local residents, enhancing their urban identity, and improving the quality of their employment. Thus, Hypothesis 2 is supported.

4.4. Heterogeneity analysis

4.4.1. Language environment

In the context of internal migration in China, language barriers primarily stem from two language pairs: native language - common tongue (Mandarin) and native language - vernacular languages (local dialects). These pairs are both shaped by the geographical and linguistic-cultural disparities between migrants' places of origin and their destinations (Wei et al., 2018). In light of this, this study aimed to explore whether the language environment affects the relationship between LDP and the multidimensional poverty of RTU migrants, focusing on two dimensions:

Table 8
Results of heterogeneity analysis according to language environment.

	Model 6	Model 7
LDP	−0.029*** (0.017)	−0.105*** (0.024)
Dialect diversity	0.134*** (0.119)	
LDP * dialect diversity	−0.101*** (0.058)	
Popularity of Mandarin		−0.011*** (0.002)
LDP * popularity of Mandarin		0.003*** (0.001)
Control variable	Yes	Yes
Wald chi2	453.05***	571.80***
Pseudo R ²	0.031	0.044
Observations	11,789	10,328

Note. To save space, results of control variables are not reported in the table.
*** p < 0.001.

dialect diversity and the popularity of Mandarin.⁶ The results are presented in Table 8.

The results of Model 6 reveal a negative association between LDP and the multidimensional poverty of RTU migrants. Additionally, the interaction terms between LDP and dialect diversity exhibit negative associations with multidimensional poverty, indicating that dialect diversity enhances LDP's impact on alleviating multidimensional poverty among RTU migrants. Specifically, LDP has a more significant effect on reducing the multidimensional poverty of migrants in regions characterized by high dialect diversity compared to those with low dialect diversity. Similarly, the results of Model 7 demonstrate a negative association between LDP and multidimensional poverty among RTU migrants. The interaction term between LDP and the popularity of Mandarin shows positive associations with multidimensional poverty, indicating that LDP has a more significant effect on reducing the multidimensional poverty of migrants in regions characterized by high popularity of Mandarin compared to those with low popularity of Mandarin. Concurrently, the popularity of Mandarin exhibits a negative association with the multidimensional poverty of RTU migrants, suggesting that Mandarin serves as a partial substitute in alleviating multidimensional poverty associated with dialects.

4.4.2. Gender, age, and education

The acquisition of language skills by migrants is influenced not only by the language environment but also by demographic factors such as gender, age, and educational attainment (Esser, 2006). To investigate potential heterogeneity in the poverty alleviation impact of dialect acquisition, grouped regression analyses were conducted based on the gender, age, and education level of migrants.⁷ The results are presented

⁶ The data on dialect diversity were obtained from the count of distinct dialect types within each district or county, as documented in the *Language Atlas of China*. The data on the popularity of Mandarin were obtained from the average Mandarin proficiency reported by respondents in the 2014 China Labor Dynamics Survey. This survey employed a probability proportional to size (PPS) sampling method, targeting the labor force population aged 15 to 64 across 29 provinces and cities in China, ensuring robust sample representativeness. Notably, Chengdu was excluded from the sample frame of this survey. Consequently, the dataset for assessing the popularity of Mandarin comprises 10,328 samples gathered from seven cities. Despite this limitation, the chosen sampling methodology enhances the overall reliability and generalizability of the findings within the surveyed provinces and cities.

⁷ This study categorizes Chinese migrants based on birth cohort: individuals born before 1980 are termed the “old generation”, and those born after 1980 are labeled the “young generation”. Educational attainment is dichotomized into “low education level” (less than a university degree) and “high education level” (university degree or above).

in Table 9.

The results in Table 9 reveal that the alleviation of multidimensional poverty by LDP has a more significant effect on male RTU migrants than on their female counterparts. This difference may be attributed to the disadvantage faced by male migrants in second language acquisition, particularly in spoken proficiency (Van Der Slik et al., 2015). Consequently, male RTU migrants derive greater benefits from acquiring the local dialect. Additionally, the impact of LDP on alleviating multidimensional poverty is more significant among the older generation and RTU migrants with lower educational levels than the younger generation and those with higher educational levels. This heightened effect is likely associated with the increased probability of older generations and individuals with lower educational attainment entering low-skill labor markets, thereby facing greater language-based exclusion (Hall & Farkas, 2008). As a result, LDP significantly contributes to alleviating multidimensional poverty within these specific demographic subgroups.

5. Discussion and conclusion

Using data from the 2014 China Migration Dynamics Survey, this study demonstrates the crucial role of language skills as a determinant of multidimensional poverty among RTU migrants in urban China. Further, the analysis explores the mechanisms through which LDP contributes to alleviating the multidimensional poverty among RTU migrants. The findings of this study are as follows:

First, this study reveals that LDP significantly alleviates the prevalence of multidimensional poverty among RTU migrants. This finding aligns with existing research on transnational migration (Dierckx & Van Dam, 2014; Kim & Go, 2016) and further enrich discourse on the relationship between language skills and poverty among internal migrants in developing countries. In addition, we disentangle the impacts of both speaking and listening proficiency, revealing two key findings: both speaking and listening proficiency in the local dialect significantly contribute to reducing multidimensional poverty among RTU migrants; (2) speaking proficiency has a more pronounced positive effect on multidimensional poverty alleviation compared to listening proficiency. Intriguingly, these findings differ from those of Chen et al. (2014), who found that enhanced listening proficiency generally does not lead to a significant increase in migrants' income, while improved speaking proficiency does. Additionally, these findings as well contradict those of Wei et al. (2019), who found that higher levels of listening and speaking skills reduce migrants' income but increase the prospect of participating in social insurance programs. This disparity can be attributed to differing methods of assessing poverty, suggesting that relying solely on income dimensions may underestimate the poverty alleviation effects of language proficiency or even lead to contradictory conclusions. This study enriches existing knowledge by constructing a comprehensive multidimensional poverty index for RTU migrants, thus advancing the understanding of the relationship between language skills and migrant poverty.

Second, this study explores the intricate pathways through which LDP alleviates multidimensional poverty among RTU migrants by expanding their social networks with local residents, enhancing the urban identity, and improving the quality of employment in the labor market. These findings align with prior research focusing on the multidimensional integration of RTU migrants (Tang et al., 2022; Wang & Fan, 2012; Yang et al., 2020). However, it is noteworthy that there are differences in the importance of the impact of these three paths: the communicative effect of the local dialect has the most significant and direct impact, followed by the identity effect, while the economic effect is relatively minimal. Firstly, as an information medium, LDP has the most direct impact on social interaction (Liu et al., 2020; Xu et al., 2023). Through communicative assimilation, RTU migrants expand their social networks, which largely determines their subsequent degree of social integration and entry into the labor market. Secondly, as a cultural symbol, LDP marks the formation of local identities and fosters a

Table 9

Results of heterogeneity analysis according to gender, age, and education.

	Male	Female	New generation	Old generation	Low education level	High education level
LDP	−0.047*** (0.007)	−0.042*** (0.008)	−0.033*** (0.007)	−0.058*** (0.008)	−0.045*** (0.006)	−0.009*** (0.005)
Control variable	Yes	Yes	Yes	Yes	Yes	Yes
Wald chi2	678.93***	560.58***	707.99***	507.46***	1089.22***	46.07***
Pseudo R ²	0.088	0.090	0.089	0.086	0.083	0.132
Observations	6480	5309	6968	4821	10,683	989

Note. To save space, results of control variables are not reported in the table.

*** p < 0.001.

sense of belonging, incorporating vital social, cultural, and emotional resources (Jia et al., 2022; Liu et al., 2020; Tang et al., 2022). Enhanced local integration and networking among RTU migrants result in ongoing progress across multiple facets of development and integration, as well as augmented instrumental competitiveness within the labor market (Chen & Liu, 2016; Yang & Curdt-Christiansen, 2021). Finally, as a form of human capital, LDP plays a key role in migrants' integration into the labor market. Language skills not only affect the probability of migrants securing employment but are also closely related to their job income and welfare security (Auer, 2018; Chiswick et al., 2019; Wang et al., 2015; Wei et al., 2019). By developing a comprehensive employment quality index, this study not only examines the impact path of language skills on the multidimensional poverty of RTU migrants but also extends existing research by characterizing how language skills affect migrant labor market outcomes across the board.

This paper contributes to the understanding of the impact of language skills on poverty among migrants in three aspects. Firstly, in terms of theoretical innovation, this study proposes a cultural-linguistic theoretical framework for understanding migrant poverty, thereby expanding and integrating existing research in linguistic sociology, migrant studies, and urban development studies. By constructing and empirically assessing the impact of local vernacular language on multidimensional poverty among RTU migrants in China, this research introduces fresh theoretical and empirical avenues for research on poverty among internal migrants. Secondly, this study develops a comprehensive analytical framework by integrating language's functions as a medium for interpersonal interaction, a cultural symbol, and its economic role, which contributes to a more comprehensive understanding of how language skills affect multidimensional poverty among migrants. Thirdly, it constructs a comprehensive multidimensional poverty index for migrants, encompassing education, health, living standards, social security, and social participation. This approach enriches academic understanding of the nature of migrant poverty beyond the single dimension of income. By incorporating these diverse dimensions, this study provides a more nuanced understanding of the complex realities faced by migrants in cities, thereby contributing to the advancement of research on poverty among migrants.

The findings of this study have significant implications for both policy and practice regarding the role of vernacular languages in alleviating the multidimensional poverty among migrants. Firstly, the acquisition of local dialects emerges as a key pathway to foster migrants' integration, emphasizing social, cultural, and emotional aspects, which necessitates top-down initiatives (Tang et al., 2022; Xu et al., 2023). For example, cultural public services (e.g., local cultural events and language training programs related to vernacular languages) play a crucial role not only in promoting language diversity and heritage protection but also, more importantly, in facilitating critical pathways for migrants'

multidimensional integration in cities. Secondly, it is advisable to integrate vernacular language into both official professional skills programs for migrant workers and education programs for migrant children, thereby infusing these initiatives with cultural perspectives (Huang et al., 2023). Thirdly, when contemplating the alternative impact of official language proficiency in multidimensional poverty alleviation as opposed to local dialects, this study underscores the ongoing need to promote common tongues in regions characterized by higher dialect diversity. In conclusion, an inclusive approach combining policy interventions, targeted programs, and language-centric initiatives is crucial for alleviating poverty among migrants.

There exist certain limitations in this study. First, the cross-sectional design in this study constrained the ability to establish causal relationships among the variables. We suggest that future research employ longitudinal datasets to gain a deeper understanding of the causal mechanisms involved. Second, while the findings are potentially applicable to a broader spectrum of rural-to-urban migrants in other societies, it is necessary to recognize the context-specific nature of our research population. This population is primarily characterized by their *hukou* status and diverse linguistic backgrounds, without further distinctions based on ethnicity or national identity. Furthermore, it is notable to recognize that dialects in China are categorized differently from those in Western societies. Future research could benefit from incorporating data from various countries, particularly those that are more developed and feature diverse language environments, to advance the exploration of language and migrant poverty.

Funding

This study was supported by the Major Program of the National Social Science Fund of China (grant number 19ZDA141).

CRediT authorship contribution statement

Zhibin Li: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Shunyu Yao:** Writing – review & editing, Writing – original draft.

Declaration of competing interest

No potential conflict of interest was reported by the author(s).

Data availability

The data used in this research is open-accessed.

Appendix A

Table A
Results of multidimensional poverty under different poverty cutoffs.

k	H	A	M ₀
1/20	1	0.5459	0.5459
2/20	0.9997	0.5460	0.5459
3/20	0.9985	0.5465	0.5458
4/20	0.9947	0.5479	0.5451
5/20	0.9849	0.5511	0.5428
6/20	0.9694	0.5554	0.5385
7/20	0.9336	0.5642	0.5267
8/20	0.8695	0.5778	0.5024
9/20	0.7886	0.5932	0.4678
10/20	0.6637	0.6146	0.4079
11/20	0.5323	0.6359	0.3385
12/20	0.3365	0.6670	0.2244
13/20	0.1558	0.7064	0.1101
14/20	0.0555	0.7486	0.0415
15/20	0.0137	0.7954	0.0109
16/20	0.0027	0.8422	0.0023
17/20	0.0003	0.8810	0.0002
18/20	0	–	–

References

Alkire, S., & Foster, J. (2011). Counting and multidimensional poverty measurement. *Journal of Public Economics*, 95(7–8), 476–487. <https://doi.org/10.1016/j.jpubeco.2010.11.006>

Auer, D. (2018). Language roulette – The effect of random placement on refugees’ labour market integration. *Journal of Ethnic and Migration Studies*, 44(3), 341–362. <https://doi.org/10.1080/1369183x.2017.1304208>

Bhuiyan, M. A., Liu, Z., & Meng, F. (2023). Multi-period analysis and household registration differences of multidimensional poverty among migrant workers. *Social Indicators Research*, 169(1), 671–696. <https://doi.org/10.1007/s11205-023-03175-w>

Bhuiyan, M. A., Liu, Z., & Meng, F. (2024). Measurement and difference analysis of multidimensional poverty of floating population. *Kybernetes*, 53(3), 1168–1180. <https://doi.org/10.1108/K-07-2022-0943>

Bolton, M., Bravve, E., Miller, E., Crowley, S., & Errico, E. (2015). Out of reach 2015. National low income housing coalition. Retrieved from https://nlhc.org/sites/default/files/oor/OOR_2015_FULL.pdf

Chen, B., Lu, M., & Zhong, N. (2015). How urban segregation distorts Chinese migrants’ consumption? *World Development*, 70, 133–146. <https://doi.org/10.1016/j.worlddev.2014.11.019>

Chen, J., Wu, Y., & Li, H. (2018). Vocational status, hukou and housing migrants in the new century: Evidence from a multi-city study of housing inequality. *Social Indicators Research*, 139(1), 309–325. <https://doi.org/10.1007/s11205-017-1562-z>

Chen, S., & Liu, Z. (2016). What determines the settlement intention of rural migrants in China? Economic incentives versus sociocultural conditions. *Habitat International*, 58, 42–50. <https://doi.org/10.1016/j.habitatint.2016.09.004>

Chen, W., Ye, C., & Liu, Y. (2023). From the arrival cities to affordable cities in China: Seeing through the practices of rural migrants’ participation in Guangzhou’s urban village regeneration. *Habitat International*, 138, Article 102872. <https://doi.org/10.1016/j.habitatint.2023.102872>

Chen, Z., Lu, M., & Xu, L. (2014). Returns to dialect: Identity exposure through language in the Chinese labor market. *China Economic Review*, 30, 27–43. <https://doi.org/10.1016/j.chieco.2014.05.006>

Chinese Academy of Social Sciences and City University of Hong Kong. (2012). *Language atlas of China* (2nd ed.). Commercial Press.

Chiswick, B. R., & Miller, P. W. (1995). The endogeneity between language and earnings: International analyses. *Journal of Labor Economics*, 13(2), 246–288. <https://doi.org/10.2307/2535104>

Chiswick, B. R., Rebhun, U., & Beider, N. (2019). Language acquisition, employment status, and the earnings of Jewish and non-Jewish immigrants in Israel. *International Migration*, 58(3), 205–232. <https://doi.org/10.1111/imig.12634>

Démurger, S., Gurgand, M., Li, S., & Yue, X. (2009). Migrants as second-class workers in urban china? A decomposition analysis. *J. Comp. Econ.*, 37(4), 610–628. <https://doi.org/10.1016/j.jce.2009.04.008>

Deng, Z., & Law, Y. W. (2020). Rural-to-urban migration, discrimination experience, and health in China: Evidence from propensity score analysis. *PLoS One*, 15(12), Article e0244441. <https://doi.org/10.1371/journal.pone.0244441>

Dierckx, D., & Van Dam, S. (2014). Redefining empowerment interventions of migrants experiencing poverty: The case of Antwerp, Belgium. *British Journal of Social Work*, 44(Suppl. 1), i105–i122. <https://doi.org/10.1093/bjsw/bcu055>

Du, H., Li, S., & Hao, P. (2018). ‘Anyway, you are an outsider’: Temporary migrants in urban China. *Urban Studies*, 55(14), 3185–3201. <https://doi.org/10.1177/0042098017691464>

Esser, H. (2006). *Migration, language and integration*, AKI research review 4. Social Science Research Center Berlin.

Gao, W., & Smyth, R. (2011). Economic returns to speaking “standard mandarin” among migrants in China’s urban labour market. *Economics of Education Review*, 30(2), 342–352. <https://doi.org/10.1016/j.econedurev.2010.11.00>

Gao, X. (2014). The ideological framing of “dialect”: An analysis of mainland China’s state media coverage of “dialect crisis” (2002–2012). *Journal of Multilingual and Multicultural Development*, 36(5), 468–482. <https://doi.org/10.1080/01434632.2014.943234>

Hall, M., & Farkas, G. (2008). Does human capital raise earnings for immigrants in the low-skill labor market? *Demography*, 45, 619–639. <https://doi.org/10.1353/dem.0.0018>

He, S., Liu, Y., Wu, F., & Webster, C. (2008). Poverty incidence and concentration in different social groups in urban China, a case study of Nanjing. *Cities*, 25(3), 121–132. <https://doi.org/10.1016/j.cities.2008.02.001>

Huang, L., Liang, X., Li, L., Xiao, H., & Xie, F. (2023). Influence of language use on migrant workers’ willingness to urban settlement-based on the CLDS 2016 survey data. *PLoS One*, 18(11), Article e0294906. <https://doi.org/10.1371/journal.pone.0294906>

Huang, Y. T., & Fang, F. (2021). “I feel a sense of solidarity when speaking Teochew”: Unpacking family language planning and sustainable development of Teochew from a multilingual perspective. *Journal of Multilingual and Multicultural Development*. <https://doi.org/10.1080/01434632.2021.1974460>

Jia, Q., Li, S., & Kong, F. (2022). Association between intergenerational support, social integration, and subjective well-being among migrant elderly following children in Jinan, China. *Frontiers in Public Health*, 10, 870428. <https://doi.org/10.3389/fpubh.2022.870428>

Kaida, L. (2013). Do host country education and language training help recent immigrants exit poverty? *Social Science Research*, 42(3), 726–741. <https://doi.org/10.1016/j.ssresearch.2013.01.00>

Kim, S. Y., & Go, S. J. (2016). Freeing the migrant women in South Korea from a shackle of poverty: An inquiry into the causes of poverty and the suggestion of policy responses. *Korean Policy Sciences Review*, 20(2), 241–281.

Knight, J., & Yueh, L. (2004). Job mobility of residents and migrants in urban China. *Journal of Comparative Economics*, 32(4), 637–660. <https://doi.org/10.1016/j.jce.2004.07.004>

Kohler, U., Karlson, K. B., & Holm, A. (2011). Comparing coefficients of nested nonlinear probability models. *The Stata Journal*, 11(3), 420–438. <https://doi.org/10.1177/1536867x1101100306>

Li, J., Krishnamurthy, S., Pereira Roders, A., & van Wesemael, P. (2020). Informing or consulting? Exploring community participation within urban heritage management in China. *Habitat International*, 105, Article 102268. <https://doi.org/10.1016/j.habitatint.2020.102268>

Liu, Y., Jiao, Y., & Xu, X. (2020). Promoting or preventing labor migration? Revisiting the role of language. *China Economic Review*, 60, Article 101407. <https://doi.org/10.1016/j.chieco.2020.101407>

Lu, C., Luo, Z., Wang, J., Zhong, J., & Wang, P. (2015). Health-related quality of life and health service utilization in Chinese rural-to-urban migrant workers. *International Journal of Environmental Research and Public Health*, 12(2), 2205–2214. <https://doi.org/10.3390/ijerph12022205>

Lu, Y., Ruan, D., & Lai, G. (2013). Social capital and economic integration of migrants in urban China. *Social Networks*, 35(3), 357–369. <https://doi.org/10.1016/j.socnet.2013.04.001>

- Mai, X., & Wang, J. (2022). Situational differences, migratory duration, and social integration of internal migrants in urban China. *Cities*, 125, Article 103596. <https://doi.org/10.1016/j.cities.2022.103596>
- Mayhew, B. H., McPherson, J. M., Rotolo, T., & Smith-Lovin, L. (1995). Sex and race homogeneity in naturally occurring groups. *Social Forces*, 74(1), 15–52. <https://doi.org/10.2307/2580623>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415–444. <https://doi.org/10.2307/2678628>
- National Bureau of Statistics of the People's Republic of China. (2023, February 28). Statistical Communiqué of the People's Republic of China on the 2022 National Economic and Social Development. Retrieved October 22, 2023, from http://www.stats.gov.cn/english/PressRelease/202302/t20230227_1918979.html
- National Bureau of Statistics of the People's Republic of China. (2022, April 29). 2021 migrant workers monitoring survey report. Retrieved October 22, 2023, from http://www.stats.gov.cn/xgk/sjfb/zxfb2020/202204/t20220429_1830139.html
- Ng, D. F., & Zhao, J. (2014). Investigating Cantonese speakers' language attitudes in Mainland China. *Journal of Multilingual and Multicultural Development*, 36(4), 357–371. <https://doi.org/10.1080/01434632.2014.925906>
- Pun, N. (2005). *Made in China: Women factory workers in a global workplace*. Duke University Press.
- Schiffman, H. F. (1996). *Linguistic culture and language policy*. Routledge.
- Schmaus, M. (2019). Ethnic differences in labour market outcomes: The role of language-based discrimination. *European Sociological Review*, 36(1), 82–103. <https://doi.org/10.1093/esr/jcz044>
- Sen, A. (1999). *Development as freedom*. Oxford University Press.
- Shen, Y., Alkire, S., & Peng, Z. (2019). Measurement and decomposition of multi-dimensional poverty in China. *China Economist*, 14(3), 12–28. <https://doi.org/10.19602/j.chinaeconomist.2019.5.02>
- Si, X., Liu, Y., & Wang, J. (2023). Dialect diversity and labor income share in China. *Economic Systems*, 47(4), Article 101145. <https://doi.org/10.1016/j.ecosys.2023.101145>
- Sun, X., Chen, J., & Xie, S. (2022). Becoming urban citizens: A three-phase perspective on the social integration of rural-urban migrants in China. *International Journal of Environmental Research and Public Health*, 19(10), 5946. <https://doi.org/10.3390/ijerph19105946>
- Tang, J., Xu, Y., & Qiu, H. (2022). Integration of migrants in poverty alleviation resettlement to urban China. *Cities*, 120, Article 103501. <https://doi.org/10.1016/j.cities.2021.103501>
- The State Council of the People's Republic of China. (2022, February 22). China's urbanization rate hits 64.72% in 2021. Retrieved October 22, 2023, from http://english.www.gov.cn/archive/statistics/202202/22/content_WS62149dc7c6d09c94e48a5517.html
- Trofimovich, P., & Turusheva, L. (2015). Ethnic identity and second language learning. *Annual Review of Applied Linguistics*, 35, 234–252. <https://doi.org/10.1017/s0267190514000166>
- Tsui, A. S., & Farh, J.-L. L. (1997). Where guanxi matters: Relational demography and guanxi in the Chinese context. *Work and Occupations*, 24(1), 56–79. <https://doi.org/10.1177/0730888497024001005>
- Van der Slik, F. W. P., van Hout, R. W. N. M., & Schepens, J. J. (2015). The gender gap in second language acquisition: Gender differences in the acquisition of Dutch among immigrants from 88 countries with 49 mother tongues. *PLoS One*, 10(11), Article e0142056. <https://doi.org/10.1371/journal.pone.0142056>
- Wang, H., Guo, F., & Cheng, Z. (2015). Discrimination in migrant workers' welfare entitlements and benefits in urban labour market: Findings from a four-city study in China. *Population, Space and Place*, 21(2), 124–139. <https://doi.org/10.1002/psp.1810>
- Wang, L., & King, K. (2022). Language ideologies, language policies, and shifting regional dialect proficiencies in three Chinese cities. *Journal of Multilingual and Multicultural Development*, 1–17. <https://doi.org/10.1080/01434632.2022.2044339>
- Wang, W. W., & Fan, C. C. (2012). Migrant workers' integration in urban China: Experiences in employment, social adaptation, and self-identity. *Eurasian Geography and Economics*, 53(6), 731–749. <https://doi.org/10.2747/1539-7216.53.6.731>
- Wei, X., Fang, T., Jiao, Y., & Li, J. (2019). Language premium myth or fact: Evidence from migrant workers of Guangdong, China. *Journal of Labor Research*, 40(3), 356–386. <https://doi.org/10.1007/s12122-019-09286-z>
- Wei, X., Jiao, Y., & Growe, G. (2018). Language skills and migrant entrepreneurship: Evidence from China. *Small Business Economics*, 53(4), 981–999. <https://doi.org/10.1007/s11187-018-0105-6>
- Wu, L., & Zhang, W. (2018). Rural migrants' homeownership in Chinese urban destinations: Do institutional arrangements still matter after hukou reform? *Cities*, 79, 151–158. <https://doi.org/10.1016/j.cities.2018.03.004>
- Xie, Q., Yi, F., & Tian, X. (2023). Disparate changes of living standard in China: Perspective from Engel's coefficient. *China Agricultural Economic Review*, 15(3), 481–505. <https://doi.org/10.1108/CAER-03-2022-0046>
- Xu, M., Wu, F., Moore, S., & Li, Z. (2023). Migrants' willingness to contact local residents in China. *Cities*, 133, Article 104120. <https://doi.org/10.1016/j.cities.2022.104120>
- Xu, M. R., Wu, F. L., & Li, Z. G. (2022). Understanding the intergroup relations of migrants in China. *Population, Space and Place*, 28(2), Article e2540. <https://doi.org/10.1002/psp.2540>
- Yang, G., Zhou, C., & Jin, W. (2020). Integration of migrant workers: Differentiation among three rural migrant enclaves in Shenzhen. *Cities*, 96, Article 102453. <https://doi.org/10.1016/j.cities.2019.102453>
- Yang, H., & Curdt-Christiansen, X. L. (2021). Conflicting linguistic identities: Language choices of parents and their children in rural migrant workers' families. *Current Issues in Language Planning*, 22(4), 408–426. <https://doi.org/10.1080/14664208.2020.1748370>
- Yuan, R. (2021). Incorporating life skills education in vocational training: Toward empowerment-based skills advancement for young women migrant workers in China. *Journal of Social Service Research*, 47(6), 860–871. <https://doi.org/10.1080/01488376.2021.1941502>
- Zwysen, W. (2019). Different patterns of labor market integration by migration motivation in Europe: The role of host country human capital. *International Migration Review*, 53(1), 59–89. <https://doi.org/10.1177/0197918318767929>