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Li, Yifan and Miao, Zhuang and Wang, Junbo and Zhang, Yan

United Nations, Central University of Finance and Economics

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The FDI liberalization and skill structure of labor market in China: The predicament of migrants

Yifan Li* Zhuang Miao† Junbo Wang‡ Yan Zhang§

Abstract

Throughout the era of China's accession to World Trade Organization (WTO), the labor market and education dynamics have been significantly impacted by the surge in foreign direct investment (FDI). This study scrutinizes how these factors interplay, with emphasis on migrants' educational attainment, skill premium, and employment status. Our empirical evidence suggests that while FDI bolsters the relative demand for high-skill labors, it concurrently enhances education premiums and the educational attainment in general. Nevertheless, an intriguing anomaly emerges with the downward trajectory of migrants' educational levels. This counterintuitive phenomenon is primarily driven by the double-edged predicament of employment discrimination against high-skill migrants and the sluggish growth in demand for their employment. Empirical analysis further reveals that the FDI liberalization period witnessed an insignificant rise in migrants' educational premiums, thereby predisposing them to low-wage or high-hazard positions. Our quantitative simulation shows that migration workers will improve their educational levels by 16% by migrating to the higher FDI-exposed region, and improve 4% by removal of the employment discrimination toward the migrants. Our study contributes to the understanding labor market structural shifts and migrant employment conditions in China during its WTO accession period.

* Yifan Li, United Nations, New York, USA. Email: yi.li@unesco.org

† Zhuang Miao, School of International Trade and Economics, Central University of Finance and Economics, Beijing, China, cufemiao@163.com.

‡ Junbo Wang, School of International Trade and Economics, Central University of Finance and Economics, Beijing, China, wangjunbo18@hotmail.com.

§ Yan Zhang, School of International Trade and Economics, Central University of Finance and Economics, Beijing, China, leaflucy@sina.com.

Additionally, it provides insights for policy-making geared towards the equitable distribution of FDI benefits.

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1 Introduction

The entry of foreign direct investment (FDI) has been recognized as a significant driver of educational advancement globally, stimulating high-skilled employment and elevating the educational levels of the workforce (Haddad and Harrison, 1993; Aitken and Harrison, 1999; Djankov and Hoekman, 2000; Konings, 2001; Hu and Jefferson, 2002). Over the past few decades, China has witnessed a rapid growth in FDI following its accession to the World Trade Organization (WTO). FDI has also drawn a substantial influx of migrants from inland regions to the coastal areas for livelihood and employment. Despite a marked improvement in the overall educational level of the workforce, the educational disparity between local inhabitants and migrants in the developed coastal regions has broadened. This raises significant social concerns regarding the universalization and equity of education, making it an important and controversial issue. While this phenomenon is common and has a large presence, understanding the underlying causes of these disparities is confusing and complex.

Given the disparities in the education attainment and job position distribution between local residents and migrants amidst investment globalization, a natural question arises: what are the underlying causes for these disparities? In particular, what determines the impact of FDI on fostering high-skilled positions and elevating workers' education levels? This study aims to make progress on these questions by examining the role of FDI within the context of China's trade liberalization and financial openness in the process of globalization. This is a key determinant that has emerged from the theoretical literature on FDI and education as being significant (Haddad and Harrison, 1993; Aitken and Harrison, 1999; Djankov and Hoekman, 2000; Konings, 2001; Hu and Jefferson, 2002).

In this study, we first provide empirical evidence on the impact of FDI on the education and employment levels of local workers and migrants. Unlike previous theories that primarily rely on macro-level data, we posit that FDI can influence individual education choices and job position distribution, thereby facilitating long-term changes in the workforce. To substantiate this, we utilize individual census records,

a comprehensive and reliable source of information that allows us to accurately identify and compare the changes in education and employment levels of different groups. This data-driven approach offers a significant advantage over existing research using macro-level data, as it mitigates the strong selection bias inherent in such studies, enables the analysis of the underlying mechanisms of the impact, and differentiates between local workers and migrants.

Identifying the causal effect of FDI on education attainment is challenging. In our context, however, the FDI deregulation process in China provides a natural laboratory for studying the long-term effect of FDI on education and employment and also for examining the proposed mechanism. During the past thirty years, China has made several adjustments to FDI restrictions, gradually opening the investment market. Using this exogenous policy adjustment, we can construct an instrumental variable for FDI inflows to further eliminate endogeneity and selection bias. In particular, we use the IV-DID (instrumental variable-difference-in-differences) method to estimate the causal relationship between FDI inflows and residents' education level. We explored the mechanism by comparing the alterations in individuals with varying education levels pre and post the FDI policy shock, thereby exploring the shift in skill premium. An elevation in skill premium is anticipated to motivate workers to opt for higher levels of education. This method represents a significant departure from traditional methods employed in existing literature (Wang and Zhuang, 2021; Yao et al., 2022).

We then take the hypothesis to the data using a variety of samples and methods. Recognizing the reality that local workers and migrants may not receive the same job opportunities due to the cost of migration and hidden employment discrimination, we delve into the differential impacts of FDI policy shock on these groups. We explore how the growth of high-skilled jobs influences individual education choices, and how new high-skilled jobs may be primarily occupied by local workers, while new low-skilled jobs may be allocated to more migrants. This nuanced analysis allows us to better understand the long-term changes in the workforce driven by FDI.

The key finding of our study is that the deregulation of FDI has a differential

impact on local residents and migrants in China, with local residents seeing an increase in their education levels, while migrants experience a decline. This result holds in the face of various robustness checks, including using different data sets, alternative variable constructions, various sample restrictions, and controlling for individual and regional characteristics. As suggested by our estimates, the deregulation of FDI exerts a positive influence on the wages of college and high school graduates, yet it does not extend to junior high school graduates. However, the effect on the educational wage premium for migrant workers is relatively muted. In addition, we find corroborating evidence that the deregulation of FDI influences the distribution of high-skill and low-skill positions among local residents and migrants.

Next, we venture toward understanding the underlying reasons and mechanisms behind this outcome. While a multitude of factors may be relevant, a definitive accounting of the role of each factor is beyond the scope of our study. Instead, we aim to reinforce a specific interpretation that FDI inflows can promote the growth of high-skilled jobs, increase the relative remuneration of high-skilled positions, and thus encourage workers to pursue higher levels of education to acquire better job skills. This interpretation aligns with the findings of relevant studies (Haddad and Harrison, 1993; Aitken and Harrison, 1999; Djankov and Hoekman, 2000; Konings, 2001; Hu and Jefferson, 2002). However, our analysis also indicates that migrant workers are more prone to be allocated to low-wage or high-hazard positions, and the relative wage of migrants with a high-school or college degree compared to local workers diminishes as FDI exposure escalates. These results suggest that high-skill positions are more likely to be allocated to local workers, while low-skill positions are often filled by migrants. Consequently, the educational wage premium for migrants is reduced, which may dissuade them from pursuing higher education. Our findings supplement existing studies that provide crucial insights into the process of wage distribution and educational choices, such as those conducted by Wang and Zhuang (2021), Yao et al. (2022), and Lin and Long (2020). Our findings are also in line with evidence from other studies, which show that the impact of FDI on wage distribution and educational

choices varies among different groups of workers. These groups are influenced by different factors, and therefore, consistent with our findings, we would expect different impacts of FDI.

Finally, we constructed a theoretical model to elucidate the associated mechanisms. Our approach is threefold. Firstly, we scrutinize the influence of migration on education selection. The influx of FDI introduces more high-skill jobs, thereby enhancing high-skill premiums and incentivizing residents to pursue higher education for these positions. However, if barriers such as migration costs and employment discrimination exist, high-skill jobs may be primarily allocated to local residents, leaving migrant workers with low-skill jobs. This could potentially diminish their motivation to seek higher education. Our initial findings indeed suggest a decrease in the education level of migrant workers following FDI inflows. Secondly, we investigate whether the high-skill premium of migrant workers aligns with that of local residents. If the high-skill premium of migrant workers is significantly lower, this could deter them from pursuing higher education. Lastly, we compare the industry distribution characteristics of local residents and migrant workers before and after FDI inflows. This includes factors such as average industry income, industry hazard level, and industry technical intensity. By observing changes in industry distribution, we can ascertain whether issues like employment discrimination and migration costs exist in China's job market. This approach is a departure from traditional methods used in existing literature, providing a fresh perspective on the topic.

This paper makes three main contributions to literature. First, it provides micro-level empirical evidence and mechanism analysis for the impact of FDI inflows on workers' educational levels. This helps us clarify the causal relationship between FDI shocks and individuals' education choices and to construct a comprehensive map of the causal mechanisms. While several studies have found that FDI growth promotes the education levels of workers in China (Wang and Zhuang, 2021; Yao et al., 2022), these studies have relied on regional macro-level data and lacked individual-level research. Our study complements this by using micro-level data to compare the different

education choices of different labor groups. Preliminary results have shown that local residents' educational levels have increased after FDI liberalization, while migrants' educational levels have decreased. This divergence could be due to different labor groups reacting differently, a finding that contrasts with Lin and Long's (2020) observation of a decline in workers' educational levels since China's accession to the WTO.

The literature on mechanism studies has primarily focused on skill premiums.[1] Zhao (2001) used survey data from China to study the skill wage premium effect of FDI and found that FDI has a promotion effect on skill wage premiums. This skill wage premium effect of FDI is attributed to foreign enterprises needing a larger share of high-skilled labor and providing higher wages to attract high-skilled labor from state-owned enterprises. Cruz et al. (2018) used data from seven developing countries to study the promoting effect of FDI on employment for low-skilled workers. Figini and Gorg (2011) found that FDI had an expanding effect on wage inequality, indicating an increase in skill wage premiums. We complement the existing research by examining the changes in high-skill premiums for both local residents and migrants, and analyzing the allocation of job positions between these two groups. Our study contributes to the existing literature by empirically and theoretically establishing the first link between FDI, education choices, and wage distribution through the mechanism of skill premiums. Our study finds that a growth of FDI influx or a reduction in migration fixed costs will induce the low-ability and low-educated workers to migrate to the region that highly exposures to the FDI influx. Upon the migration decision, migrants will increase their schooling years by 16%. A removal of the employment discrimination will also induce the migrants to take more schooling years by 4%.

Second, our study extends the discussion on the occupational mismatching issue faced by migrants across country borders. Existing literature has found that immigrants often face occupational mismatching issues in various countries, including studies by Aleksynska and Tritah (2013) for European countries, Beckhusen et al. (2013) for the

[1] Most literature focuses on the impacts of trade liberalization on skill premium, e.g., Wang et al. (2022), Li (2018), Chen et al. (2017), and Lin and Long (2020).

US, Green et al. (2007) for Australia, Lindley (2009) for the UK, and Nielsen (2011) for Denmark. The overeducation issue may be attributed to many casual factors, e.g., the unmatched educational system between the immigration origin and destination countries, asymmetric information on educational background between the employers and employees, and discrimination on immigrants. Due to these reasons, the immigrants with relatively high educational levels are allocated to low-skill positions. Our study adds to this discussion by providing evidence on the mis-matching issue faced by domestic migrants within a single country. We find that, given the same educational level between the migrants and local workers, with exposure to FDI liberalization, the migrants tend to be allocated to low-wage or high-hazard industries than the local workers. This pattern suggests that the inflows of FDI increases the wage rates in high-skill intensive industries, attracting local workers to these industries, while also increasing the absolute value of low-skill wages, attracting more migrants with lower educational levels. This dynamic may even discourage migrants from pursuing a higher level of education, leading to a downgrade of educational structure among the migrants.

Lastly, we introduce significant technical advancements by presenting a new approach for constructing indices of FDI inflows. While prior research has primarily concentrated on industry or national/regional dimensions, this study constructs an index of city-level FDI restrictions and scrutinize the impact of changes in this index on individuals' education decisions and wage scales (David et al., 2013). To create the city-level FDI shock index, we first compute the employment share of each industry in every city using individual employment information from the census. Subsequently, we employ this employment share as weights to calculate a weighted average FDI inflow index for each region. To mitigate the endogeneity issue between FDI inflows and education level, we instrument FDI inflows with the FDI restriction index. The development of the FDI inflow index is a distinctive feature of this paper and signifies a significant advancement in the construction of related indices in prior studies. In comparison to other studies, the FDI inflow index used in this paper has stronger exogeneity, which greatly reduces the concern of endogeneity.

The next section of the article briefly introduces the background of FDI deregulation policy in China. Section 3 presents the data and empirical methodology employed in this paper. In Section 4, we report the results and analysis of our empirical tests. In Section 5, we describe the various robustness checks. Section 6 describes a simple model that rationalizes our empirical results. The last section concludes our findings.

2 Background of FDI deregulation policy in China

2.1 Context of FDI Liberalization

Historically, the Chinese government enacted a stringent FDI approval policy. However, a noteworthy shift occurred on June 20, 1995, when the 'The Catalogue for the Guidance of Foreign Investment Industries' was introduced for the first time. This document categorized industries into four distinct groups based on the level of FDI regulation: (1) Industries where FDI is supported (least regulated); (2) Industries where FDI is permitted; (3) Industries where FDI is restricted; and (4) Industries where FDI is prohibited. Following this delineation, FDI regulation rules became more defined and adjustable. The Catalogue underwent biennial revisions, with major amendments implemented in 1997, 2002, 2007 and later years. Our investigation primarily on the revisions in 2002, which are considered the most extensive and in-depth, coinciding with China's WTO accession. For robustness, we also examine the effects of 1997 revisions. Figure 1 depicts the change rate of 1997 and 2002 revisions.

[Insert Figure 1 here]

2.2 China's FDI development

China's FDI has experienced significant growth from approximately 40 billion US dollars in 1999 to around 84 billion US dollars in 2007. Despite periodic fluctuations, the long-term growth rate of China's FDI has consistently been on the rise. Importantly,

over the past decade, this growth rate has continued an overall positive path. The year 2001 marked as a critical juncture in China's rapid FDI expansion, as it witnessed a remarkable growth rate of 15.14%, signifying a significant upsurge in FDI following China's accession to WTO. Across different provinces, certain developed regions and economic hubs have been more successful in attracting FDI, whereas less developed provinces have shown lower levels of attraction. In particular, Shanghai and Guangdong stand as notable FDI recipients, attracting 11.932 billion and 6.914 billion US dollars respectively. Meanwhile, Jiangsu, Shandong, Liaoning, and Fujian, although in a middle range, each draw in over 3 billion US dollars of FDI. In contract, provinces such as Guizhou, Tibet, Ningxia, and Gansu register relatively lower levels of FDI. Similarly, the amount of FDI in encouraged industries witnessed a substantial increase in 2002 compared to 1997, when analyzed by industry. Figure 2 shows the growth trend of FDI between 1999 and 2007. Figure 3 presents the FDI/GDP across provinces in 2002. Figure 4 depicts the difference of FDI across 2002 and 1997.

[Insert Figure 2 here]

[Insert Figure 3 here]

[Insert Figure 4 here]

3. Empirical analysis

3.1 Empirical strategy

Combining the variation in the impacts of FDI across cities and the arguably distinct impact on different age cohorts at the time of FDI deregulation, we can estimate the impact of FDI deregulation on individual education choices using a difference-in-difference (DID) strategy. Therefore, the following regression is estimated:

$$Edu_{ir} = \beta Cohort_c \times \Delta FDI_r + \gamma' X_i + \delta_r + \delta_c + \varepsilon_{ir} \quad (1)$$

where Edu_{ir} is the schooling years or educational dummy (college dummy or high school dummy) for person i in city r. Our estimation sample contains two cohorts of workers. $Cohort_c$ is the cohort dummy which equals to one if the person i reached the age of 16 (or 19) one year after the policy shock year, and equals to zero if the person i reached the age of 16 (or 19) one year before the policy shock year. ΔFDI_r is the growth rate of FDI in city r, which measures the exposure level of FDI by city r. The interaction of cohort dummy and exposure to FDI inflows, $Treat_c \times FDI_r$, captures the treatment effect of the FDI on education attainment. X_i controls the individual characteristics, including gender, ethnicity, and hukou type. δ_r controls the city fixed effect. δ_c is the cohort dummy.

$$\Delta FDI_r = \sum_k \frac{L_{rk}\widehat{\Delta FDI_k}}{L_r} \quad (2)$$

wherein ΔFDI_k is the intertemporal log difference of FDI in industry k(3-digit CIC code) between the years 1997 and 2002 (measure for 2002 FDI deregulation shock); L_{rk} is the number of employees in industry k of region r; L_r is the number of employees in region r. ΔFDI_r represents the growth rate of FDI in city r during the 1997–2002 FDI deregulation period, which measures the deregulation level. FDI is adjusted by the IV of FDI deregulation index.

A crucial assumption for obtaining an unbiased estimation of β is that, ΔFDI_r is uncorrelated with the error term. There is a possibility, however, that FDI may be more likely to flow to more educated cities for a higher level of labor, leading to a reverse causality problem in our DID model.

To address potential endogeneity and measurement bias, we follow the method by Lu et al. (2017) and use the adjustment on the restriction policies for foreign investment that recorded by 'The Catalogue as the IV to instrument the FDI. Specifically, the treatment variable $Treat_k$ is constructed as the index to measure the adjustments on openness level between two versions of 'the Catalogue'. We compare the openness levels between 1997 and 2002 for each industry. If the openness level increases in a specific industry in the policy shock year, we define an occurrence of FDI liberalization for this industry and assign this industry with a value of 1. If the openness level

decreases in a specific industry in the policy shock year, we define this industry as a restricted industry and assign it with a value of -1. If the openness level didn't change in a specific industry, we assign a value of 0 for this industry. Then, we construct the instrumental variable in our estimations as the following equation (also see Lu et al., 2017):

$$IV_k = Treat_k \times Post_t \quad (3)$$

wherein $Treat_k$ is the index for the adjustment on openness level in industry k based on 3-digit CIC code. If FDI in industry k became more encouraged, $Treat_k$ will be assigned a value of 1; if industry k became more restricted, $Treat_k$ will be assigned a value of -1; If FDI regulation level in industry k doesn't change, $Treat_k$ will be assigned a value of 0. The first stage estimation model in two-stage IV estimation is specified as:

$$FDI_{kt} = \theta Treat_k \times Post_t + \delta_k + \delta_t + \xi_{kt} \quad (4)$$

We predict the IV-adjusted value $\widehat{FDI_{kt}}$ for FDI_{kt} according to equation (4) above.

3.2 Data

3.2.1 Census data

The main database used in this paper is the National Population Census Data in 2000, 2005, and 2010, which are collected and recorded by Chinese government. This database records detailed individual information including gender, ethnic group, birthday, Hukou type, schooling years, sources of household income, residential location, birthplace, etc. Relying on these data, we are able to estimate the impact of FDI liberalization on residents' education level. Compared with the previous census data, the quality of 2010 census data improves significantly. The records have become more accurate and reliable. The census omission ratio declines to round 0.12%. For

example, the omission issue was particularly severe in 2000 census data. Around 37 million young age samples are missing unreasonably (Goodkind, 2004; Wu and He, 2015). Moreover, the 2010 census data provide detailed personal information such as birthday, which allows us to investigate the issue by comparing the responses of different cohorts of students. According to Chinese education law, students are mandatary to finish at least junior high school education. Whether to receive higher levels of education depends on students' choice. In our sample, around 26% of residents hold high school or higher educational diploma. Around 10% of residents hold higher educational diploma. The FDI liberalization will lead to an increase of high-skilled occupations, which is expected to induce students to seek higher levels of education. To exclude interference from migration, we exclude the samples of residents who have left their Hukou registered cities more than one year.

Our empirical analysis uses 2005 census data to investigate the spillover effect of FDI on education premium and migration, wherein the 2005 census data records the information on personal income and schooling. Our analysis uses the 2005 census data, which are the only census data that record personal income and distinguish the heterogeneous effects between the local and migration workers. Following the method by McLaren and Yoo (2017) and Facchini et al. (2019), a resident is identified as a migrant if his or her current residential city is different from his or her Hukou registration city. As the census data are collected in 2005, migrants who have left their Hukou registration place for more than 6 years (the longest year in record) are supposed to exposure to the policy shock in 1997, and migrants who have left their Hukou registration place for 3 years are supposed to exposure to the 2002 policy shock.

3.2.2 FDI data

The FDI data used in this paper are retrieved from the business registration database. This database records the operation information of over 60 million firms that ever registered since 1949, including the firm name, establishment year, firm type, industrial category, registered capital, foreign capital, registration region, and the year

for the cancellation of the business license. Leveraging this data, we compute the amount of FDI for each industry (3-digit industry category) in 1992, 1997, and 2002. Subsequently, we calculate the intertemporal difference on the FDI in each industry between 5 years, and finally obtain the difference for the FDI data between 1997 and 2002. Following this, we undertake several data cleaning processes: Firstly, we remove sample firms with incorrected recorded information, e.g., some firms' exit year is recorded as being earlier than their registration year. Secondly, we remove samples without the information on industrial information or foreign capital. Lastly, we exclude entities that are not influenced by market factors, i.e., public management organization, public security organization, social benefit organization, and international organization. Table 1 illustrates the openness level for each industry in 3-digit CIC code.

[Insert Table 1 here]

3.2.3 Tariff data

The tariffs data used in this paper are retrieved from the WITS database, spanning the years from 1998 to 2010. The tariffs data are recorded at HS8 code. We converted the data into the China Industry Classification (CIC) four-digit level to match the population census data. Specifically, we mainly used the concordance table from Brandt et al. (2017), which provided the HS8 and CIC 4-digit level (424 manufacturing industries) concordance. Reflecting the higher level of aggregation of the census data, industry information of which is at CIC 3-digit level, the export tariffs are effectively at the 3-digit level. Following Brandt et al. (2017), to avoid any bias in the industry average due to low trade volumes in heavily protected product lines, we use an unweighted average. We then use the city and CIC share from the census data to aggregate the CIC level export tariffs to city level.

Table 2 summarizes the statistics for the key variables in our estimations. The main data used in our study include the FDI restrictiveness index, FDI inflows, employment ratio, the number of migrants, tariffs, and individual characteristics such as schooling

years, Hukou registration information, gender, ethnicity, and wage.

[Insert Table 2 here]

3.3 Baseline results

Based on the DID -IV estimation strategy, we can explore how FDI affects students' decision on schooling years. In China, most students graduate from junior high school and make their decision on whether to enter the high school at the age of 16. If the FDI liberalization in 2002 influences students' decision, we will observe the difference in the schooling decision between the cohort of students that graduated from the junior high school before and after the FDI liberalization. Specifically, the cohort of 17 years old in 2002 is set as control group, while the cohort of 15 years old in 2002 is set as treatment group. This is because at the time of FDI liberalization in 2002, the former cohort of students have already made their decision on entering the high school before 2002, while the latter cohort of student will make their decision under the impact of FDI liberalization. As China entered the WTO in 2001, to exclude the influences from trade liberalization, all our estimations control the interaction of the prefecture level export tariffs and cohort dummy. Columns (1)-(4) of Table 3 reports the results for local workers, while Columns (5)-(8) report the results for migrants. The estimation results show that the local residents in the treatment group are more likely to take longer years of schooling, while the effect on migration residents of 16 years old cohort is negative.

[Insert Table 3 here]

For robustness, we also perform the Probit estimations to detect whether students will increase their probability to enter a higher level of education. The new indicator is the dummy for the high school and college attainment. If the person has a high school diploma, the dummy for the high school attainment takes a value of 1, otherwise it takes a value of 0. If the person has a college diploma, the dummy for the college attainment takes a value of 1, otherwise it takes a value of 0. Then, we estimate the probability for

a person to enter the high school or college with the linear probability model (LPM) and Probit model. In the estimations, the inflows of FDI is instrumented by the liberalization index of FDI. The relevant results are reported in Table 4, which show a promotion effect of FDI deregulation on probability of local resident to attain a higher level of education, but deterring effect on migrants' decision to attain a higher level of education.

[Insert Table 4 here]

3.4 Mechanism: FDI deregulation and adjustments in labor market

3.4.1 FDI deregulation and educational wage premium

To understand the influencing mechanisms of FDI inflows on residents' educational attainments, we further analyze and compare how FDI inflows influence the educational wage premium between the local and migrant workers. We suppose the downgrading of the migrants' educational levels after the FDI deregulation shock is mainly driven by the growth of low-skill positions on the migrants. To test this potential influencing channel, we design and perform a difference-in-difference exercise similar to model (1). Specifically, we explore the effect of FDI liberalization in 2002 on the wages of residents with different educational levels. Similar to our main specification, we set the cohort of the workers who received the college degree and were 22 years old in the shock year as the treatment group, and the cohort of workers who received the college degree and were 24 years old in the shock year as control group. As most of college students graduate at the age of 23, the former cohort of residents will be exposure to the FDI policy shock when they graduate and start job searching. This treatment group of graduates will thus get more opportunities to find a position in foreign owned firms than the graduates in the control group. If the foreign owned firms demand more highly-educated workers and pay them higher wages, the demand for college graduates in the labor market will increase. As a result, the college graduates will receive higher incomes. The estimation model is specified as follows.

$$Wage_{ir} = \beta Cohort_c \times \Delta FDI_r + \gamma' X_i + \delta_r + \delta_c + \varepsilon_{ir} \quad (5)$$

wherein $Wage_{ir}$ is the wage of person *i* in city *r*. $Cohort_c$ is the dummy indicating whether cohort c reached 16 (or 19) years of age in the shock year, which is our measure for the FDI shock. ΔFDI_r is the growth rate of FDI in city *r*, which measures the exposure level of FDI deregulation by city r. The interaction term, $Treat_c \times FDI_r$, is thus the focus of our investigation, which captures the difference-in-difference effect of the FDI shock on education attainment. X_i controls the individual characteristics, including gender, ethnicity, and hukou type. δ_r controls the city fixed effect. δ_c is the cohort dummy.

Table 5 reports the relevant results for the 2002 FDI deregulation. These results show a promotion effect of the FDI deregulation on the wages by college or high school graduates, but a mute effect on the wages of junior high school graduates. These results confirm our previous finding that the educational wage premium increases with exposure to FDI inflows.

[Insert Table 5 here]

3.4.2 FDI deregulation and employment resorting

In the preceding analysis, we observed that the educational wage premium is more pronounced for local workers, suggesting a potential allocation of these workers to high-skill positions. To further investigate this, we examined the shifts in relative wages and the number of migrants versus local workers across various industries. Figure 5 presents both city-level and city-industry-level comparisons of migrants to local workers' wages, segmented by educational levels. These figures reveal an increase in the relative wage of migrants to local workers with higher educational levels. On average, migrants with a college degree earn more than their local counterparts, while those with a high-school degree or less earn considerably less.

[Insert Figure 5 here]

We hypothesize that the higher relative wage among college-educated migrants is primarily due to ability differences between migrants and local workers. If the costs of migration are relatively high for workers with a college degree, a self-selection process will be triggered where only high-ability college graduates tend to choose to migrate. Consequently, the average ability of migrants surpasses that of local workers. For migrants with a high-school degree or less, this self-selection effect is less pronounced, and their average wage is lower than that of local workers, suggesting a potentially lower migration costs for these less educated workers.

Migrant costs for college graduates include job searching costs for a long-term position, efforts to secure low-term residency rights in the destination city (such as the local Hukou[2]), and housing related expenses. In contrast, migrants with a high-school degree or less often take short-term positions or are self-employed, thereby facing significantly lower migration costs.

Another pattern of Figure 5 is that the city-level relative wage of migrants to local workers is lower than the city-industry-level value within each group. This pattern highlights that industry variation plays a crucial role in the observed disparity. It indicates that migrants are more prone to being concentrated in low-wage industries or positions, which can be attributed to potential employment discrimination against them.

To further investigate how FDI deregulation affects the difference in educational premium between the migrant and local workers, we conduct the subsample estimations by differentiating the groups of migrants and local workers. The corresponding results are presented in Table 6. The results indicate that for the local individuals with a college or high-school degrees, there are significantly positive effect of FDI shock on wages. However, there is no significant increase in wages for the high educational level migrants, while the wages for the migrants below the high-school level increase. These results suggest that FDI deregulation only promotes the local workers' educational premium, while the migrants only benefit from the growth of the low-skill positions.

[2] Hukou is the identification for a person to enjoy medical cares, unemployment security, the right to buy real estate, and the educational right for his or her children in the local city.

[Insert Table 6 here]

One plausible explanation for the difference in educational premium between the local and migrant workers is that local workers are more likely to obtain high-skill positions. To investigate this hypothesis, we classify 3-digit CIC industries according to their mean wage in the year 2005.[3] We then regress the log-difference in the relative wage of migrants to local workers across different educational groups on the interaction of log difference in FDI and the mean wage of the industry at the city-industry level.

Our estimation results, reported in Table 7, shows a significantly negative coefficient on the interaction of FDI and mean wage for the high school educational group. This suggests that for industries that have relatively high average wage at the initial year, the relative number of migrants to local workers with the high school or below high school degrees decreases with exposure to the FDI shock. These results suggest that the local workers are more likely to allocate to the high-income industries.

In addition to mean wage, we also categorize industries based on their hazard level, introducing a dummy variable for industries where workers are exposure to high-risk environment (Witter et al., 2014; Shikdar et al., 2003). The industry's hazard index in our paper is constructed based on the industrial hazard information & data provided by the website O*net OnLine.[4] This website gathers the information on the potential dangers, frequency of exposure to dangerous environment, and potential harm to health by different types of occupations. The industries are categorized by the Standard Occupational Classification (SOC) in this database. We correspond this industrial code to the 2-digit CIC that used in our dataset. Then, we rank all industries from the most hazarded to lowest hazarded based on the dangerous level. We allow the hazard dummy to identify the hazard level of each industry, wherein the dummy is assigned a value of 1 if this industry's hazard value is above the mean value across all industries. The corresponding results, reported in Table 8, indicate that for industries considered

[3] The wage data are only available in the 2005 census data.

[4] https://www.onetonline.org/-find/descriptor/browse/4.C

involving more hazards, FDI inflows are associated with an increase in the relative number of migrants.

[Insert Table 7 here]

[Insert Table 8 here]

Restricted by our data structure, we cannot explore the allocation of positions between the migrants and local workers within each industry. On conservation, given the results from Tables 7 and 8, we can still conclude that compared with the local workers, the migrants are less likely to be allocated to high-wage or less hazard positions. This phenomenon may be driven by three potential causal factors.

The first relates to labor market protection. An influx of high-skill migrants can threaten the local labor market, prompting local workers to seek increased job market protection. Several studies have documented such protectionism in China's local labor market (Kumar, 1994; Young, 2000; Bai et al., 2004; Amiti and Javorcik, 2008). For example, local government face pressure maintains low unemployment rates among local residents registered with local Hukou. The surge of migrants attracted by FDI inflows heightens the concerns of local workers, leading to increased employment discrimination against migrants.

In addition to the traditional explanations above, we propose two additional potential causal factors specific to China: the local network of relations and compensation for land expropriation. In the local labor market, local job candidates often have an information and connection advantage over the migrants. Local workers, leveraging their personal relationships with local enterprises and information advantages, typically find it easier to secure high-paying positions than migrants. This often results in the so-called over-education phenomenon among migration workers, where they hold a relatively high educational degree but undertake a low-skill tasks.

The last potential explanation pertains to compensation for land expropriation. Over past few decades, China's fast industrial growth stems from two key factors: the

transfer of labors from the agricultural sector to the industrial sector, and expropriation of rural land for industrial use. Following China's accession to the WTO, the growth of exports and FDI inflows largely promoted the industrial process in China. New factories expropriated vast tracts of local land, resulting in many local residents losing their land. To compensate, these new factories often prioritize employing local residents, particularly farmers who have lost their land. These factors collectively give local workers advantage in job searching.

4 Robustness checks

4.1 Event study and common-trend test

Our baseline estimations assume that, prior to FDI liberalization, the educational attainments in cities exposed to liberalization were akin to those in the control group. To verify this assumption, we categorize cities into two groups - high FDI exposure and low FDI exposure - based on the mean of FDI growth rates across all cities. We construct a dummy $High_r$ to identify the FDI exposure level, which is assigned with a value of 1 if the city highly exposures to FDI, and assigned with a value of 0 otherwise. Specifically, we use the estimation models (6)-(9) below to compare the educational attainments and wages between high- and low-FDI-exposure cities.

$$Edu_{ir} = \sum_{t=2000}^{t=2005} \beta_t \, Treat\_cohort_{ct} \times High_r + \gamma' X_i + \delta_c + \delta_r + \varepsilon_{ir} \quad (6)$$

$$Wage_{ic} = \sum_{t=2000}^{t=2005} \beta_t \, Treat\_cohort_{ct} \times High_r + \gamma' X_i + \delta_c + \delta_r + \varepsilon_{ir} \quad (7)$$

In the estimation models above, $Treat\_cohort_{ct}$ is the dummy that denoting the cohorts of students in city c and year t. $High_r$ is the dummy that indicates the FDI exposure level of city *r*. The coefficients of interesting are denoted by β_t, representing the coefficients on the interaction between the cohort dummy and FDI exposure dummy,

wherein *t* denotes the observation year. δ_c and δ_r respectively control the cohort and city fixed effects. Figure 6 and 7 illustrate the coefficients and 95% confidential intervals for the coefficients on the interaction $Treat\_cohort_{cs} \times High_r$ in models (4) for the subsample of local residents. As is shown in Figure 6 and 7, the cities that differently exposure to FDI shocks share the same educational attainment ratios for high school and college before the FDI liberalization. After the FDI liberalization, the highly exposed cities experienced a rise in educational attainment for both secondary school and college of local residents.

[Insert Figure 6 here]

[Insert Figure 7 here]

Figures 8 and 9 replicate the pre-trend tests of Figures 6 and 7 for the subsample of migrants. These results show that the FDI deregulation shocks in 2002 decrease the educational attainment for the migrants.

[Insert Figure 8 here]

[Insert Figure 9 here]

Figure 10 and 11 provide a graphical representation of the results derived from model (5). It clearly depicts a negligible disparity in the income levels of college graduates from cities with high and low exposure of FDI before the shock year for the subsample of local residents. However, post-FDI liberalization, a marked income increase is observed for college graduates from the high-FDI-exposure cities compared to the college graduates from the low-FDI-exposure cities.

All the results above show a parallel pre-trend between the treatment and control groups before the policy shock year, suggesting a robustness of our baseline estimations.

[Insert Figure 10 here]

[Insert Figure 11 here]

4.2 1997 FDI liberalization

For robustness, we also replicate our baseline estimations on the FDI liberalization in 1997. Tables 9 and 10 report the relevant results for educational attainment. These results show that the FDI regulation in 2002 also promotes the local students' schooling years or probability to take a higher educational level, but discourages the migrants to enter high school or college.

[Insert Table 9 here]

[Insert Table 10 here]

4.3 Alternative index for measuring FDI exposure

In our baseline estimations on the educational attainment, we use the log-difference of FDI (equivalent to the growth rate of FDI) to measure the FDI exposure level. For robustness, we also attempt an FDI intensity index to measure the FDI exposure, that is,

$$(FDI/GDP)_r = \left(\sum_k \frac{L_{rk}\widehat{FDI_k}}{L_r}\right)/GDP_r \qquad (8)$$

wherein $\widehat{FDI_k}$ is the FDI inflows in industry k, which is instrumented by FDI deregulation index;[5] GDP_r is GDP of region r in 2002. Using this FDI exposure index, we replicate all our baseline estimations on education and wage premium, and report the relevant results in Tables 11 and 12(See Appendix).

4.3 City-level estimation

5 In the first stage of the IV estimation, $\widehat{FDI_k}$ is regressed on FDI deregulation index using the data from 1992 to 2007.

Our baseline estimations conduct a DID model. One concern on the wage and employment estimations is that workers may change their jobs after the shock year. For robustness, we also perform the city-level estimations. As the wage information is only available in 2005 census data, we cannot make intertemporal difference analysis. Alternatively, we make cross-sectional estimations by regressing either relative wage of college graduates to high school graduates or relative wage of high school graduates to junior-high school graduates on city-level FDI/GDP ratio (see model (9) below), wherein the dependent variables measure the educational wage premium.

$$lnR_r = \beta ln(FDI/GDP)_r + \gamma' Z_r + \varepsilon_r \qquad (9)$$

wherein lnR_r is the log of relative wage of college graduates to high school graduates or relative wage of high school graduates to junior-high school graduates in city *r*. $ln(FDI/GDP)_r$ is the log of FDI over GDP in city *r*. Z_r controls the city-level characteristics, including log of GDP, population, fixed asset investment, fiscal budget, city-level tariff and province-level state-owned enterprises ratio. Table 13 (See Appendix) reports the relevant results. We observe that the relative wage of higher educational level over the lower educational level increases with exposure to FDI deregulation, except the relative wage of the workers with high school degree to the workers with junior-high school degree. These results suggest an increase in educational wage premium with exposure to the higher FDI inflows.

In the second model, we regress the city-level relative wage of migrants to the local workers on FDI/GDP in each city, while controlling for city-level characteristics, including log of GDP, population, fixed asset investment, fiscal budget, city-level tariffs and province-level state-owned enterprises ratio.

Table 14 (see Appendix) reports the relevant results. The results show a significantly negative effect of FDI inflows on relative wage of migrants to the local workers among the high school graduates, suggesting a negative effect of FDI deregulation on the relative wage of the migrants.

4.4 Measure of FDI exposure based on migrant original cities

On significant concern on the baseline estimation on effect of FDI on migrants' educational degree is that the FDI exposure to the migrants is based on the FDI inflows in the migration destination cities. The comparison between different cohorts of migrants is based on the migrants from different origin cities, wherein largely characteristic difference may exist among migrant samples. For robustness, we compare the cohorts of migrants who come from the same origin city. The FDI exposure is measured by the destination cities' FDI inflows that weighted averaged by the number of migrants to each destination city. Table 15 (see Appendix) reports the relevant results, which are consistent with our baseline result: the FDI deregulation process in 2002 discouraged migrants to take a higher educational degree.

4.5 To exclude the influences from the drop-out sample

In our baseline estimations, we assume all students that have entered the high school or college will complete their study. One concern on of our baseline estimations is that some students in the secondary school or college will drop out in the middle way. Though the drop-out students take only around 1% of the whole sample, inclusion of these samples will inevitably lead to an upward bias issue on the estimation of coefficients, and over-estimate the effect of FDI deregulation.

To solve this issue, we keep the samples that have completed the secondary school or college study, and replicate our baseline estimations. Table 16 (See Appendix) report the relevant results, which are all consistent with our baseline estimations.

5 Theoretical model

5.1 Model settings

In this section, we will construct a theoretical framework to rationalize our empirical findings. Specifically, we will show the following empirical relationships with our theoretical model.

(1) Workers are self-selected to migrate based on their ability.

(2) The local workers in the FDI host cities increase their schooling years (educational degree) in response to the growth of FDI inflows.

(3) The migrants decrease their schooling years (educational degree) in response to the growth of FDI inflows in the destination cities.

We assume individual i obtains utility by consuming a composite of commodity good:

$$U_i(x_i) = \max_{x_i} x_i^{\omega}$$

$$s.t.\ \ px_i \leq y_i(a_i; e_i; l_i; h_i) - c(e_i) - f(l_i; h_i) \qquad (10)$$

wherein x_i is the consumption of individual i; $1 > \omega > 0$ is parameter of the utility function; p is price index; $y_i(\cdot)$ is the income of individual i; index a_i measures the working ability of individual i, which follows a identically known distribution $a \sim G(a)$ in each city; e_i is the educational degree (or schooling years) that chosen by individual i; $l_i = 0,1$ is a dummy to indicate whether individual i's currently living city that highly exposures to FDI inflows shock; $h_i = 0,1$ is a dummy to indicate whether individual i's home city that highly exposures to FDI inflows shock; $c(e_i)$ is an increasing function to measure the educational costs; $f(l_i; h_i)$ is a function to measure the migration costs.[6] For convenience, we assume there are only two cities, i.e., one exposures to FDI inflows shock and the one doesn't exposure to FDI inflows shock.

[6] Recall that migration costs are increasing in educational degree.

$$\begin{cases} y_i(a_i; e_i; l_i; h_i) = \left\{[\eta_l(z_H)I(h_i = 1) + \eta_m(z_H)I(h_i = 0)]e_i^{\beta} a_i^{1-\beta}\right\} I(l_i = 1) \\ \quad + \left\{[\eta_l(z_L)I(h_i = 1) + \eta_m(z_L)I(h_i = 0)]e_i^{\beta} a_i^{1-\beta}\right\} I(l_i = 0) \\ c(e_i) = \theta e_i^{\gamma} \\ f(l_i; h_i) = \rho[(1 - h_i)(l_i - h_i) + h_i(h_i - l_i)] \end{cases}$$

(11)

wherein $1 > \gamma > \beta > 0$; $\frac{d\eta_l(z)}{dz} > 0$, $\frac{d\eta_m(z)}{dz} > 0$; $\eta_l(z) > \eta_m(z) > 0$, and $\eta_l(0) = \eta_m(0) > 0$; $I(l = 1)$ is an indicator for individual i's working city, which equals to one if the working city exposures to the FDI inflows shock, and zero otherwise. Income $y_i(a; e; l; h)$ is determined by a Cobb-Douglas function $e^{\beta} a^{1-\beta}$ (educational degree and personal ability), premium to education and ability $\eta_l(z)$ and $\eta_m(z)$. z measures the level of FDI inflows shock, wherein $z_H > z_L$. Obviously, an increase in z will lead to an increase in educational premium as well as the average wage for all workers. Educational costs $c(e_i)$ is an increasing function in e_i, and θ is the scale parameter to e_i. We assume $\eta_l(z) \equiv \eta_0 z^{\eta_l}$ and $\eta_m(z) \equiv \eta_0 z^{\eta_m}$, wherein η_l and η_m are elasticity of income to FDI intensity, and η_0 is the scale parameter to for the FDI intensity index. The migration cost function $f(l_i; h_i)$ returns the value of ρ is the individual i's current working city is different from his/her home city with educational level e_i, and returns the value of 0 if the person doesn't migrate.

5.2 The equilibrium with continuously educational choices

Given the settings above, a typical worker will make decision on his/her educational degree (e) and working city l based on his/her ability level a and home city h. Next, we will show the first empirical finding, that is, Workers are self-selected to migrate based on their working ability. Obviously, the workers from the FDI host city will not migrate to the other city due to a decrease in expected wage and an incurring of migration cost. Our focus will be on the contrary case, that is, the workers choose whether to move from the city without the FDI shock to the FDI host city. Before choosing his/her working city, the worker should firstly decide his/her educational level

given the working city l and working ability a. Easily, we can get the following solution given $l = 1$ and $l = 0$:

$$e^* = \left[\beta\eta_m(z_H)a^{1-\beta}(\theta\gamma)^{-1}\right]^{\frac{1}{\gamma-\beta}} \qquad (12)$$

$$\tilde{e} = \left[\beta\eta_l(z_L)a^{1-\beta}(\theta\gamma)^{-1}\right]^{\frac{1}{\gamma-\beta}} \qquad (13)$$

Given the condition that $1 > \gamma > \beta > 0$, the optimal educational level in each case will increase in the worker's ability a. Another pattern based on equations (12) and (13) is that optimal educational level increases in FDI level z through the educational wage premium effect, but decreases in the migration costs. Substitute the results from equations (10) and (11) back to utility function, we can compare the utility levels for the choices of working cities. A person will choose his/her working city that returns a higher utility level. A simple proof shows that there exists a critical value for worker's ability $\hat{a}$, such that for the workers whose ability level is lower than $\hat{a}$ will stay in the home city, and the workers whose ability level is higher than this value will migrate to the city with FDI inflows shock. The solution for critical value $\hat{a}$ is:

$$\hat{a} = \{\rho + \theta([e^*(\hat{a})]^\gamma - [\tilde{e}(\hat{a})]^\gamma)\}^{\frac{1}{1-\beta}}\{\eta_m(z_H)[e^*(\hat{a})]^\beta - \eta_l(z_L)[\tilde{e}(\hat{a})]^\beta\}^{\frac{1}{\beta-1}} \qquad (14)$$

The workers will decide whether to migrate to the FDI inflows shock city based on the relative scale of their ability level. The high-ability workers will self-select to migrate. Another pattern based on equation (14) is that, the critical value $\hat{a}$ decreases in the FDI level z. An increase in FDI inflows will attract more workers to migrate. Next, we will show that the local workers increase their educational levels, and under some conditions, the migrants decrease their educational levels.

As discussed before, the workers from the FDI host city will not choose to migrate to another city. In this case, their optimal educational level is solved as:

$$\bar{e} = \left[\beta\eta_l(z_H)a^{1-\beta}(\theta\gamma)^{-1}\right]^{\frac{1}{\gamma-\beta}} \qquad (15)$$

Obviously, the optimal educational level $\bar{e}$ is an increasing function of FDI level z. Next, we will show how migrants choose their location decision and educational decision in response to the FDI inflows shock. To simplify our analysis without losses of generality, we assume there are only two choices for education, i.e., the high educational degree e_H and low educational degree e_L. Again, the location choice is $l = 0,1$. Given the settings above, a typically potential migrant with ability level a will decide his/her choice by comparing the returns based on the following payment equations. The decline of migrants' educational levels is mainly driven by the relatively growth of the low-ability migrants with low educational levels.

5.3 Simulation

To illustrate how growth of low-skill demand toward the group migrants that leads to the downgrading of educational levels by migrants, we simulate the ability and educational levels for the new marginal migrants under varying values for opportunity cost to migrate, i.e., $\Omega(\rho, a) \equiv \rho + \theta([e^*(a)]^\gamma - [\tilde{e}(a)]^\gamma)$. To capture the parameters β, γ, η_l, and η_m, we estimate the following models:

$$lny_i = \beta lne_i + \eta_k ln(FDI/GDP)_i + X_i{}'\mu + \delta_j + \epsilon_i \qquad (16)$$

$$lne_i = \frac{\beta\eta_l}{\gamma-\beta} ln(FDI/GDP)_i + X_i{}'\mu + \delta_j + \epsilon_i \qquad (17)$$

wherein y_i is the income for individual i; e_i is the educational level for the local worker i; $ln(FDI/GDP)_i$ is the log of ratio of FDI over GDP; X_i is a set of control variables that control the firm's characteristics. Based on model (16), we capture the values for β, η_l and η_m, wherein $k = l$ or m. To estimate η_l, we use the subsample of the local workers. To estimate η_m, we use the subsample for migration workers. Model (17) uses the subsample of the local workers. All regressions use the sample from the coastal provinces. Based on the values of β and η_l, and the parameter estimated from model (17), we can predict the values for γ. $ln\varepsilon_r$ is the log of income in city r that is independent of the educational level, which is computed as the average

wage of the workers under the high-school degree in city r. δ_j controls the industry level fixed effects. Based on these estimations, the values for these parameters are as follows (see Table 17).

Table 17 Parameter values

Parameters	Values
β	0.700
γ	1.072
η_l	0.025
η_m	0.017
ρ/θ	$\{0.4, 0.6, 0.8, 1\}$

Our simulation will firstly computation the critical value for the marginal migrant's ability level $\hat{a}$ with varying levels of migration fixed cost ρ and FDI intensity in the migration destination region. However, it's difficult to make such computation because there are two parameters' values cannot be derived from the regression estimations, i.e., θ and η_0. To solve this issue, we define $\alpha \equiv a^{1-\beta}\theta^{-1}\eta_0$. α is a monotonically increasing function of ability level a, and therefore can be used as an alternative index to measure individual's ability level. The advantage of using this index is that the critical value $\hat{\alpha} \equiv \hat{a}^{1-\beta}\theta^{-1}\eta_0$ can be derived directly from the equations (10)-(12) together with the parameters' values shown in Table 17. To adapt this transformation, we rescale the migration fixed cost as ρ/θ. In practice, we attempt four values of the fixed cost, i.e., $\rho/\theta = \{0.4, 0.6, 0.8, 1\}$. The reason for choosing the range of ρ/θ between 0.4 to 1 is that the values within this range solve the marginal migrants' schooling years from around 5 to 18 years (primary school to college), which are within the reasonable range of migrants' educational levels. Our second simulation target is to compute the improvement of educational attainments by the migrants from the removal of migration costs and employment discrimination toward the migration workers. In practice, we simulate the ability levels and educational attainments of

migrants from Yunnan province to Guangdong province using the percent values for the FDI to GDP ratios of the two provinces, i.e., 6.9 (Guangdong) and 0.39 (Yunnan). We simulate the changes in ability and educational levels of the migrants when the FDI to GDP ratio of Guangdong province increases from 1.39 to 6.89.

[Insert Figure 12 here]

[Insert Figure 13 here]

[Insert Figure 14 here]

Figure 12 shows the values of the margin migrants' ability levels with varying FDI intensity levels in the highly FDI-exposed region, while Figure 13 shows the values of the margin migrants' educational levels. Based on the Figures 12 and 13, we observe two patterns. First, in response to a growth of FDI, the new migrants' ability and educational levels decrease. This result suggests that influx of FDI creates more employment opportunities and increases workers' wages. Consequently, the migrants with relatively low ability and educational levels can overcome the migration costs and migrate to the FDI-exposed cities. Second, a lower migration cost ρ/θ also leads to the lower levels of ability and educational attainments of the marginal migrants, suggesting a reduction in migration costs will also encourage the low ability and educated workers to migrate. Figure 14 compares the educational attainments of different groups of workers given the ability level: the local workers in the high FDI-exposed regions, migrants, and the non-migrants from the less FDI-exposed regions. Based on Figure 14, we observe that the local workers take the highest level of education. Migration workers take the second highest level. The non-migrants take the lowest level. This result suggests that the migration decision incentives the migrants to upgrade their educational levels. However, due to the existence of employment discrimination, the migrants' educational levels are lower than the local workers. Based on our simulation, the migration decision will induce a 16% increase in schooling years, while the employment discrimination will lead to a 4% decline in schooling years.

The simulation results above reveal two obstacles to encourage migrants to obtain higher levels of education. The first obstacle is the migration fixed costs that deter some low-ability workers to migrate to the region with higher educational wage premium. In this case, these workers are unwilling to take more education due to the relatively low educational wage premium in their home city, i.e., $\eta_0 z_H{}^{\eta_m} > \eta_0 z_L{}^{\eta_l}$. The second obstacle is the employment discrimination on migration workers. A growth of FDI influx will create more high-skill (high-wage) positions. However, these high-skill positions are priorly allocated to the local workers. Therefore, as the growth of FDI influx, the growth rate of the return to education is relatively higher for the local workers than the migration workers, i.e., $\eta_0 z_H{}^{\eta_l} > \eta_0 z_H{}^{\eta_m}$. A reduction in migration costs will encourage more workers from the poor areas to improve their educational attainments upon the migration decision. A removal of employment discrimination also induces the migration workers to improve their educational levels by lowering the opportunity costs of the education.

6 Conclusion

In this paper, we explore the effect of FDI inflows on educational attainment and educational wage premium with the detailed population census data from China. Our empirical analysis employs the IV-DID method to solve the potential endogeneity issue, and reach a robust identification result. Our estimations confirm the following causal relationships. First, the local residents increase their schooling years and probability to attain a higher educational level with exposure to a higher FDI inflows, but the migrants reduce it. Second, inflows of FDI increase the total job positions and the share of high-skill positions, and the educational wage premium will increase as well. Third, inflows of FDI cause a higher share of migrant to allocate in the low-wage and high-hazard positions. Our simulation results show that a reduction in migration costs or a growth of FDI in the migration destination region will induce more low-ability and low-educated workers to move to the region that highly exposure to the FDI influx shock. Compared with the workers in the low-exposed city, the migrant with the same level of

working ability in the high-exposed city will take more schooling years by around 16%. A removal of employment discrimination also improves migrants' schooling years by around 4%.

Our study contributes to the literature on threefold. First, we confirm the causal relation between inflows of FDI and educational attainment by performing a quasi-natural experiment from the FDI deregulation shocks in 2002, which greatly reduce the estimation biases from endogeneity and selection issues. Second, to the best of our knowledge, we are the first one to provide evidence on the effect of FDI on the growth of high-skill job positions and educational wage premium. Third, we are the first paper to distinguish and compare the heterogeneous effect of FDI between the local and migrant workers.

This study's findings underscore the significant impact of FDI inflows on education choices and wage premiums, highlighting the necessity for policymakers to consider these effects when formulating FDI and education-related policies. The results indicate that FDI inflows can amplify the demand for skilled labor, emphasizing the need for education and training policies that prepare individuals to seize FDI opportunities. These policies could encompass investments in vocational training programs, higher education subsidies, and initiatives to enhance education quality. The study also reveals the potential of FDI inflows to intensify wage inequality, suggesting the need for labor market policies promoting wage equity, such as minimum wage laws and collective bargaining rights, and facilitating worker mobility across sectors and regions. Lastly, the impact of FDI on education choices and wage premiums can differ based on the type and source of FDI, implying that FDI policies should be tailored to attract foreign investment types that contribute most to human capital development and wage equity, including incentives for foreign firms investing in high-skill sectors or providing local worker training and development opportunities.

Our findings also suggest several avenues for future research. Future studies could explore the impact of FDI inflows on other aspects of human capital development, such

as health and social capital. Additionally, research could investigate the impact of FDI inflows on education choices and wage premiums in other countries or contexts.

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Appendix

Table 1

3-digit CIC industries change

1997	Encouraged Industries	772/ 061/ 162/ 252/ 405/ 376/ 079/ 069/ 469/ 431/ 367/ 311/ 146/ 354/ 271/ 361/ 369/ 373/ 171/ 399/ 314/ 062/ 560/ 221/ 319/ 322/ 321/ 364/ 771/ 308
	Discouraged Industries	859/ 721/ 854/ 552/ 542/ 541/ 375/ 852/ 415/ 233/ 855/ 281/ 856/ 273/ 851/ 813/ 051/ 844/ 291/ 358/ 261/ 857/ 543/ 282/ 353/ 014/ 372/ 274/ 407/ 849/ 853/ 352
	Hybrid Industries	277/ 272/ 401/ 251/ 266/ 441
	No Change	Other 3-digit CIC industries
2002	Encouraged Industries	276/ 343/ 345/ 450/ 091/ 752/ 162/ 542/ 541/ 149/ 341/ 755/ 581/ 313/ 153/ 753/ 277/ 281/ 443/ 347/ 553/ 361/ 802/ 763/ 844/ 391/ 392/ 754/ 312/ 144/ 071/ 543/ 601/ 872/ 462/ 372/ 441/ 352/ 743/ 551/ 721/ 751/ 811/ 315/ 252/ 316/ 405/ 363/ 375/ 376/ 469/ 404/ 368/ 367/ 415/ 311/ 349/ 346/ 309/ 369/ 401/ 373/ 871/ 344/ 513/ 461/ 522/ 442/ 072/ 331/ 011/ 402/ 264/ 092/ 314/ 342/ 348/ 265/ 191/ 221/ 102/ 319/ 263/ 323/ 403/ 589/ 013/ 014/ 324/ 222/ 407/ 136/ 012
	Discouraged Industries	146/ 882/ 732/ 061/ 251/ 093/ 842/ 881/ 764/ 041/ 042/ 893/ 521/ 069/ 731/ 052/ 841
	Hybrid Industries	512/ 659/ 266/ 552/ 657/ 633/ 658/ 635/ 637/ 653/ 638/ 051/ 632/ 631/ 656/ 651/ 261/ 655/ 511/ 282/ 652/ 636/ 654/ 634/ 639
	No Change	Other 3-digit CIC industries

Notes: By comparing the 2002 and 1997, 1997 and 1995 Foreign Investment Industry Guidance Catalog in China and comparing the catalog with the National Economic Industry Classification (CIC), the 3-digit CIC industries are divided into Encouraged Industries, Discouraged Industries, Hybrid Industries and other industries without change.

Table 2

Summary of the key variables

Variable	Observation	Mean	Std.Dev.	Min	Median	Max
$ln(\ years\ of\ education)$	4,104,434	2.42	0.6	0	2.56	3
$ln(FDI\ 1997)$	4,104,434	8.45	0.66	6.98	8.58	9.5
$ln(FDI\ 2002)$	4,104,434	9.05	0.87	7.30	9.15	10.66
$ln(FDI\ 1997 \times cohort16)$	4,104,434	0.16	1.16	0	0	9.5
$ln(FDI\ 1997 \times cohort19)$	4,104,434	0.14	1.09	0	0	9.5
$ln(FDI\ 2002 \times cohort16)$	4,104,434	0.21	1.36	0	0	10.66
$ln(FDI\ 2002 \times cohort19)$	4,104,434	0.16	1.19	0	0	10.66
$Gender$	4,104,434	0.51	0.5	0	1	1
$Ethnicity$	4,104,434	0.93	0.26	0	1	1
$Type$	4,104,434	0.72	0.45	0	1	1
$Tariffs$	4,104,434	0.07	0.34	0	0	3.39
$ln(income)$	1,382,263	6.02	0.92	0	5.99	11.51
$Migrant97$	1,388,989	0.04	0.20	0	0	1
$Migrant02$	1,388,989	0.02	0.14	0	0	1
$Employment\ ratio$	344	0.30	0.18	0.02	0.25	0.91
$lntotal\ migrant$	344	4.23	1.18	0	4.16	8.59
$Migrant\ ratio$	344	0.03	0.03	0	0.02	0.18
$Educated\ \ migrant\ ratio$	344	0.01	0.01	0	0.01	0.08

Notes: This table presents summary statistics for the variables used in our analysis.

Table 3

2002 FDI deregulation and schooling years

	Local workers				Migrants			
	16 years old		*19 years old*		*16 years old*		*19 years old*	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta lnFDI$	0.002**	0.005**	0.003***	0.006**	-0.003**	-0.012***	0.001	0.002
$\times Cohort$	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)	(0.003)
City fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Cohort fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
City controls (×Cohort)	Y	Y	Y	Y	Y	Y	Y	Y
Individual controls	Y	Y	Y	Y	Y	Y	Y	Y
Observations	114,039	115,911	102,344	104,101	12,167	12,579	17,981	18,421

Notes: Cohort controls include gender, ethnicity, and hukou type. City controls include population, and city-level tariff.
* p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level in parentheses.

Table 4

2002 FDI deregulation and educational attainment

	Local workers				Migrants			
	High school		*College*		*High school*		*College*	
	Probit	IV-Probit	Probit	IV-Probit	Probit	IV-Probit	Probit	IV-Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta lnFDI$	0.102***	0.022***	0.073***	0.016***	-0.023***	-0.081***	-0.007*	-0.045***
$\times Cohort$	(0.002)	(0.001)	(0.003)	(0.001)	(0.003)	(0.008)	(0.004)	(0.011)
Random effects	Y	Y	Y	Y	Y	Y	Y	Y
City controls (×Cohort)	Y	Y	Y	Y	Y	Y	Y	Y
Individual controls	Y	Y	Y	Y	Y	Y	Y	Y
Observations	116,329	130,831	104,483	118,725	28,908	28,907	23,942	23,941

Notes: Cohort controls include gender, ethnicity, and hukou type. City controls include population, and city-level tariff. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level in parentheses.

Table 5

2002 FDI deregulation and wages

Dep. Var: *Wage*	*College*	*High School*	*Below High*
	(1)	(2)	(3)
$\Delta lnFDI \times Cohort$	0.185***	0.238***	0.013
	(0.017)	(0.016)	(0.012)
City fixed effects	Y	Y	Y
Cohort fixed effects	Y	Y	Y
Individual controls	Y	Y	Y
City controls (×Cohort)	Y	Y	Y
Observations	8,386	13,324	31,973

Notes: The data on income is obtained from the 2005 population census. Individual controls include gender, ethnicity, and huko controls include population and tariff. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level.

Table 6

FDI deregulation and wages between migrant and local workers

Dep. Var: *Wage*	Local						Migrant					
	College		High School		Below High School		College		High School		Below High School	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
$\Delta lnFDI \times cohort$	0.006	0.018*	0.009*	0.038***	-0.002	0.001	-0.014	-0.048	-0.010	-0.029	0.024	0.054**
	(0.004)	(0.010)	(0.005)	(0.013)	(0.003)	(0.011)	(0.019)	(0.039)	(0.019)	(0.033)	(0.016)	(0.025)
City fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cohort fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
City Controls (×Cohort)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Individual Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,819	7,819	410	410	27,388	27,388	10,400	10,400	744	744	1,337	1,337

Notes: The data on income is obtained from the 2005 population census. Individual controls include gender, ethnicity, and hukou type. City controls include population and tariff. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level.

Table 7

FDI deregulation and the relative number of migrants to local workers across industries with different mean wages

$Dep.var$: $\Delta\ln(\frac{Migrants}{Natives})$	(1) *Full sample*	(2) *College*	(3) *High school*	(4) *Below High school*
$\Delta lnFDI \times Mean\ wage$	-0.017*	0.0002	-0.002**	-0.025*
	(0.010)	(0.001)	(0.001)	(0.014)
$Mean\ wage$	0.004*	0.00007	0.001***	0.005
	(0.002)	(0.0002)	(0.0002)	(0.003)
City fixed effects	Y	Y	Y	Y
Industry fixed effects	Y	Y	Y	Y
Observations	3,010	3,010	3,010	3,010

Notes: The data on immigration is obtained from the 2005 and 2000 population census. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city-industry level. $\Delta lnFDI$ is instrumented by FDI deregulation index.

Table 8

FDI deregulation and the relative number of migrants to local workers across industries with different hazard levels

$Dep.var$: $\Delta\ln(\frac{Migrants}{Natives})$	(1) *Full sample*	(2) *College*	(3) *High school*	(4) *Below High school*
$\Delta lnFDI \times Hazard$	7.223**	-0.024	0.358*	5.900*
	(3.340)	(0.253)	(0.206)	(3.268)
City fixed effects	Y	Y	Y	Y
Industry fixed effects	Y	Y	Y	Y
Observations	3,010	3,010	3,010	3,010

Notes: The data on immigration is obtained from the 2005 and 2000 population census. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city-industry level. $\Delta lnFDI$ is instrumented by FDI deregulation index.

Table 9

1997 FDI deregulation and schooling years

	Local workers				Migrants			
	16 years old		*19 years old*		*16 years old*		*19 years old*	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta lnFDI_{1997}$	0.003***	0.006***	0.004***	0.007***	-0.0004	-0.0003	-0.002*	-0.007*
$\times Cohort$	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)	(0.004)
City fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Cohort fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
City controls (×Cohort)	Y	Y	Y	Y	Y	Y	Y	Y
Individual controls	Y	Y	Y	Y	Y	Y	Y	Y
Observations	94,115	99,539	88,030	93,347	29,691	30,595	26,337	27,172

Notes: Cohort controls include gender, ethnicity, and hukou type. City controls include population, and city-level tariff. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level in parentheses.

Table 10

1997 FDI deregulation and educational attainment

	Local workers				Migrants			
	High school		*College*		*High school*		*College*	
	Probit	IV-Probit	Probit	IV-Probit	Probit	IV-Probit	Probit	IV-Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta lnFDI_{1997} \times Cohort$	0.099***	0.014***	0.070***	0.016***	0.003	-0.009	-0.014**	-0.056***
	(0.003)	(0.001)	(0.004)	(0.001)	(0.004)	(0.010)	(0.006)	(0.014)
Random effects	Y	Y	Y	Y	Y	Y	Y	Y
City controls (×Cohort)	Y	Y	Y	Y	Y	Y	Y	Y
Individual controls	Y	Y	Y	Y	Y	Y	Y	Y
Observations	99,904	115,794	93,846	107,674	21,824	21,820	17,947	17,945

Notes: Cohort controls include gender, ethnicity, and hukou type. City controls include population, and city-level tariff. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level in parentheses.

Table 11

2002 FDI deregulation and schooling years, FDI/GDP ratio

	Local workers				Migrants			
	16 years old		*19 years old*		*16 years old*		*19 years old*	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(2)	(3)	(5)	(6)				
$(\frac{FDI}{GDP}) \times Cohort$	0.051***	0.040***	0.053***	0.053***	-0.079*	-0.091***	0.013	-0.012
	(0.001)	(0.013)	(0.018)	(0.014)	(0.042)	(0.016)	(0.041)	(0.020)
City fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Cohort fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
City controls (×Cohort)	Y	Y	Y	Y	Y	Y	Y	Y
Individual controls	Y	Y	Y	Y	Y	Y	Y	Y
Observations	114,039	115,911	102,344	104,101	12,167	12,579	17,981	18,421

Notes: Cohort controls include gender, ethnicity, and hukou type. City controls include population, and city-level tariff. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level in parentheses.

Table 12

2002 FDI deregulation and educational attainment, FDI/GDP ratio

	Local workers				Migrants			
	High school		*College*		*High school*		*College*	
	Probit	IV-Probit	Probit	IV-Probit	Probit	IV-Probit	Probit	IV-Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\frac{FDI}{GDP} \times Cohort$	1.392***	0.082***	0.943***	0.042**	-0.814***	-0.125***	-0.403***	-0.084***
	(0.050)	(0.020)	(0.063)	(0.020)	(0.064)	(0.027)	(0.086)	(0.027)
Random effects	Y	Y	Y	Y	Y	Y	Y	Y
City controls (×Cohort)	Y	Y	Y	Y	Y	Y	Y	Y
Individual controls	Y	Y	Y	Y	Y	Y	Y	Y
Observations	116,329	130,831	104,483	118,725	28,908	28,907	23,942	23,941

Notes: Cohort controls include gender, ethnicity, and hukou type. City controls include population, and city-level tariff. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level in parentheses.

Table 13

FDI deregulation and educational wage premium

Dep. Var: *Wage*	(1) *College/High*	(2) *High/Junior-high*
$(FDI/GDP)_{2002}$	0.068**	0.155
	(0.033)	(0.100)
City controls	Y	Y
Observations	271	271

Notes: The data on migration is obtained from the 2005 population census. City controls include log of GDP, population, fixed asset investment, fiscal budget, city-level tariff and province-level state-owned enterprises ratio. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level.

Table 14

Relative wage of migrants to local workers

Dep. Var: *Wage*	(1)	(2)	(3)
	Migrants/Locals College	*Migrants/Locals High*	*Migrants/Locals Junior-high*
$(FDI/GDP)_{2002}$	-0.156	-0.180**	-0.166
	(0.129)	(0.088)	(0.144)
City controls	Y	Y	Y
Observations	79	97	94

Notes: The data on immigration is obtained from the 2005 population census. City controls include log of GDP, population, fixed asset investment, fiscal budget, city-level tariffs and province-level state-owned enterprises ratio. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level.

Table 15

Migrants' original city shock 2002

	(1) *Schooling years*	(2) *Schooling years*	(3) *High school*	(4) *College*	(5) *High school*	(6) *College*
$FDI \times Cohort$	-0.028***	-0.022***	-0.058***	-0.042***	-0.188***	-0.191***
	(0.002)	(0.003)	(0.005)	(0.005)	(0.013)	(0.018)
City fixed effects	Y	Y	Y	Y	N	N
Cohort fixed effects	Y	Y	Y	Y	N	N
Individual controls	Y	Y	Y	Y	Y	Y
City controls (×Cohort)	Y	Y	Y	Y	Y	Y
Observations	28,867	23,881	28,907	23,941	28,908	23,942

Notes: The data on education is obtained from the 2010 population census. Column (1) - (6) report the second-stage IV estimation. Column (3) - (4) use linear probability model. Column (5) - (6) use probit model. Individual controls include gender, ethnicity, and hukou type. City controls include population and tariff. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level.

Table 16

2002 Completion sample

	(1)	(2)	(3)	(4)	(5)	(6)
	16 years old	*19 years old*	*High school*	*College*	*High school*	*College*
$FDI \times Cohort$	0.005***	0.006***	0.008**	0.017***	0.086***	0.052***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.005)	(0.006)
City fixed effects	Y	Y	Y	Y	Y	Y
Cohort fixed effects	Y	Y	Y	Y	Y	Y
Individual controls	Y	Y	Y	Y	Y	Y
City controls (×Cohort)	Y	Y	Y	Y	Y	Y
Observations	113,774	102,103	114,191	102,483	114,192	102,485

Notes: The data on education is obtained from the 2010 population census. Column (1) - (6) report the second- stage IV estimation. Column (3) - (4) use linear probability model. Column (5) - (6) use Probit model. Individual controls include gender, ethnicity, and hukou type. City controls include population and tariff. * p<0.10, ** p<0.05, *** p<0.01. Robust standard errors are clustered at the city level.

Figures

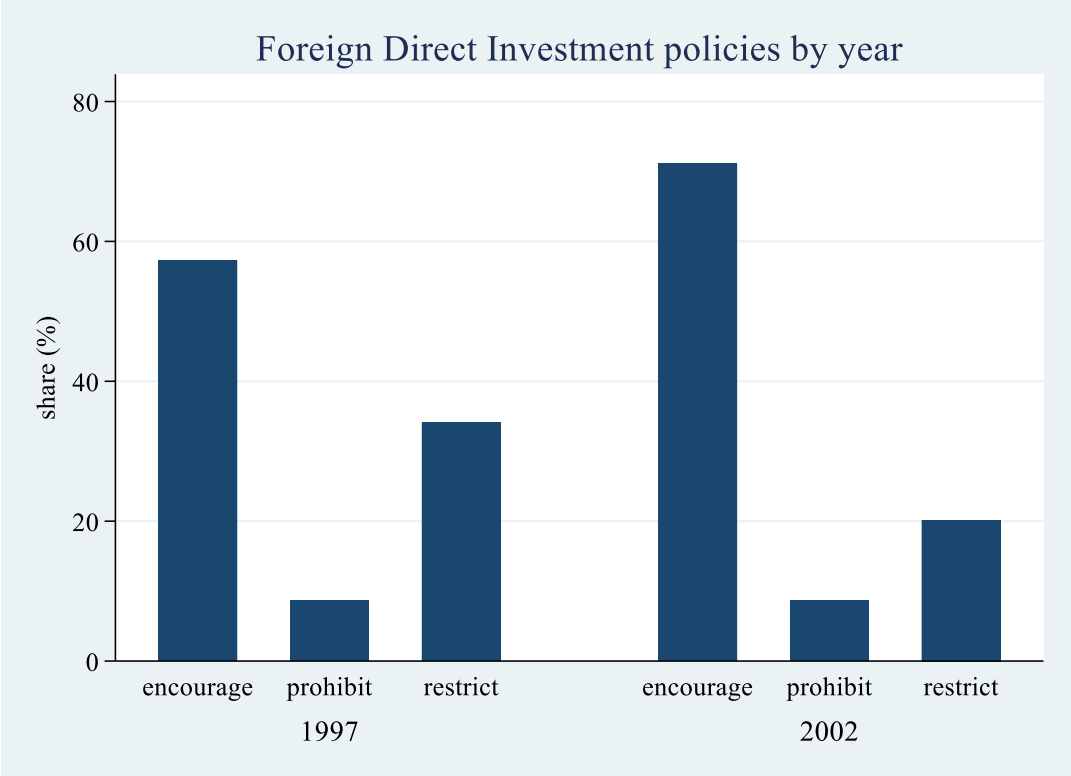

Figure 1 Foreign Direct Investment policies by year

Notes: Data come from the Catalogue for the Guidance of Foreign Investment Industries 1997 and 2002.

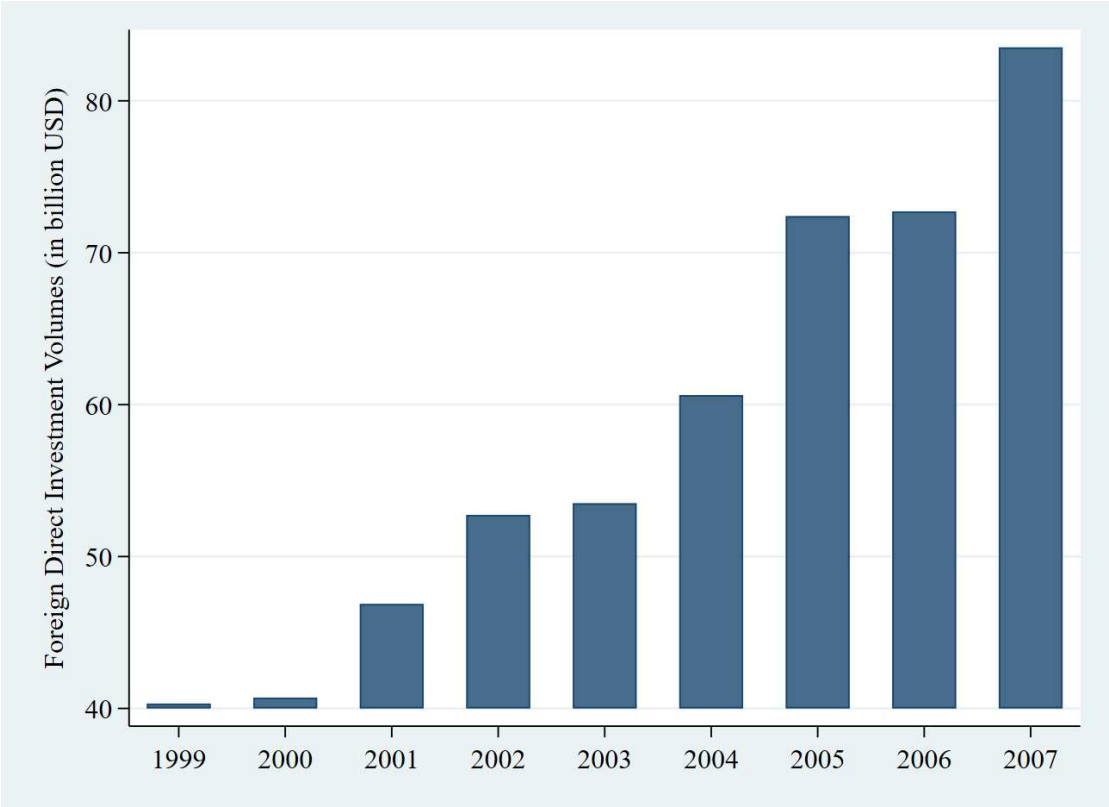

Figure 2 Foreign direct investment volumes

Notes: Data come from National Bureau of Statistics of China

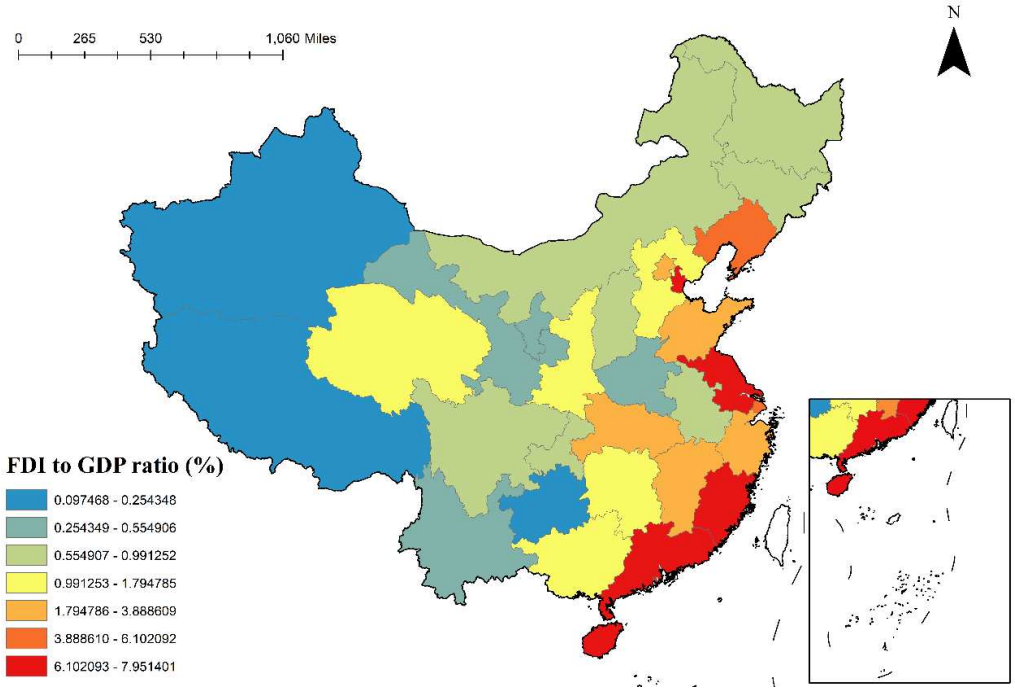

Figure 3. FDI/GDP ratio across provinces, 2002

Notes: Data come from National Bureau of Statistics of China and graphed by ArcMap software.

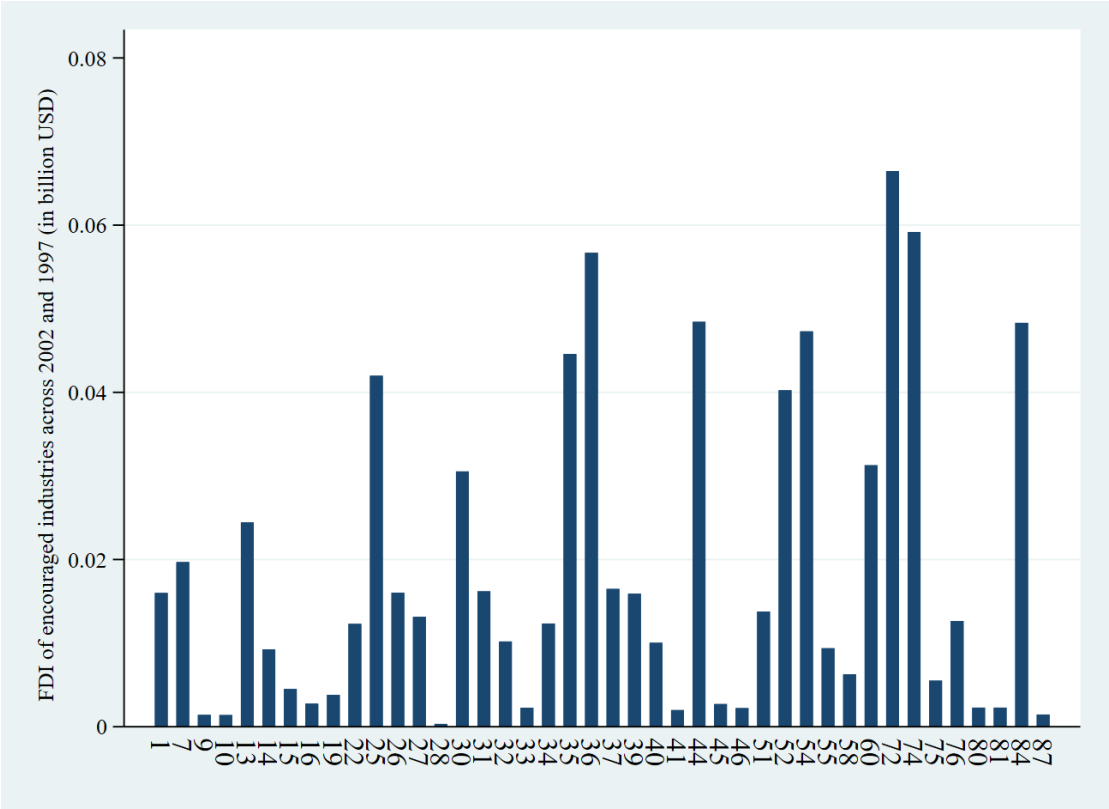

Figure 4 FDI of encouraged industries across 2002 and 1997

Notes: Data come from the business registration database. 1 for Agriculture. 7 for Oil and Gas Extraction Industry. 9 for Non-ferrous metal mining and dressing industry. 10 for Non-metallic mining and dressing industry. 13 for Agricultural and sideline food processing industry. 14 for Food manufacturing industry. 15 for Beverage manufacturing industry. 16 for Tobacco Industry. 19 for Leather, fur, feather (velvet) and its products. 22 for Paper and paper products industry. 25 for Petroleum processing, coking and nuclear fuel processing industry. 26 for Chemical raw materials and chemical products manufacturing. 27 for pharmaceutical manufacturing. 28 for Chemical Fiber Manufacturing. 30 for Plastic products industry. 31 for Non-metallic mineral products industry. 32 for Ferrous metal smelting and rolling processing industry. 33 for Non-ferrous metal smelting and rolling processing industry. 34 for Metal products industry. 35 for General Equipment Manufacturing. 36 for Special equipment manufacturing. 37 for Transportation equipment manufacturing. 39 for Electrical machinery and equipment manufacturing. 40 for Communication equipment, computer and other electronic equipment manufacturing. 41 for Instrumentation and cultural and office machinery manufacturing. 44 for Production and supply of electricity and heat. 45 for Gas production and supply industry. 46 for Water production and supply industry.51 for Rail

transport industry. 52 for Road transport. 54 for Water transport industry. 55 for Air transport industry. 58 for Warehousing. 60 for Telecommunications and other information transmission services. 72 for Real estate. 74 for Business services. 75 for Research and experimental development. 76 for Professional technical service industry. 80 for Environmental management industry. 81 for Public facilities management. 84 for Education. 87 for Social welfare.

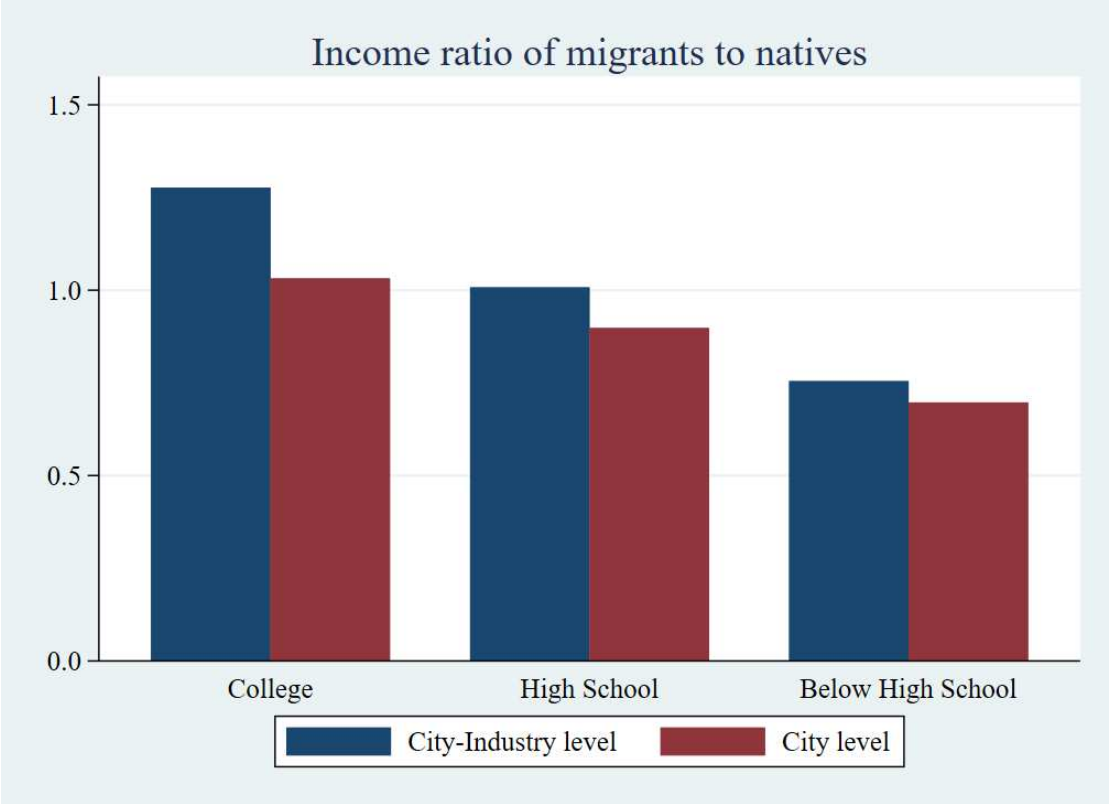

Figure 5. Relative wage of college migrants to local workers

Notes: The data on income is obtained from the 2005 population census.

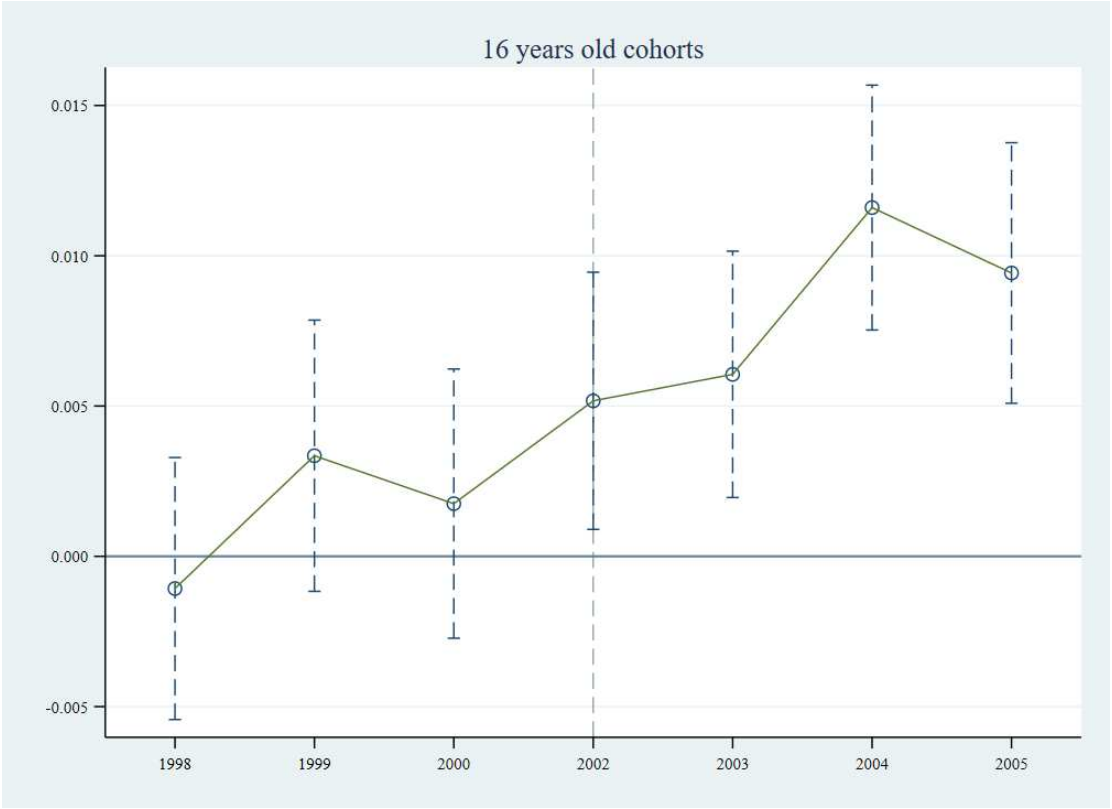

Figure 6. Parallel Trend for Schooling Years by 16 Years Old Cohort, 2002 Shock, Local Sample

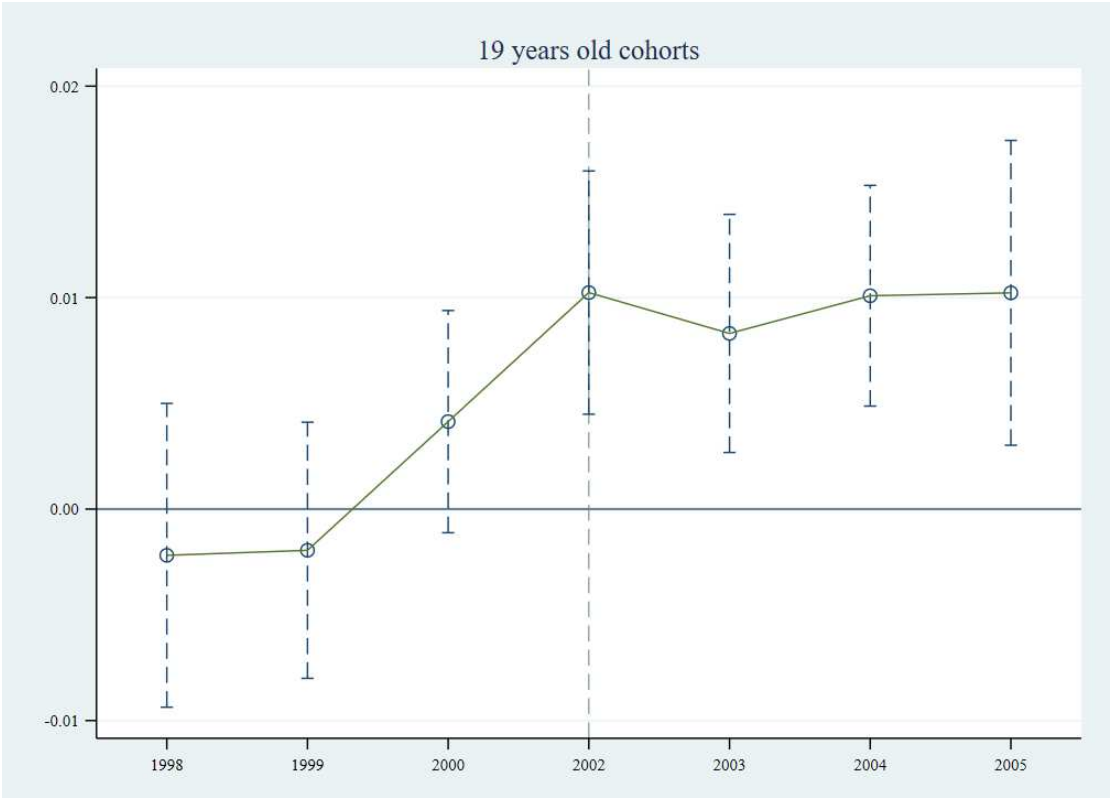

Figure 7. Parallel Trend for Schooling Years by 19 Years Old Cohort, 2002 Shock, Local Sample

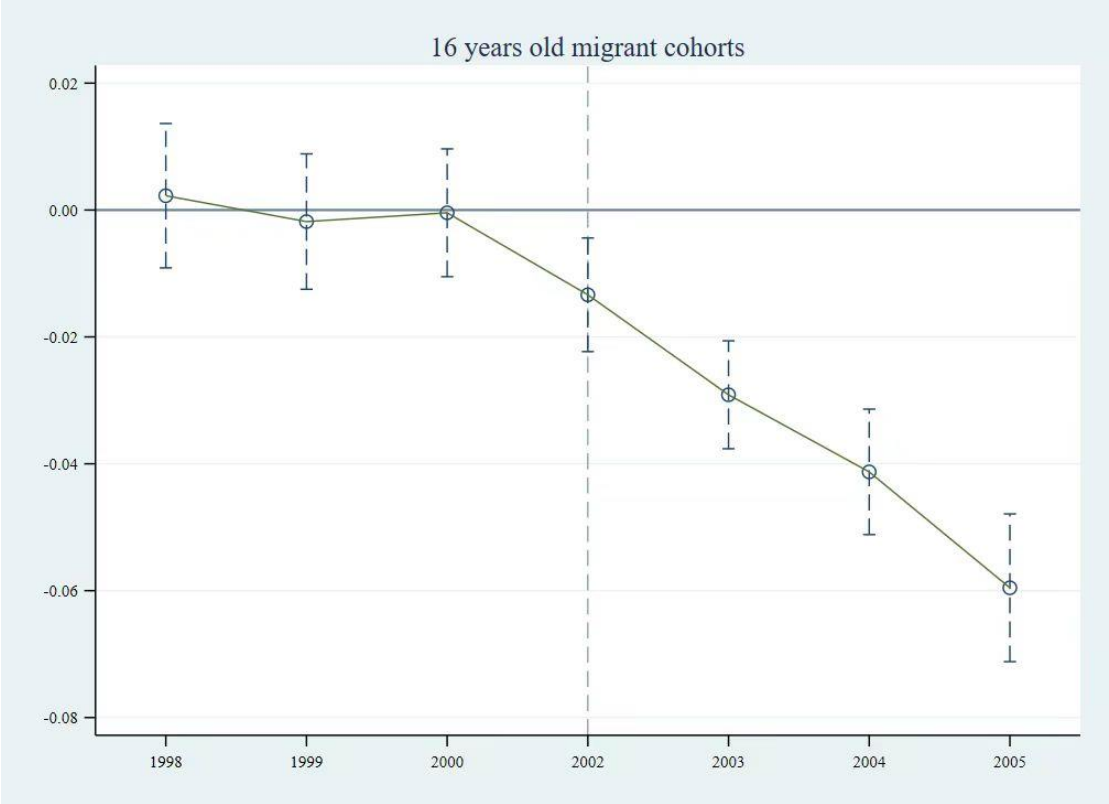

Figure 8. Parallel Trend for Schooling Years by 16 Years Old Cohort, 2002 Shock, Migration Sample

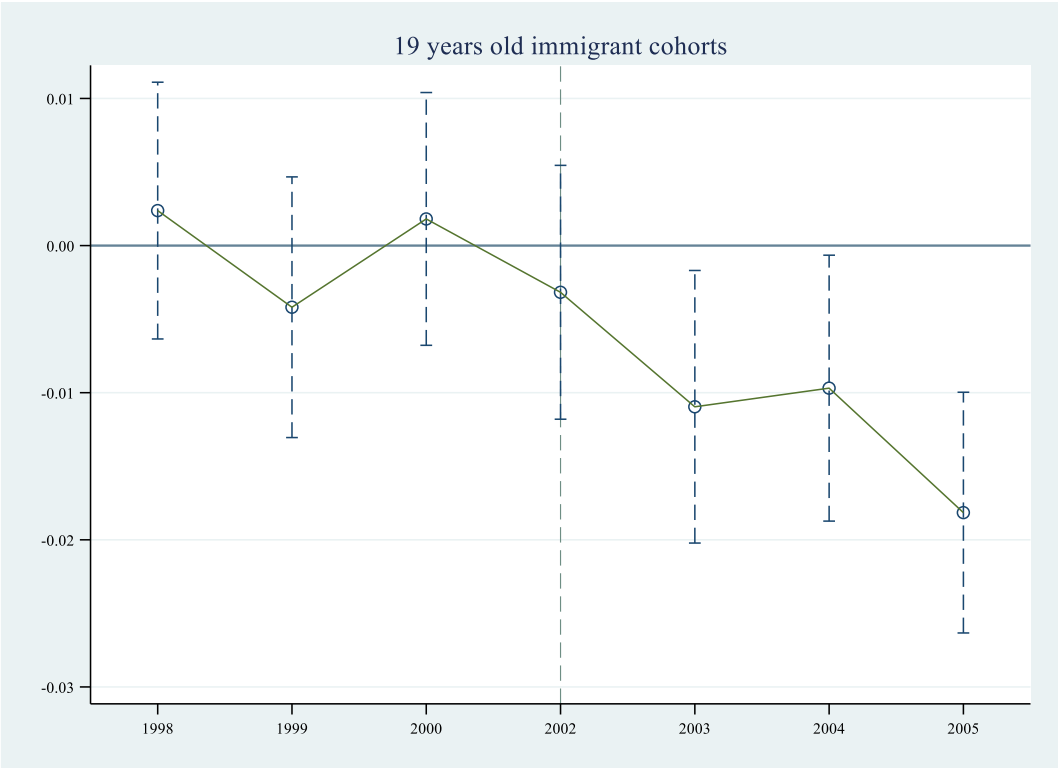

Figure 9. Parallel Trend for Schooling Years by 19 Years Old Cohort, 2002

Shock, Migration Sample

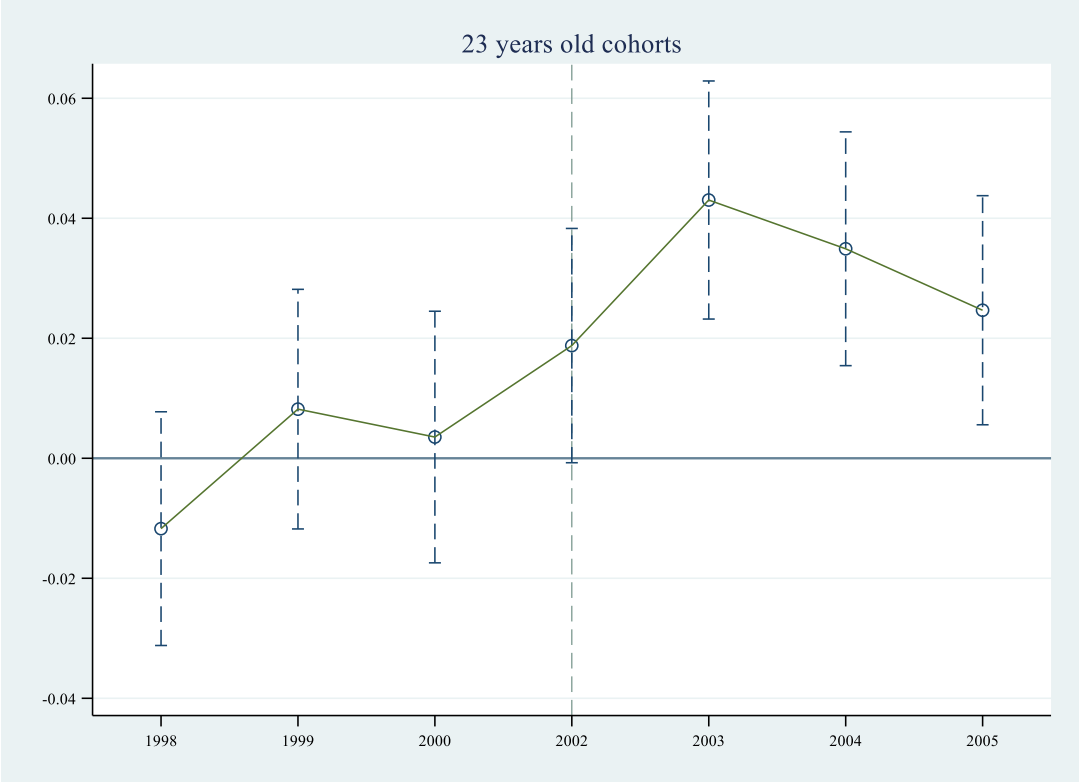

Figure 10. Parallel Trend for Wages by 23 Years Old Cohort, College Degree, 2002 Shock

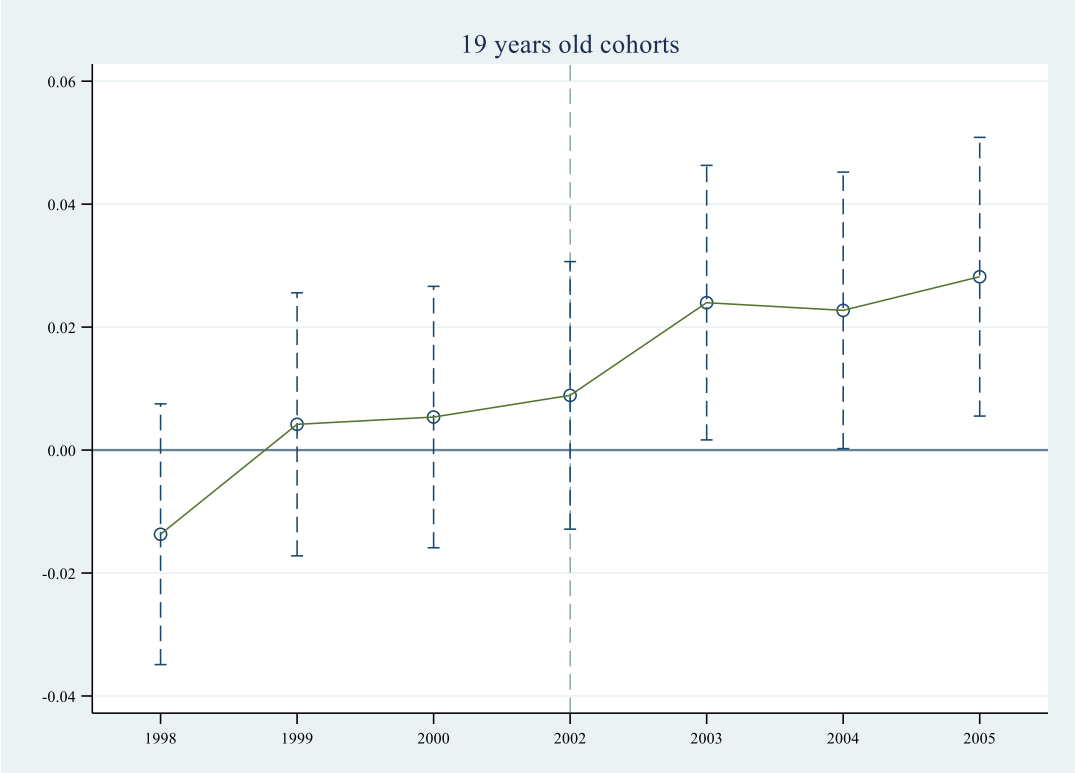

Figure 11. Parallel Trend for Wages by 19 Years Old Cohort, High-school Degree, 2002 Shock

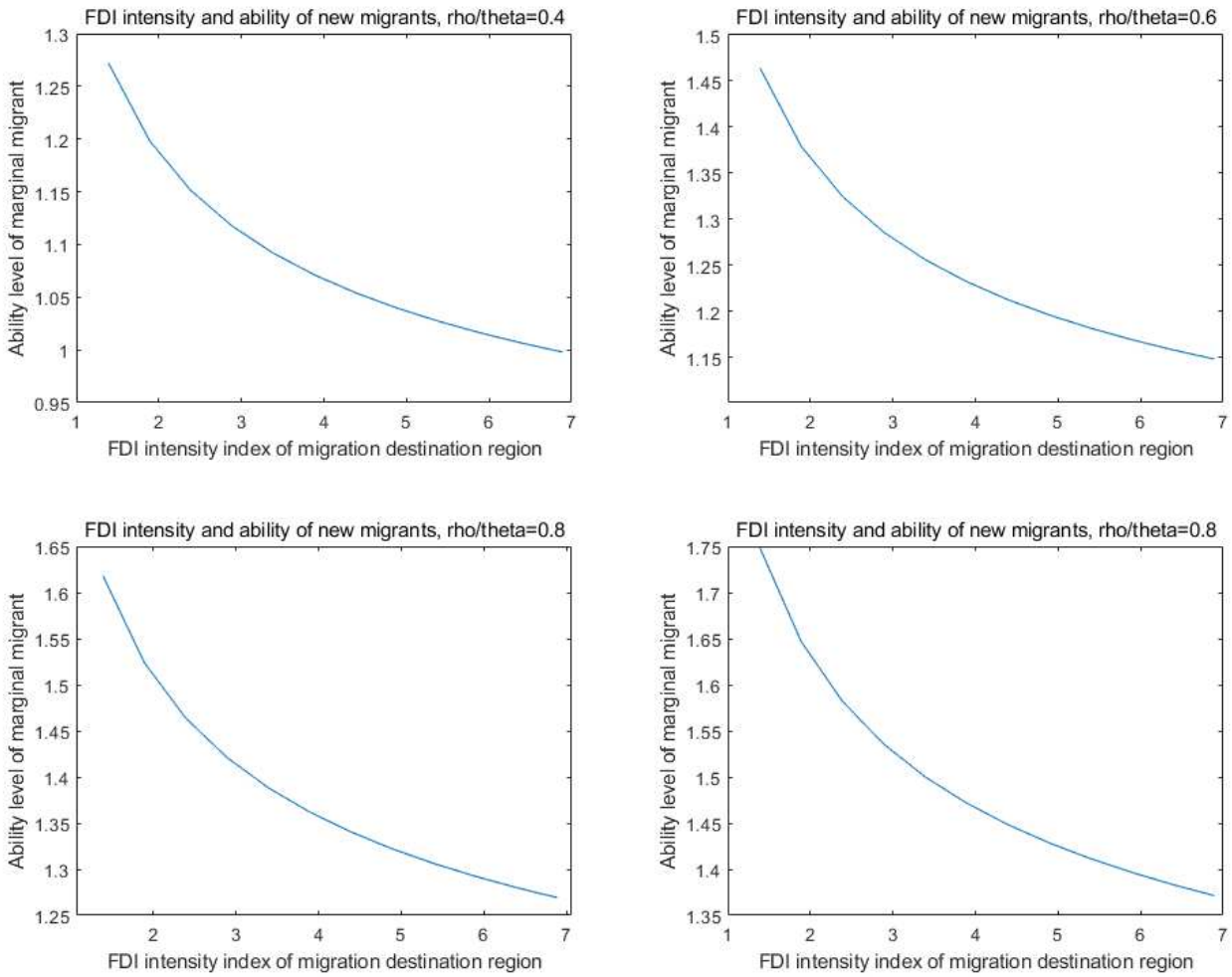

Figure 12. FDI intensity and Ability of New Migrants

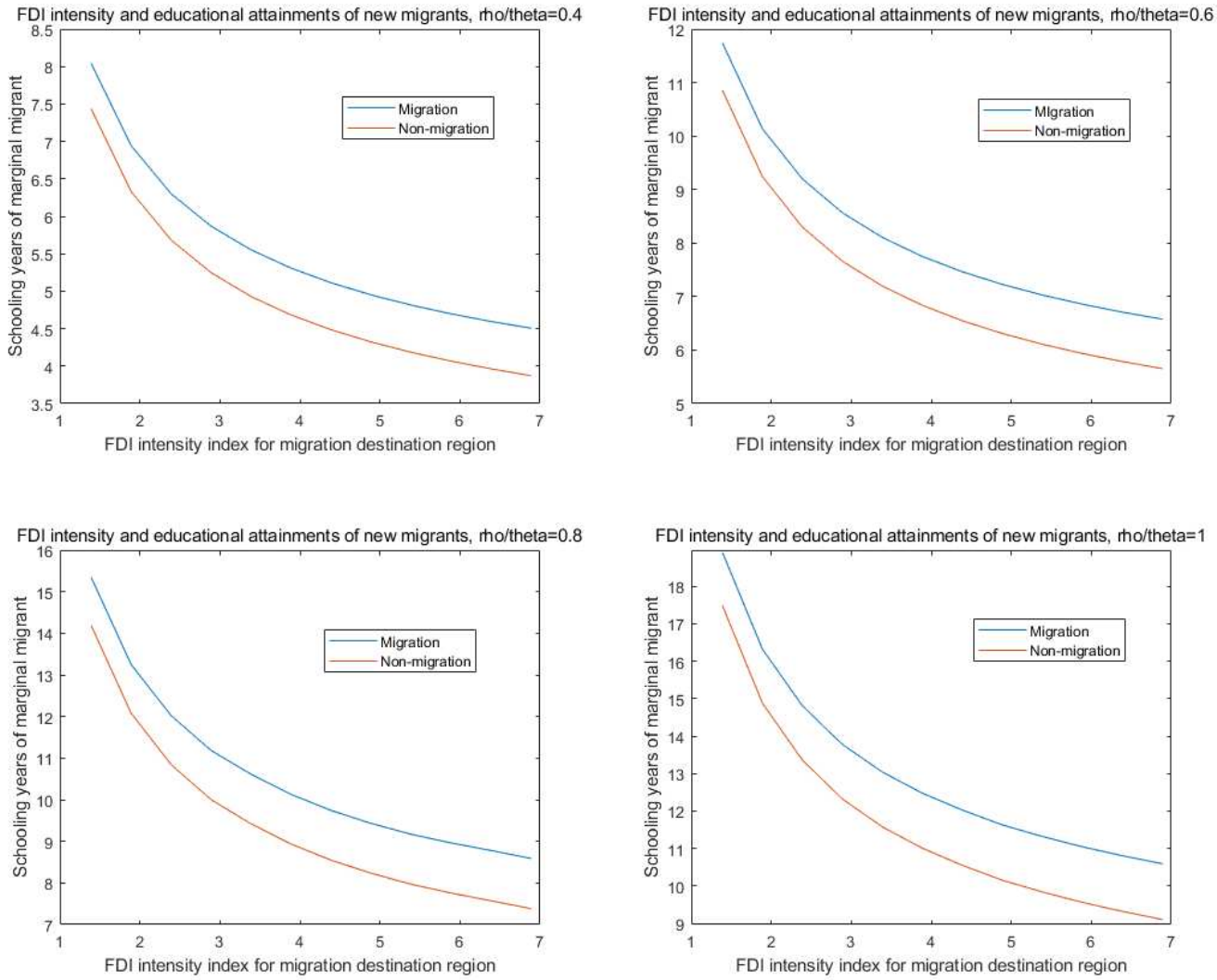

Figure 13. FDI intensity and Educational Attainments of New Migrants

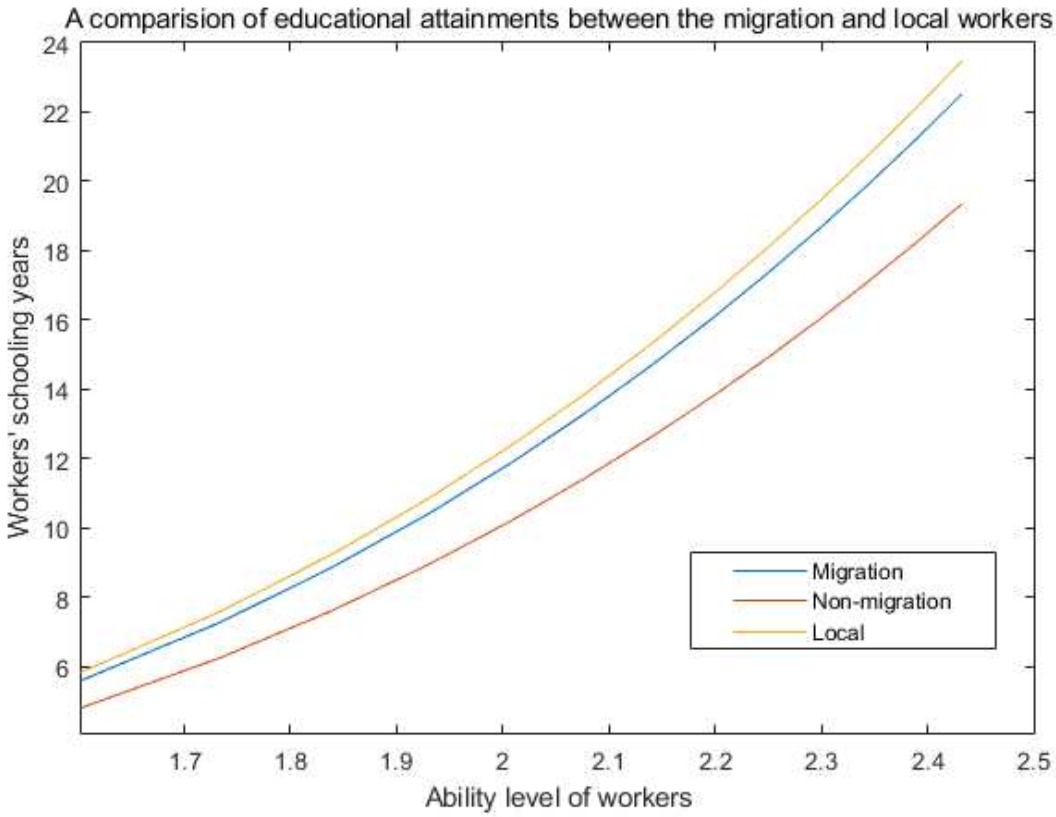

Figure 14. A Comparison of Educational Attainments among Migration, Non-migration, and Local Workers