Will Migration Worsen Urban Safety? Empirical Studies in Shanghai

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Abstract

Poverty, crime rates increase and decrease in social security are often considered as "Urban Disease" during the process of urbanization and large amount of migrants' influx into cities. With empirical studies in Shanghai, the authors try to analyze the relations between migrants' absolute and relative congregation and the impacts to urban safety. The authors build a Public Safety Index (PSI) to measure the urban safety, make descriptive mapping of urban safety in Metropolis Shanghai from 2000 to 2010, and illustrate main reasons on urban safety. The empirical evidences show that although the correlation between population congregation and urban safety is significant, while controlled related variables, we could see non-*hukou* immigrants congregation actually has no significant influence to urban safety, and what really matters are the population's age structure, educational level, marriage and family status, community-building and environment, economic development and labor market situation, and etc. Therefore, the authors suggest that the local authority should take migratory inclusive policies, which puts more emphasis on improving education, providing employment, enhancing community-building and community facilities construction, and so on, instead of carrying out strict population control policies to achieve the target of urban safety and immigrant development.

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Introduction

In the rapid process of urbanization, China has witnessed a large scale of migrants' influx into urban areas. Due to restrictions of Chinese *hukou* system, the vast majority of immigrants is non-*hukou* migrants, or regarded as temporary migrants. The explosive growth of non-*hukou* migration in China begins after the mid to late 1980s, and during the period from the Third Census of 1982 to the Sixth Census of 2010, the non-*hukou* immigrants increased from 6.57 million to 22.10 million (Duan, et al., 2011), increased by nearly thirty-three times within three decades. The number increased to 23.60 million in 2012[1]. As for the inter-provincial migration, the Sixth Census of 2010 shows that immigration to the eastern area of China accounts for 81.42% of total immigration in China. Meanwhile, non-*hukou* temporary migration accounts for 46.49% of urbanization degree's increase in China from 2000 to 2010 (Ren et al., 2014). Migration is shaping the cities, especially in those coastal mega-cities and metropolis. Non-*hukou* immigrants have become an important part of the urban population. For example, the total permanent population in Shanghai 24.15 million, and the *hukou* population is 14 million, there are more than 10 million temporary migrants living in Shanghai, and those migrants actually have lived in Shanghai more than 6 months and have stable jobs and residential places. Another example is Shenzhen, another big metropolis in Guangdong Province, there are totally 14.5 million permanent population in the city, and around 82% are non-*hukou* immigrants.

During fast urbanization and population congregation, like in most migratory cities in the world, Chinese coastal metropolis also show some social problems like overcrowding, poverty, pollution, worse public safety, slums and so on. Largely these problems are known as "Urban Diseases" or "Urban disorder" (Crump, 2002), and also become a typical concerns of urban public management.

Non-*hukou* immigrants are often blamed as hazard for public safety. Due to comparatively lower education, lower income and less accessibility to public housing

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[1] Data Sources: Chinese Migrants' Development Report 2013.

and social welfare provisions in the urban sector, some non-*hukou im*migrants tend to gather in private rental housing in city outskirts. Some urban villages in this outskirts region have also become the slums actually. From the statistical data, the non-*hukou* population agglomeration occurs quite often accompanied by a pronounced public unsafety issue. For example, in Chaoyang District in Beijing, China, from 2005 to 2009, the criminal cases of immigrants account for 82.86% of the total city's criminal cases with approved arrest[1]. And in Beijing, Shanghai and other cities with immigrant concentration, immigrants account for 1/3 of the total cities' fierce robbery[2]. The places of migrant concentration also face higher social conflict, violence, fire accidents, food safety problems and environmental pollution, and etc. Meanwhile, because of high mobility, migrants are difficult to get controlled and overseen. Therefore, the non-*hukou* immigrants are believed to be the culprit of poor urban safety, which directly results in the strict population control policies by local government, especially in some mega cities like Shanghai, Beijing and Guangzhou. Population control and management are used as main measures to maintain public safety of the city and prevent crime (Lee et al., 2001). This constitutes an important reason for the large cities' adopting restrictive migratory policies, which makes a kind of internal tense relations between trend of large amount of migration and urban population constrains policies.

However, it have been found that strict population control actually could not drive the immigrants out of the cities, but it would make the immigrants even more marginalized, engaged in informal employment, settling in the huts, which further deteriorate the public safety condition. Edwin Sutherland has highlighted the relation between immigration and crime as popular misconception and policy distortion (Ousey and Kubrin, 2009). And from this point of view, Ren (2014) and Guo (2008) have bring forward the importance of migrants' social integration. People also discussed that density actually not necessarily has negative influence to social welfare and urban safety, for example some very dense population migratory cities, like Hong Kong, Tokyo, and so on so forth, have relative higher public safety and urban efficiency. And mostly, it is the lower level of public safety service capacity and

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[1] Data Sources: Wang Dongsheng. (2013). The Criminal Behaviors of Immigrants and Prevention (in Chinese). http://www.chinalawedu.com/new/201307/wangying20130715084916504068668.shtml

[2] Data Sources: Zhang Hongquan. (2010). Study of Criminal Behaviors of Immigrants (in Chinese). http://china.findlaw.cn/lawyers/article/d21609.html

efficiency of local government that makes the public safety condition deteriorated (Gong, 2008). Considering the complicated relations between migration and urban safety, it becomes crucial to analysis the reason of poor urban safety during large amount of migration, and to understand the real dynamics of population congregation and urban operations, so that we might finally obtain the conclusion to facilitate the migration or make a tradeoff between public safety and economic development.

Hence, the relation between the agglomeration of non-*hukou* migrants and the city public safety is crucial to urban social health and urban development. Though many scholars (Cornwell and Trumbull, 1994; Haddad and Moghadam, 2011; Saridakis and Spengler, 2012) discuss the population gathering, migration and the criminal behaviors, there is a relative lack of systematic analysis of the dynamics mechanism on the migration and urban safety (Mastrobuoni et al., 2010). Especially, the research will be helpful for understanding the relations of Chinese non-*hukou* immigrants and the urban safety in context of her fast urbanization and large migration process contemporarily, and could draw some useful implications for better urban management for achieving good urban life and improving people's well-being.

In this study, we try to analysis the internal relations between migrants' gathering and urban public safety from two perspectives, the absolute congregation of non-*hukou* immigrants' congregation and relative congregation of their congregation. On the basis of construction of public safety index in the mega city Shanghai, we will describe the geographical distribution of public safety conditions across the city. With the empirical evidences from Shanghai's panel data, we will analyze the effects of the temporary migrants' relative congregation and absolute congregation on the city's public safety condition, and discuss the true reasons affecting urban safety in context of fast urbanization. Finally, based on these empirical analysis, we will make some discussions on the migratory policies as the city public safety is concerned.

Literature Review

Ever since Becker (1968) and Ehrlich (1973), the criminal behaviors have become a hot topic at the social and political level. As Becker's views, immigrants and natives have different accessibilities to local labor market and social welfare, and the two groups also have different risk attitudes, so immigrants and natives usually

have different propensities to commit crime. Chen et al. (2009) also estimate that population mobility accounts for 20 percentages of the crime rate variation in China, and their studies show that with 1 percent increase in population mobility, the crime rate will rise with 3.6 percent.

For the most concern, whether immigrants cause more public unsafe or not is uncertain. Some individual-level researches find that immigrants are not more inclined to commit crime than the native born, while at the macro-level, immigration and crime are usually connected (Ousey and Kubrin, 2009). Ousey and Kubrin (2009) use the city-level data in 1980, 1990 and 2000 in U.S. to investigate the longitudinal relationship between immigration and crime, and the study shows immigrants' lower crime rates by bolstering intact family structures. Bianchi et al. (2012) examine the relationship between immigration and crime with panel data of Italian provinces from 1990 to 2003. They find that although it seems that the size of immigration is positively correlated with the incidence of most types of criminal offenses, and after endogeneity is considered, immigration does not affect most types of crime. And some other scholars find that since the process of migration is not random but highly selective, using the 1980, 1990 and 2000 Censuses in the U.S., Butcher and Piehl (2007) find that the process of migration selection, for example deportation, helps to reduce the incarceration rates of immigrants.

For the relations between immigration and public safety, spatial issues should be a matter of concern. Immigrants tend to spatially concentrated in the area with poor infrastructure (Glaeser et al., 1996). Mao Yuanyuan and Dai Shenzhi (2006) analyze the spatial distribution of population and crime, and find that density of crime is positively correlated with population density.

The conclusions that immigrants are caught to commit more crimes could be attributed to the different attitudes, regulations and laws faced by the local residents and immigrants. There are some different regulations to prevent the native born and the immigrants from committing crime, such as the method of deportation which the native born will never suffer (Butcher and Piehl, 2007). And the local attitudes towards immigration also change the opportunities of the immigrants. Lee et al. (2001) use the data from El Paso, Miami and San Diego to illustrate that since the material and social structure shape values and activities of different social groups, disadvantaged groups may be involved alternative economic pursuits, such as crime. Mastrobuoni et al. (2010) using the difference-in-differences method and a natural

experiment, estimate the causal effect of immigrants' legal status on criminal behavior exploiting exogenous variation in migration restrictions across nationalities, and they argue that obtaining legal status lowers the recidivism of economically motivated offenders, but only in areas that provide relatively better labor market opportunities to legal immigrants.

For other factors that affects the public safety, public unsafety such as crime commitments is closely connected with young and unemployed problems (Entorf and Spengler, 2000; Saridakis and Spengler, 2012). With the panel data of North Carolina counties, Cornwell and Trumbull (1994) argue that both labor market and criminal justice strategies are important to deterring crime, while the effectiveness of law and regulation enforcement has been greatly overstated. Freedman and Owens (2013) using the administrative data on criminal justice involvement of individuals in San Antonio and Texas, and using the difference-in-differences methodology, find a strong negative relationship between access to legal jobs and criminal behaviors. Zhang Yuan, Liu Shijing, & Liu Liang (2011) use a provincial panel data in China and instrument technologies，to prove that social inequality does not necessarily result in crime, and the increasing criminal rate is mainly caused by increasing unemployment in urban labor market and the discrimination policies adopted by local governments. Haddad and Moghadam (2011) using a panel data of province wide in Iran, argue that economic factors play key role in burglary and threat explanation, but they do not affect willful murders, and literacy explains both murders and threats. Meanwhile, age structure could be an important reason for explanation of criminal activities, and teens and young adults tend to have a higher criminal rate (Hirschi and Gottfredson, 1983). Furthermore, sex structure combined with marriage status also matter. Edlund et al. (2007) using annual province-level data for the period 1988-2004 in China, argue that male-biased sex ratios caused by one-child policy have contributed to the rise of crime rates in the last two decades, and find out that with one percent increase in the sex ratio will raise violent and property crime rates by some 3.7 percent.

For other public safety issues, such as fire accident, Li Shu et al. (2006) find that population growth and concentration exert significant positive effects on fire accident, and migrants' gathering in the suburbs causes more fire accidents in URIA.

It can be found that it shows comprehensive and complex relations between population immigration and urban safety. Besides criminal crimes, car accident, fire

accident should also be considered as those are often regarded as main indicator of urban diseases. Different cultures and institutional systems might lead to different conclusion between migration and urban safety, for example, different with ideas of migration will bolster intact family relations, the contemporary non-*hukou* migration in China actually weaken the family, that what often happens is the young family labor migrate to cities, while his/her spouses and children might left behind in rural area. *Hukou* system as a typical Chinese migratory institutional obstacle strengthens the welfare gap between the local population and migrants and thus might induce migrants' causes of crime. It is an increasing co-occurrence phenomenon of increasing non-*hukou* migrants and worsening of urban safety, emergence of urban slums, increasing of crime and violence, fire accidents and other public safety issues, especially in the outskirt of big metropolis. It is urgently necessary to take a further and synthetic research to get convincing evidence to understand the relations between migration and urban safety, and it will be helpful to understand the reasons of increasing urban diseases in urbanizing China, and helpful to take effective migratory and urban management policies for better urban management.

Data and Descriptive Statistics

Data Resources and Public Safety Index (PSI)

Data of this paper are mainly collected from Shanghai Statistical Yearbooks, Shanghai Yearbooks, and Yearbooks and Statistical Yearbooks of different counties and districts of Shanghai in 2001, 2006 and 2011, respectively. And also, we collect data from Tabulation on the 2000 and 2010 Population Census of Shanghai and Tabulation on the 2005 Shanghai 1% Population Sample Survey. The data are balanced.

The definition of urban safety varies across countries. In China, in 2006 the State Council promulgated the "The General Contingency Plans of National Public Emergencies"[1], and it points out that public safety incidents include natural disasters, produce unsafe accidents, public health incidents and social safety incidents. Therefore, various indicators could be used for the description of urban safety, and because of the limitation of data accessibility, we primarily concern about three

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[1] In Chinese, it is called "国家突发公共事件总体应急预案".

indicators, that is, the number of criminal cases (with acceptance)[1], the number of public security cases (investigated and prosecuted)[2] and the number of fire accidents[3]. We collected those urban safety indicators data of different districts and counties of Shanghai in 2000, 2005 and 2010 for further quantitative analysis.

For the construction of Public Safety Index (PSI), first, max-min normalization is conducted to the three above indicators, and then we calculate the arithmetic mean of these normalized indicators. Ultimately we get the PSI for 18 districts and counties of Shanghai in 2000, 2005 and 2010, respectively, and the formulas used during the above procedures are as follows,

$$A_{ijk} = \frac{Maximum(X_i) - X_{ijk}}{Maximum(X_i) - Minimum(X_i)}$$

$$Public\ Safety\ Index_{jk} = \frac{\sum A_{ijk}}{3}$$

Where i=1~3, denotes three public safety indicators; j=1~18, indicates 18 districts and counties in Shanghai, and k = 2000, 2005 and 2010.

Therefore, according to the properties of the index, the PSI is within an interval of [0, 1]. The bigger PSI is, the better the public safety condition is, which means public condition is more safer, the number of criminal cases, the public security cases and the fire accidents are relatively less, and vice versa.

Table 1 explains the main variables used in this article, their connotations, calculating methods, and statistical characteristics. In addition to the proportion of non-*hukou* population and their density, other population-related variables use total permanent population (*de facto* population) as subjects.

(Table 1 is about here)

Among them, the number of security staffs of 2000 and 2010 of different districts in Shanghai are obtained from the 2000 and 2010 Census. Due to the limitations of data availability, the number of security staffs in 2005 is derived from

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[1] In Chinese, it is called "受理刑事案件数".

[2] In Chinese, it is called "治安案件查处数".

[3] In Chinese, it is called "火灾事故发生数".

the geometric mean of the number of security staffs in 2000 and 2010. In addition, it should be noted that the Censuses are usually conducted with resident places as the investigation units, and therefore, the number of security staffs in different districts used in this paper is not the number of security staffs employed and working there, However the security staff numbers acquired from census data still could be a credible and effective variable to measure the input of public safety forces in different districts/counties.

Immigrants Congregation and PSI

For Shanghai's own condition, compared with the overall condition of China, it is obvious that the total number of criminal cases and public security cases are increased from 2000 to 2005, while the total number of fire accidents sees a little bit decline, and the same pattern of these indicators is presented in the proportion of Shanghai in the whole China. And during the period from 2005 to 2010, Shanghai has experienced a decline in the total number of criminal cases as well as its proportion in China, while the total number of public security cases and fire accidents are increased.

(Table 2 about here)

There is also a trend that the number of criminal cases, the average number of public security cases and the average number of fire accidents across districts are gradually increasing from 2000 to 2010, especially, the number average of public security cases across districts is increased with an annual growth rate of 13.71%. And from 2000 to 2005, the average number of criminal cases has a growth rate of 12.82% a year, while the average number of fire accidents is decreased a little bit with rate of 3.49% a year. During the period from 2005 to 2010, the average number of criminal cases is decreased with the average rate 1.04% a year, and the average number of fire accidents is increased with the rate of 5.92% per year. Therefore, as a whole situation, the average PSI falls from 0.8826 in 2000 to 0.7661 in 2010, which means the public condition is generally deteriorated (see Table 3).

Furthermore, we divide Shanghai into three areas, and central area includes 9 districts, that is, Huangpu, Luwan, Jing'an, Xuhui, Changning, Putuo, Zhabei, Hongkou; suburbs include 4 areas, that is, Pudong, Minhang, Baoshan, Jiading; Outer suburbs contain 5 districts, that is, Jinshan, Songjiang, Qingpu, Fengxian, Chongming.

Spatially, the suburb area is much lower in PSI than others in addition in all the three years, while in 2000 the outer suburbs is the safest area, and in 2005 and 2010 the central area is much more safer in public condition than the other two. The average PSI across districts in Shanghai decreases with an annual rate of 1.41%, and in the central area, suburbs and outer suburbs PSI decreases with an annual rate of 0.5%, 4.24% and 1.34% respectively. That is to say, the suburbs also have a faster rate of decline in PSI (see Table 3).

(Table 3 about here)

In this article, we use the proportion of immigrants in total permanent population as the relative congregation of migrants, and use the density of immigrants as the absolute congregation of migrants. It can be seen that from 2000 to 2010, while there is a decline in the PSI, Shanghai is also undergoing a process of large-scale population movements and agglomeration. As shown in Table 4, from 2000 to 2005, PSI in Shanghai falls with an average annual rate of 1.07%, while during the next five years from 2005 to 2010, PSI of Shanghai declines with a much faster annual rate of 1.74%, and also in these five years, Shanghai has a substantial surge of immigrants. From 2000 and 2010, the immigrants' size and density have the average annual growth rate of 11.10%, while from 2005 to 2010, the average annual growth rate reaches 15.42%. And the proportion of the immigrants is increased by 19.51 percentage points during the ten year from 2000 to 2010, with an average increase of 1.95 percentage points, and from 2005 to 2010, average increase of percentage point reaches 2.87. That is to say, from 2005 to 2010, these five years have witnessed a much more rapid decline of public safety level, while in these five years, in both terms of absolute and relative congregation of immigrants, there is also a quick and a large number of population of immigrants gathering and importing.

(Table 4 about here)

Furthermore, as for the spatial distribution, in Figure 1, these graphs from top to bottom, show that the spatial distribution of PSI (left green), the proportion of immigrants over total residents (relative congregation, middle red), and the density of immigrants (absolute congregation, right blue) in different districts and counties in

Shanghai in 2000, 2005 and 2010 respectively. In all the maps in Fig. 1, districts divided into three classes, are colored according to which quartile of the distribution they belong to, and the darker colors refer to the high values. That is to say, the darker the colors is in the left column of PSI, the safer the district is; the darker the colors is in the middle column, the bigger the immigrants' proportion is; and the darker the colors is in the right column, the bigger the immigrants' density is. In terms of the relative congregation of immigrants, without too many changes, during the tem years from 2000 to 2010, migrants mainly concentrate in the suburbs compared to the local residents, while during the same period the suburbs gradually become the more unsafe places. And in terms of the absolute congregation of immigrants, from 2000 to 2010, the floating population presents certain outskirts relocation diffusion phenomenon, and the outer suburbs gradually become the settlements of the floating population.

(Figure 1 about here)

Hence, it seems that there is a link on the trend of the immigrants' gathering and public safety. In Fig. 2, the graphs plot the PSI against the proportion of immigrants over total population and the density of immigrants respectively. From these figures, it seems that the relative congregation of immigrants has a negative relation with PSI, the absolute congregation of immigrants has a positive relation with PSI, and the relative congregation of immigrants has a positive relation with the absolute congregation of immigrants.

(Figure 2 about here)

Table 5 illustrates more clearly the relation coefficient between immigrant absolute congregation and relative congregation with PSI, and also shows the relation coefficient between permanent population density and PSI. Higher density population congregation actually means high degree of urban safety. It could to some extent be reflected that there is a higher population density in the urban center, while the PSI is higher in these central urban areas. Meanwhile, immigrant relative congregation, which is shown as higher proportion of non-*hukou* migrants in total permanent population, will show significant negative correlation with urban safety. The correlation coefficient between relative immigrant congregation and PSI is -0.4470.

Although immigrant absolute congregation does not show significant correlation with PSI, it has significant relation with higher fire accident cases.

(Table 5 about here)

Actually, the effect of relative congregation of immigrants on PSI denotes the relative effect with respect to the local residents, and the effect of absolute congregation of immigrants on PSI indicates the absolute effect. Migrants and local residents' demands for public safety and their tendency of behaviors to undermine public safety vary, and the relative congregation of immigrants precisely reflects this kind of difference. The absolute congregation of immigrants reflects the absolute and actual impact of migrants themselves on public safety. There will be different conditions with respect to both relations, and it could be in any quadrant in Figure 3. For example, maybe immigrants' congregation itself does not constitute a significant impact on PSI statistically, while immigrants and local residents have significantly different effects on PSI statistically, and this condition will be in quadrant II in Fig. 3. It also could be that immigrants and local residents have no significantly different effects on PSI, while immigrants' congregation has significant effect on PSI, and this condition will be in quadrant IV in Fig. 3. Therefore, it is necessary to take into account of these two relations. With the two kinds of immigrants' congregation, we are able to further analyze the relations between immigrants' gathering and public safety with control of other factors.

(Figure 3 about here)

Factors Associated with PSI

Model Specification

Generally, the Public Safety Index varies across districts and counties in its time trend and pattern from 2000 to 2010 (see Fig. 4). Some districts have witness an increase in PSI, such as Huangpu, and these districts are generally located in the central/downtown area. And PSI is decrease in some other districts, such as Pudong, and this kind of district are generally located in the suburbs. These phenomenon

indicate that it is meaningful to analysis the influence factors of public safety in a megacity without too many spatial differences in economic, social and institutional conditions, and thus the problem of omitted variables could not be too serious. And the time factor could be important in explanation of the change in PSI across districts from the graphs in Fig. 4. By further test, we also have found that time dummy variables are significant in explanation of PSI's variation, whenever we use the fixed-effect estimation or the random-effect estimation, and the time trend should be considered in model specification.

(Figure 4 about here)

Therefore, we adopt the two-way fixed effect estimation, and the empirical model is as follows.

$$PSI_{it} = \alpha_0 + \sum X_{jit}\alpha_j + year_t + \mu_i + \varepsilon_{it}$$

Where PSI_{it} is public safety index for each district in each year; X_j indicates different variables that affect public safety, including migrants' concentration indicators, demographic factors, economic and social factors; $year_t$ represents a vector of year dummies; μ_i means the heterogeneity or group-specific effect, and ε_{it} includes all other unobserved effects.

The Baseline Model

In the baseline model, without control other social, economic and demographic factors, the result are showed in Table 6, and column (1), (2) and (3) present two-way fixed effect estimation with the variable of relative congregation, the variable of absolute congregation and both of the variables, respectively. As a baseline model, there is indeed a problem of omitted variables, and thus we just use two-way fixed effect estimation here, and also we use the robust standard errors to control for heteroskedasticity. And in all these three estimations, the variables of immigrants' proportion and density show no significant effect on PSI, and the sign of relative congregation is negative, and the sign of absolute congregation is positive.

With respect to the three indicators constituting PSI showed in Table 7, for the criminal cases, the sign of the relative congregation is negative, the sign of the absolute congregation is positive, and both variables have no significant effects on criminal cases. For the public security cases, the sign of the relative congregation is positive, the sign of the absolute congregation is negative, and both of the variables have no significant effects on public security cases. And this result could partly indicates that the local laws and regulations may tend to protect the local residents (with local *hukou*), and the behaviors of immigrants doing harm to public security are more likely to be arrested. And also employment patterns of immigrants can easily lead to public security cases. It is noteworthy that for the fire accidents, the sign of the relative congregation is positive, the sign of the absolute congregation is negative and both of the variables have significant effects on fire accidents, indicating that without control for other factors, the immigrants cause relatively more fire accidents compared to local resident.

Empirical Results

From the literature review, we find that population structure, social environment and labor market condition are important in explanation of public safety condition. Some factors, such as age, gender, jobs, education, that contribute to public safety are sometimes connected with migration (Reid et al. 2005). As mentioned, migrants are usually characterized with young age, male and lower educational level, and thus it is needed to control these factors in our empirical model, so that we could make clear that whether it is these factors or migration, or both contribute to the public safety.

So we try to figure out the real connection between immigrant congregation and public safety. In Table 8, column (1), (2) and (3) present pooled OLS estimation, the fixed-effect estimation and the random-effect estimation respectively. With F test in fixed model that all $\mu_i = 0$, the F-stat is 7.43 and significant at 1% level, together with the Breusch and Pagan Lagrangian multiplier test for random effects, these evidences indicate that the fixed model and the random model are more appropriate than the pooled model. And further with the Hausman test, the null hypothesis is rejected at

1% significance level, which indicates that the fixed-effect estimation is more suitable, and most of the variables have the same sign in the two estimations of the fixed-effect estimation and the random-effect estimation.

With respect to what we concern, in the fixed-effect model, two of the migration congregation factors show no changes in their signs after other economic and social factors are controlled. Increase in the proportion of immigration will increase the public safety condition, and increase in the density of immigration will worsen the public safety condition, while both the proportion and density of immigrants have no significant effects on public safety.

(Table 8 about here)

For other demographic factors in Table 8, more young population aged 15 to 25 will significantly worsen the public safety, while although without significant effects, the male proportion and no couple rate of the male population have effects of positive and negative orientation respectively. Hence, marriage condition of male population, that is, male with no spouses will tend to worsen the public safety condition. The educational related variable shows significantly negative effect on PSI, which means that lower skilled population will deteriorate the public safety.

For other economic and social factors, GDP per capita denoting development level will help to enhance the public safety significantly. Old community proportion show significantly negative effects on PSI, which means that living condition could matter public safety condition significantly, and poor living environment will worsen the public safety. The variable of security staffs show no significant but positive oriented effects on PSI.

Robustness Check

As previously mentioned, there are some measurement errors in the variable of security staffs. Further, the scale of security staffs, on the one hand, reflects the importance the local government attaches to the public safety, and the ability of the district to maintain public safety. And on the other hand, the district with lower public safety condition will also tend to enhance its public safety condition by increasing the scale of security staffs. Thus, there may be a mutual causal relationship between the size of security staffs and public safety condition. Therefore, we use the variable of

hospital beds as the instrumental variable of security staffs. The results are presented in Table 9 column (1). After using instrumental variable regression, the sign of the variables we concern and the main conclusions we research from the previous section do not change.

Another problem is that the fiscal expenditures and labor employment situation, those two variable are significant correlated with GDP per capita. In the above models, these two factors are included in the variable of GDP per capita. Therefore, in the next, we exclude the variable of GDP per capita, and then introduce the variables of fiscal expenditures per square kilometer of land and the proportion of unemployed males. The results are shown in Table 9 column (2), with two-way fixed effect estimation. And the main conclusions do not change as well. And the variable of fiscal expenditure has significantly positive effect on sustaining the public safety. Though not significant, the male proportion of unemployment is negatively correlated with PSI, and this means that the employment condition could have some effect on public condition to some extent. Thus, these robustness checks prove the reliability of the above conclusions.

(Table 9 about here)

Conclusions and Discussions

Research Conclusions

People tend to blame the "urban diseases" like crime, crowded, poverty and so on to increasing immigrants, although it looks highly related, however, from the above empirical evidences, it shows the phenomenal negative relations between immigrants congregation and urban safety may be just an illusion. When we controlled those demographic and socioeconomic factors, we could find migrants' concentration and migrants' increase are not necessarily influencing the urban safety, and compared to the local residents, non-*hukou* immigrants show no significant differences with respect to the public safety. The findings clearly proved several important TRUE reasons on worse safety.

Firstly, age structure influence urban safety, that younger people have greater

likelihood into crime and social problems. Immigrants have higher criminal rate is due to the younger age structure of migrants. Higher criminal rate of urban youth usually combined with reasons of poor education, broken families, insufficient law consciousness, and criminal gangs. It also implies the need for better education opportunities for the youth and more development opportunities for the youth, will be helpful for good urban safety.

Secondly, education is another important factor for urban safety. Education increases employment and development opportunities, and also increase the awareness to social regulations. Education is regarded as one of most important factor of social mobility, so that provide equal opportunity in education will be very important for migrants' development, and also very important to achieve the urban safety target.

Thirdly, economic development and people's income are significant positive for urban safety, it is not only because those biased better social life and higher social status people will have less likelihood on crime, and less chance for poverty, meanwhile, economic development also increase the employment opportunity, and we could easily draw the conclusion a stable and good employment will decrease people's motivation for illegal activities.

Fourthly, community environment are important for urban safety. Actually, those poverty communities will poor public facilities provision and dilapidated environment are also shown as a urban disease, and because it provide the affordable very low price housing, and also easily congregate the higher social risk populations. Dilapidated environment is also related with frequent crowd and fire accident, the insufficient of public resources will also easily lead to illegal robbery and conflicts.

Fifthly, as shown in the robust check models, public finance input of local government has effective influence on community development, environmental reform, prevention of social risks like fire accident, and in preventing crimes and criminal cases. Public finance will be important to achieve a safer community and safety urban life.

Some other factors in our research although are not statistically significant, while with positive sign, could also provide important information on factors and mechanism on urban safety. For example:

Sixthly, male and especially male population without marriage, without a intact family life will have higher possibilities into crime and security incidents. This

emphasizes the importance of family and marriage on social safety. Due to policy constrains and exclusions life *hukou* system, and *hukou*-based education exclusion, and so on, we could see that considerable number of immigrants take the form of a single immigrant, they work and make a living in cities, while leave their couples, usually wife, and children behind in rural area. Some young immigrant also had difficulties and delayed their marriage during their migration and working. Those weaken the social base of family life, and will consequently influence the increasing social risks of public safety.

Seventhly, lower input of security staff will have negative influence to public safety. Compare with the high population density, dense land usage and public investment in city centers usually lead to better safety, the urban suburb and urban fringe usually have sparse land use and population density, and the public security input is relative low. The low public investment lead to congested and illegal constructed environment and slum communities, and insufficient security supervision in this area. Another research inference is that if there was insufficient of public goods and public services provision, those immigrants and low income people will organize themselves to provide local good and secure local order. And these kind of local self-management sometimes even take the shape gangs and black society, and that will be negative forces of urban safety.

Eighthly, as shown in the robust check model, unemployment, especially male unemployment have negative direction to lead to worse urban poverty.

Discussions: a more inclusive migratory policy

Non-*hukou* migrants are usually considered the culprit of urban safety. We often worry the increasing immigrants will lead to sprawl of urban slums, deterioration of urban safety and various urban diseases, however, urban public safety are generally resulted from poor urban management, insufficient community-building and less chances of education and personal development capabilities.

Therefore, implementing a migratory control policy actually will not provide the solution of urban safety. On the contrary, in order to promote urban public safety, it is necessary and effective to provide migrants equal opportunities of education, to create more economic opportunities and social mobility, and to advocate social integration and community development, including providing support to their families and marriages, and so on.

Furthermore, strict exclusive migrants control policies are likely to even worsen urban safety. Controlling job opportunities will increase migrants unemployment rate, and will squeeze migrant to informal employment, lower income labor market; social exclusion of migrants' education and social security will also limit their development opportunities, make constrains of social mobility; removal of migrants living in slums will increase new urban slums elsewhere and increase social conflicts, and thus all increase social instability and decrease safety; not providing sufficient protection and public services provision will encourage immigrants to develop various kinds of underground economies and societies..

Therefore, for a mega-city like Shanghai, a migratory control policy is not an effective policy but a harmful policy, which only cures symptoms and will not be able to target the true reasons for poor safety. The urban safety-targeted public policy can only be achieved with even more acceptance and social inclusion of immigrants, which aims to provide equal development opportunities for immigrants and for all citizens, but not with opposite exclusive policies. More inclusive migratory policies mean to push *hukou* reform, to provide better and equal education, public housing, employment and self-entrepreneur supports, to support their family migration and harmony of their family life, and to strengthen community-building and to enhance immigrants' capability of community involvement and future development. Exclusive and controlled migratory policies seem to resist the risks of migration and urban development, while weaken urban area's future development, and actually this kind of passive resistance even enlarges the internal risks of urban safety during a fast urbanizing and migration context.

Instead of attributing the harmful urban safety to large amount of immigrants, it is better attributed to weak urban management and lack of services provisions. Urban sectors and local governments should try to do more improve their ability to manage public affairs, and in order to do these, they should enhance the transportation, food supply, labor market, housing market, residential environment, security personnel of migrant communities, the social integration of migrants and the development abilities of all residents, and pay more attention to youth unemployment problem, education problems, employment regulatory and security issues, etc. And these are the radical path to deal with the pressures and challenges brought about by the large concentration of population and rapid urbanization process.

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Table 1. Descriptive Statistics of Main Indicators

Variable	Explanation	Mean		Std. Dev.
PSI	Public Safety Index	overall	0.8283	0.1599
		between		0.1416
		within		0.0792
Mig_Pro	The proportion of immigrants over total residents	overall	0.3368	0.1705
		between		0.1047
		within		0.1360
Mig_Den	Density of immigrant (one thousand people per square kilometer)	overall	4.3763	4.5100
		between		3.6921
		within		2.6875
Aged15to25	Rate of residents aged 15 to 25 over total residents	overall	0.1778	0.0376
		between		0.0237
		within		0.0296
Male_Pro	Proportion of male residents over total residents	overall	0.5066	0.0146
		between		0.0119
		within		0.0088
Male_Nocouple_Rate	Rate of male residents with no couple over total residents aged above 15	overall	0.5222	0.1873
		between		0.1046
		within		0.1567
High_School_Pro	Proportion of residents with high school educational level and below over total residents aged above 6	overall	0.8232	0.1043
		between		0.0904
		within		0.0550
LnGDP_Percapita	Log form of GDP (100 million Chinese Yuan) per capita	overall	-8.3893	0.9997
		between		0.5738
		within		0.8261
Old_Com_Pro	Proportion of the old community and residence over total residence	overall	0.1038	0.0870
		between		0.0603
		within		0.0639
LnSecurity_Staff	Log form of Security Staffs	overall	9.4428	0.7475
		between		0.6877
		within		0.3219
Fiscal_Den	The fiscal expenditure per square kilometer of land	overall	1.1541	1.8826
		between		1.6568
		within		0.9502
Male_Unemp_Rate	The male proportion of unemployment population	overall	0.5500	0.0462
		between		0.0349
		within		0.0311
Hos_Bed	The number of hospital beds	overall	4970.4260	2806.9950
		between		2698.7570
		within		933.1497

Table 2. Total Number of Indicators of Public Safety and Their proportion in Shanghai in 2000, 2005 and 2010

Year	The Number of Criminal Cases		The Number of Public Security Cases		The Number of Fire Accidents	
	Total	% (of China)	Total	% (of China)	Total	% (of China)
2000	11404	1.78%	153913	4.03%	5085	2.69%
2005	20858	2.48%	293219	4.65%	4264	1.81%
2010	19800	1.97%	556238	4.59%	5689	4.31%

Table 3. Public Safety Index in Different Area of Shanghai in 2000, 2005 and 2010

Year	The Number of Criminal Cases	The Number of Public Security Cases	The Number of Fire Accidents	PSI (Average of Districts)			
				Total	Central Area	Suburbs	Outer Suburbs
2000	634	8551	283	0.8826	0.9034	0.7675	0.9372
2005	1159	16290	237	0.8363	0.8952	0.6394	0.8876
2010	1100	30902	316	0.7661	0.8563	0.4975	0.8186

Table 4. Immigrants' Condition in Shanghai in 2000, 2005 and 2010

Year	Immigrants (Thousand People)	Immigrants' Density (Thousand People Per Square Kilometer)	Immigrants' Proportion over Total Population (%)
2000	3134.90	0.49	19.49
2005	4384.00	0.69	24.65
2010	8979.50	1.42	39.00

Fig. 1. Distribution of Public Safety Index, the Proportion of Immigrants over Residents and the Density of Immigrants (One Thousand People per Square Kilometer)
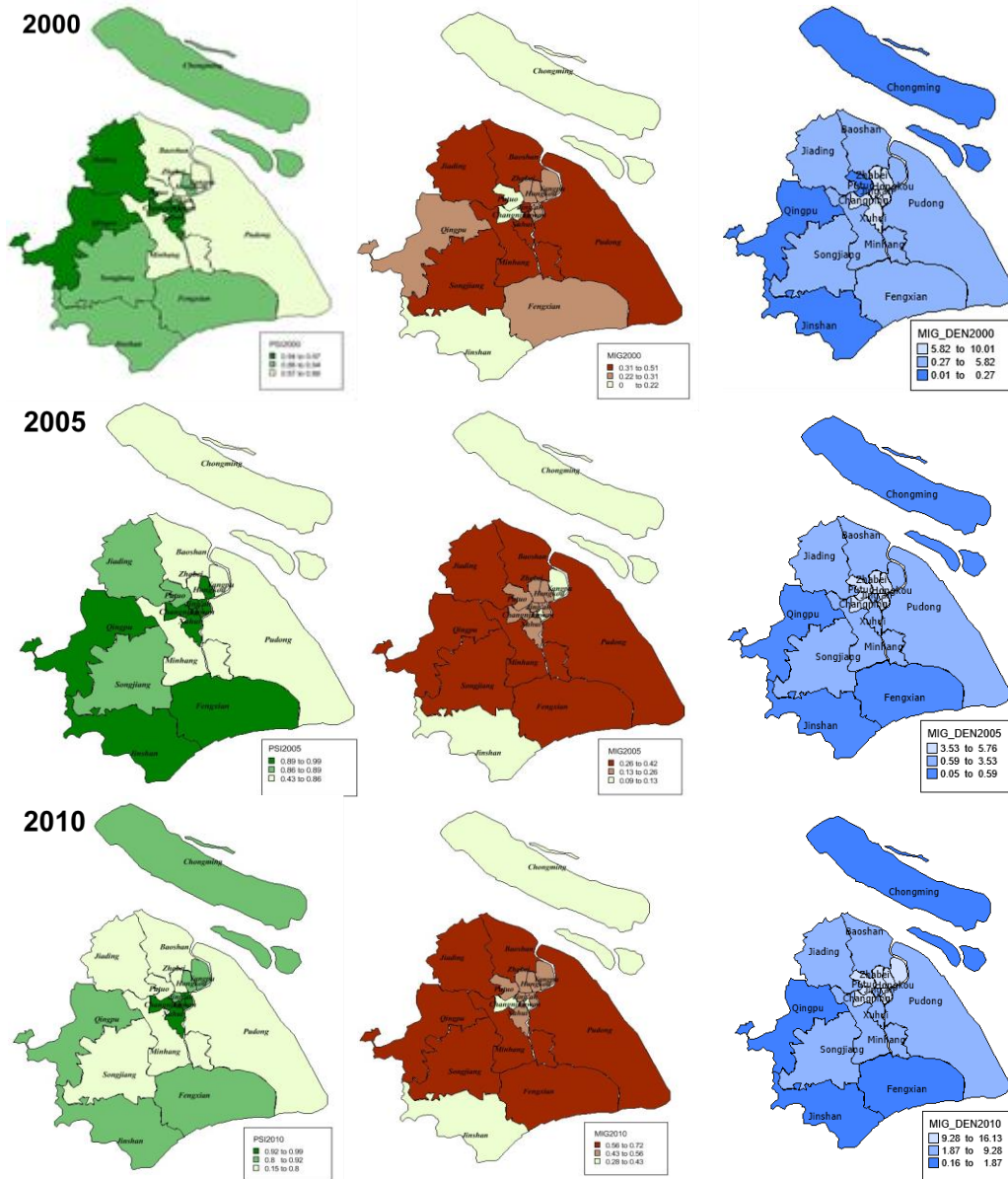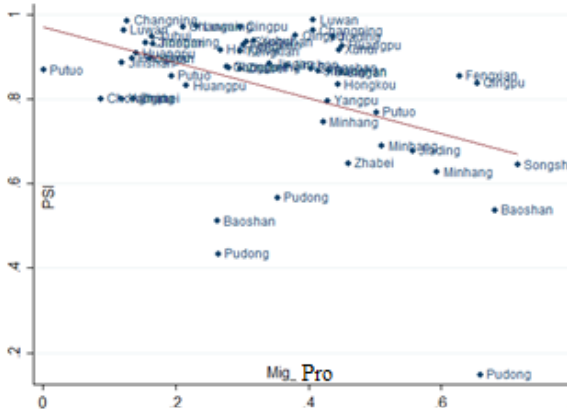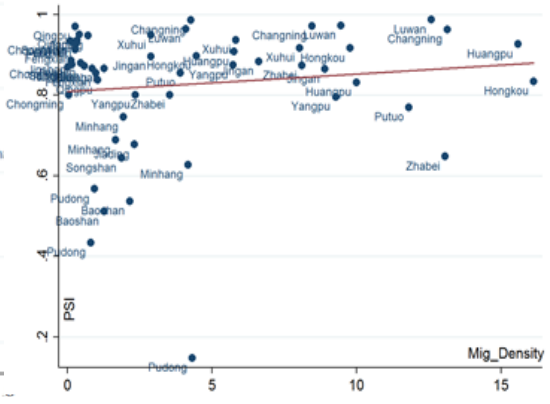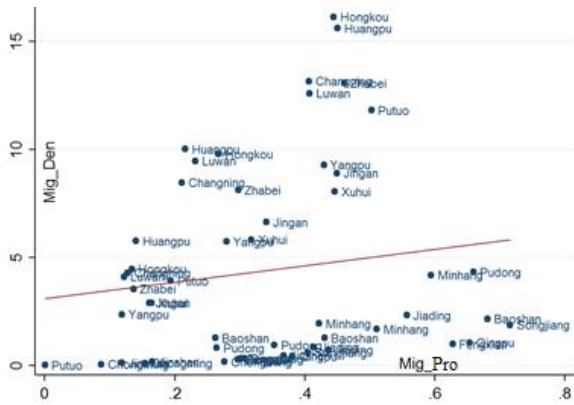
Fig. 2. The Relations between Public Safety Index and Demographic Factors

(A) PSI against Migrants' Rate

(B) PSI against Migrants' Density

(C) Migrants' Density against Migrants' Proportion

Table 5: Correlation Coefficient between Population Congregation and Urban Safety

	PSI	Criminal Cases	Fire Accidents Cases	Public Security Cases
Re_Den (total residents' density)	0.2981**	-0.0919	-0.4333***	-0.197
Mig_Pro (migrants' proportion)	-0.4470***	0.202	0.3146**	0.5236***
Mig_Den (migrants' density)	0.1231	-0.022	-0.3089**	0.0133

Note: *, ** and *** denote significance level of 10%, 5% and 1%, respectively.

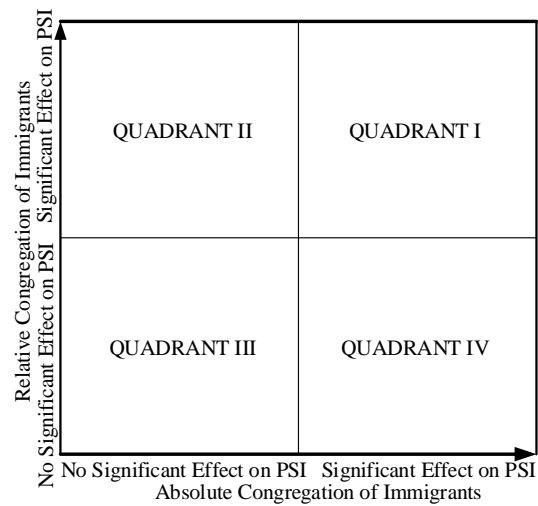**Fig. 3.** The Schematic of the relative and absolute congregation of immigrants on PSI

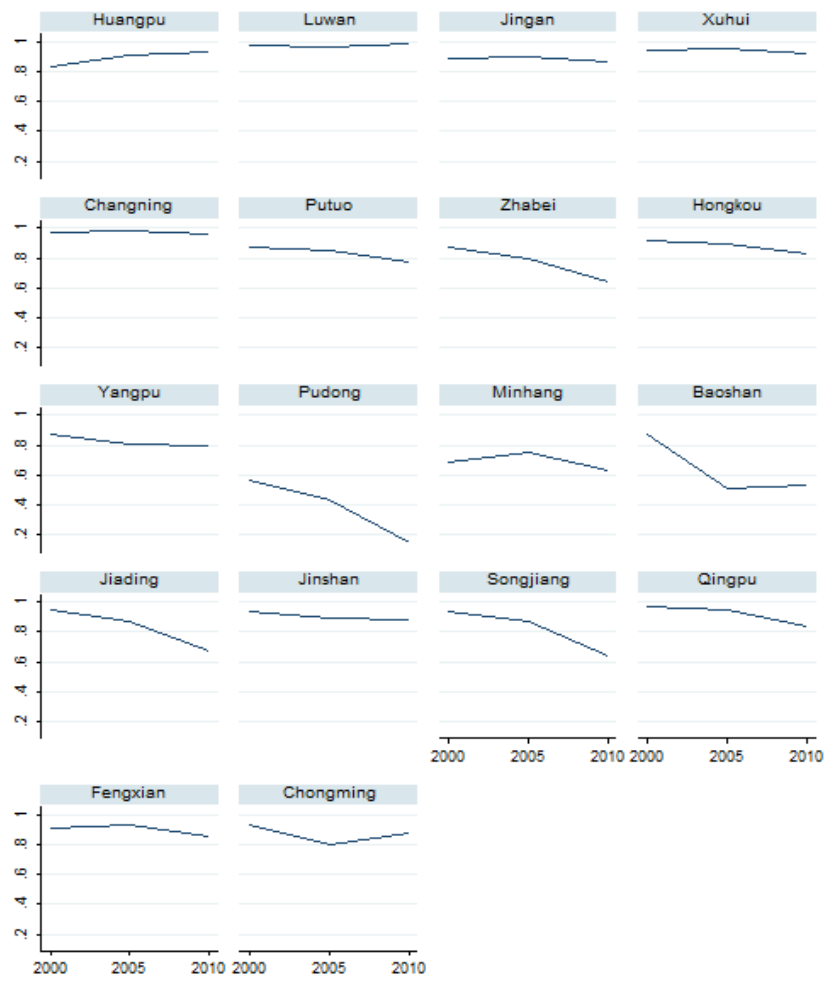**Fig. 4.** Shanghai's Public Safety Index by Districts and Counties

Table 6. Two-way Fixed Effect Estimation of the Baseline Regression with Different Independent Variables

	(1)	(2)	(3)
Mig_Pro	-0.1152		-0.1638
	(0.1929)		(0.2354)
Mig_Den		0.0017	0.0037
		(0.0037)	(0.0054)
Year Dummies	yes	yes	yes
Constant	yes	yes	yes
Wald Chi2	4.6500	4.4400	3.6600
R-squared	0.3789**	0.3739**	0.3773**
N	54	54	54

Notes: Standard errors are robust to heteroskedasticity and presented in parenthesis. *, ** and *** denote rejection of the null hypothesis of the coefficient being equal to 0 at 10%, 5% and 1%, significance level, respectively.

Table 7. Two-way Fixed Effect Estimation of the Baseline Regression for Different Dependent Variables

	Criminal Cases (1)	Public Security Cases (2)	Fire Accidents (3)
Mig_Pro	-2613.5420	41708.0300	**626.1018***
	(3426.6480)	(35911.8200)	(343.7026)
Mig_Den	68.4989	-796.2023	**-18.1938***
	(89.8641)	(1021.9830)	(10.1679)
Year Dummies	yes	yes	yes
Constant	yes	yes	yes
Wald Chi2	2.3700	4.3100	1.4900
R-squared	0.1989*	0.4302**	0.2311
N	54	54	54

Notes: Standard errors are robust to heteroskedasticity and presented in parenthesis. *, ** and *** denote rejection of the null hypothesis of the coefficient being equal to 0 at 10%, 5% and 1%, significance level, respectively.

Table 8. Results of Regression with All Variables

	Pooled	Fixed	Random
	(1)	(2)	(3)
Mig_Pro	-0.0588	0.0380	-0.0018
	(0.1738)	(0.1924)	(0.1908)
Mig_Den	-0.0006	-0.0053	-0.0030
	(0.0046)	(0.0067)	(0.0054)
Aged15to25	0.4981	**-2.7349*****	**-1.3702***
	(0.7744)	(0.6757)	(0.7235)
Male_Pro	0.2480	0.9539	0.8733
	(2.3932)	(1.5643)	(1.6758)
Male_Nocouple_Rate	-0.0557	-0.0124	-0.0120
	(0.0384)	(0.0576)	(0.0681)
High_School_Pro	-0.0435	**-0.9692****	-0.4092
	(0.2562)	(0.3459)	(0.2658)
LnGDP_Percapita	-0.0376	**0.0533***	-0.0042
	(0.0395)	(0.0275)	(0.0244)
Old_Com_Pro	-0.1355	**-0.4372***	-0.2331
	(0.1701)	(0.2239)	(0.2420)
LnSecurity_Staff	**-0.1718*****	0.0523	**-0.1186*****
	(0.0515)	(0.0517)	(0.0387)
Year Dummies	yes	yes	yes
Constant	yes	yes	yes
F/Wald Chi2	10.5400***	6.1000***	48.97***
R-squared	0.5967	0.7285	0.5696
N	54	54	54

Notes: In column (1) the pooled regression use the cluster robust standard errors which allow for intragroup correlation and all the standard errors are presented in parenthesis. *, ** and *** denote rejection of the null hypothesis of the coefficient being equal to 0 at 10%, 5% and 1%, significance level, respectively.

Table 9. Results of Two-way Fixed Effect Estimation for Robustness Checks

	Instrumental Variable Regression (1)	Unemployment and fiscal expenditure effects (2)
Mig_Pro	0.0377	-0.0556
	(0.2489)	(0.2021)
Mig_Den	-0.0068	0.0016
	(0.0088)	(0.0069)
Aged15to25	**-3.7774*****	**-2.9092*****
	(1.2926)	(0.7085)
Male_Pro	-0.4303	1.4511
	(2.3865)	(1.6570)
Male_Nocouple_Rate	-0.0090	0.0397
	(0.0746)	(0.0649)
High_School_Pro	**-1.0367****	**-1.0681*****
	(0.4518)	(0.3697)
LnGDP_Percapita	**0.1125***	
	(0.0648)	
Old_Com_Pro	-0.4606	-0.3325
	(0.2905)	(0.2373)
LnSecurity_Staff	0.2645	0.0331
	(0.2049)	(0.0521)
Fiscal_Den		**0.0282***
		(0.0152)
Male_Unemp_Rate		-0.4847
		(0.4397)
Year Dummies	yes	yes
Constant	yes	yes
F/Wald Chi2	6166.0300***	5.4600***
R-squared	0.5453	0.7318
N	54	54

Notes: Standard errors are presented in parenthesis. *, ** and *** denote rejection of the null hypothesis of the coefficient being equal to 0 at 10%, 5% and 1%, significance level, respectively.