Internal immigration effect on crime in Ho Chi Minh city

A Research paper

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Ho Chi Minh city, Vietnam
July 21, 2022

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Abstract

Ho Chi Minh city's rapid urbanization and development have created a positive feedback loop. The more financially successful the city becomes, thanks to the internal migration from across the country, the more people are eager to move in and join the thriving economy. However, this also created a Grey Rhino[1] scenario where the constant influx of people is spiraling out of control. Out of many consequences that occur from an unnaturally and unplanned high concentration of population in a city that can be observed, crime rate is one of the most concerned and discussed topics. Europeans and Americans are no strangers to immigration phenomenal. Many robust observations of the link between crimes and immigration were documented. Although vary in results, most shared the conclusion that property crimes were the most positively impacted by heavy immigration. Yet, contradicting to findings of previous literature, this paper finds internal immigration has notably impacted all crimes in three criminal categories with little to no spatial impact. This is very surprising but somewhat predictable, given many flaws in the way official reports define internal immigration and the lack of transparency in how criminal data is recorded. The hard block of public access to data also contributes to the desolation of domestic research interest regarding this particular topic and leaves room for speculation why the population data census was closely guarded. Nonetheless, if the policy makers deem the official dataset trustworthy and decide to act on it, the best course of action is the develop neighboring provinces and unpopulated districts to relieve the pressure from Ho Chi Minh city. While simultaneously, minimizing the frequent damage caused by natural disasters in the Center region will encourage more Center Vietnamese to hold their ground.

[1] Grey Rhino is metaphor to describe something obviously dangerous and is acknowledged but often ignored is not responded to until it is too late. Similar to how Covid-19 early warnings was downplayed.

Keywords

Internal migration, Vietnam, Saigon, Crimes

Relevance to Development Studies

Urbanization is a step every developing nation will experience, but not all administrations are ready (or willing) to properly prepare and plan the city accordingly. Every country will always have one or two cities that act as a financial hub of the nation, and it is only natural that said city would become an attractive destination for workers from a rural or smaller area of the country. To ride the internal immigration wave well and develop the city along with its new citizen is no easy feat. As an attempt to provide information (and incentives) for policy maker, this paper will investigate the relationship between internal immigration and crimes. I believe this research topic will be relevant for years to come as urbanization and the immigration that come after it is a process that is repeated many times across the span of any civilization.

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Chapter 1 : Introduction

1.1 Social problem

Ho Chi Minh City, the southern economics powerhouse and the pride of the nation, has been and likely will be the dream city in many eyes from across Vietnam. It is the city of opportunity with the promise of better health care, better housing, better income, and better life. With such alluring attributes, it is natural that many people from rural areas and other provinces across the country migrated to the city, hoping to make their own "American dream" in Vietnam come true.

Figure 1.1 "Sea of humanity" A photos of returning people to Ho Chi Minh city after Tet holidays is over. - By VN Express international Feb 10th, 2019

When the French first set foot in the wildland that would later be known as Saigon[2], the colonist recognized and were dazzled by the land's beauty and potential. They gave it the title of La Perle de l'Extrêm Orient (the pearl of the far East) and then developed the city. Many of the infrastructures that were built by the conqueror remain today. However, the French did not design the city to house such a large population. The most obvious proof is the narrow one-way streets and tiny traffic congestion that plagued district 1. It creates an unimaginable bottleneck for traffic even when it is not during rush hour. Any tourist that travels to Ho Chi Minh City will be able to firsthand witness an ungodly amount of people try to squeeze themselves and their motorcycles through tiny choke point while pressured by the heat and the smoke released from the exhaustion, on top of being annoyed by the constant honking sound and the deafening roaring of hundreds of engines mixed in with occasional yelling and cursing from the begrudging traffic participant. One has to ponder why such a costly, profound, yet common issue was tolerated by so many growing metropolises. Perhaps it is just a natural byproduct of economic development (Taylor, n.d.). Obviously, I am not the first to be bothered by these issues. So many traffic engineers, transportation planners, and public officials haven't yet to find a foolproof solution to these wicked problems. Perhaps a flat cut in the number of traffic participants would be sufficient? After all, the Tet holidays are when the traffic in the city is most pleasant since the majority of the city dwellers are "internal immigrants" from all across the country who have left the city to return to their

[2] From this point onward, Sai Gon and Ho Chi Minh city will be used interchangeably

hometowns. Migration has been, and still is, a hot topic in the current political climate. Many labors economist would swear on the enormous benefit a fresh source of the workforce would bring, but not as many would discuss the drawback. Unless the target city adapts quickly to welcome its new occupant, the law of diminishing rate of return will apply. Pollution, severe lack of housing, lack of medical and educational facilities, and rising crime rates are all pressing issues the city has to face from the absolutely enormous population density. This city is developing fast, too fast for its own good. And the economic miracle of the city today cannot be made without the sacrifice of millions of workers who leave behind their homes to find opportunities in the city, but is there a limit on how many citizens one city can house? When will the marginal return diminish to the point of negative? Although puzzled by the question, one cannot hope to give a definitive answer whether the constant flow of immigration is good or bad, not by a long shot. But if that question is divided and conquered, perhaps an attempt could be justified. Why is it bad? Why is it good? There are many impacts immigrants can have on a city, and some are more evident than others. One of the most straightforward and observable in everyday life is crimes.

Even though the city Police department does not publicize the data, officials repeatedly admit the growing crime problems in multiple press conferences in the last decade due to the overwhelming population growth through internal migration. Like a double edge sword, immigration could make or break a city. Without proper support policy from the government, a significant proportion of them finds themself in a new struggle for their lives. They cannot compete for a decent job in this hyper-competitive and oversaturated market. They can't afford rent because of the job they get pay the bare minimum to make ends meet. And when the suffering becomes too much to bear, a grim path lurks over the horizon and stares at them from afar. Either turning to illegal activities to survive or accepting a humiliating defeat and returning home empty-handed. If the option is the latter, they face the soul-crushing shame of not being good enough to find a job in the city. The guilt is exacerbated if they are a university student whose family has spent their saving to send their kids to study in the city. If the former is the option, they are actively sabotaging the society of the city and, ironically, making immigrants' life that comes after much harder and pushing them to the road they are on now.

Labor is the blood cell of any economy; human is the life force of a country. Alas, there are many perfectly capable young men who travel far only to waste their future ahead by traversing on a road that is hard to step back. And young naïve girls who come to the big city to realize their big dream only to end up tricked into prostitution (Hà, n.d.). Sometimes the will to escape poverty and live a better life is so unshakable it overshadows the rational mind. The case of 39 dead Vietnamese found in a bitter cold container in the UK in 2019 is a heart-wrenching reminder of how much risk people are willing to take for a hope of a better life for themselves and their loved ones. So many could never see the life ahead of them; they carried the hopes and dreams of their family with them, only for them to be crushed and cast away by this cruel and unforgiving reality of life in the city. Something has to change.

Figure 2.2 Painting of the Statue of Liberty. Extracted from Sid Meier's Civilization® V

What if the city harnesses the misguided to be a productive member of society? How can the city lead them back to society? The noble symbol of the Statue of Liberty and the poem "The New Colossus" depicts the Roman goddess of liberty, Libertas, standing proudly yet warningly guiding the tired, the poor, the homeless to escape the suffering, to leave behind the pain, to start a new life, to breathe free, and to cross over the golden door. The Mother of Exiles is an ideal symbol, representing the dream of a better life not confined to any culture. In reality, the government support policy is the "torch" to shine the light on the door for its immigrants. Over the year, plenty of viable solutions has been enacted, like developing neighboring province to relieve the pressure or trying to build new infrastructure to catch up with the growth rate. Yet the effort so far has lacked luster, leaving the vulnerable immigrant stranded in a stranger land, struggling to survive. What will it take for it to change? A complaint? A cry for help? A statement to grab the government's attention, maybe? Many Vietnamese people have noticed the massive flow of people and were quick to express their views (Đường, 2018). However, these are primarily articles in newspapers, reflections in a magazine, and opinionated rant posts on social media with personal perspectives backed by dubious sources. Perhaps a proof would be more convincing? Perhaps compelling research with strong evidence would persuade the city administration. Sadly, of all the very few research by local researchers on the subject, half only discuss the theoretical reason for internal migration. At the same time, the other half could hardly be classified as research. There is no lack of research about the relationship between these two actors in the international scene, but the same could not be said for research in Vietnam…for now.

This research aims to fill the said gap. To be one of the first to approach this dubious question with rigorous science and evaluate the actual impact with a basic mathematic model. However, this result might not produce concrete evidence much needed to convince city officials due to many limitations. But it will be a solid steppingstone and will serve well as a foundation for any future research. Saigon has existed longer than any of us. It has stood the test of time, and there is much it can teach. Its story is simply waiting to be discovered, and this paper will be an attempt to understand it.

1.2 Research objectives and structure of the paper

Objective: Measure the estimated impact internal immigrants have on the city's crime rates. Then suggest an acceptable policy to support/control immigrants. The intensity of the suggestion will depend on the self-perceived quality of the results.

Data: The research will look at the effect from 2011- 2018 across all administrative units under Ho Chi Minh city. Which comprises 16 districts, one municipal city (a second-tier city that belongs to another city), and five rural districts (23 in total). All data was obtained from the General Statistics Office of Vietnam, Economy and Environment Partnership for Southeast Asia, and Ho Chi Minh City Police Department

Methodology: Stata 12 will be used to analyze this panel data. There are 3 dependent variables (Social Order Crimes, Environmental and Economic crimes, and Drug crimes), 1 independent variable (internal immigration), and 3 control variables (income per household, population density, and suburb location) involved. Except for the three control variables, which was dummy, the rest was measured as increased percentage just as they are in the original report. The regression will be repeated three times, and each only use one of the 3 crime variables.

Structure of the paper:

Chapter 1: Introducing the social problem and justification of the research

Chapter 2: Review the works on this particular or relevant topic (both domestic and international) to identify the gap in research. Then construct a theoretical framework to build on

Chapter 3: Detailing the processing of the data and various steps undertaken to test the result to make sure it is fit for use

Chapter 4: Interpreting the results

Chapter 5: Discussion of the results and draw conclusion, then recommend policy based on said conclusion. Also, point of the limit of the study and briefly went over future directions for the study

Chapter 2 : Literature review

2.1 Background

Navigating scholars' work in this field was more challenging than anticipated since there is significant research on immigration, but not many are particularly relevant to this paper. Early pioneer research on the topic can be found dated to as early as the 19th century based around Europe and the United States, but it was far and few between. Maybe because the massive immigrant wave was rarely observed and discussed at the time, although there were large immigration waves in the past like those by Polynesians. The status quo changed when a better means of transportation (the invention of the steam engine, namely) enabled the more frequent and more intensive immigration tide. A spike of interest was observed following the historic wave of immigration like pre- and post-WW2. The phenomenon flourishes and attracts the curious intellectual mind during this time.

There are two typical patterns observed during the search. The first category is research about the immigrant themselves: Who are they? Why do they move? What attracts them most? What drives them away? What difficulties do they face in a stranger land? How did they move? Etc. This type of research was the one setting the foundation for the following category- the impact of immigration. There is numerous topic that has been covered regarding the effect immigrants have on the destination. A large proportion of it was concerned with the macro elements like the rise of competitiveness in the destination place's labor market, the growing GDP of the city from a fresh supply of labor, the pressure medical facility has to endure, or the environmental effect from such high population density. But there is a noticeable lack of research on the crime rate that the immigrants might cause despite being a general concern by the standard population (Bianchi et al., 2012). The pattern changed significantly during the aftermath of armed conflict and the rise of terrorist insurgents in the Middle East that caused a massive influx of immigrants in the form of refugees in 2015. The following years saw an increase in focus on the crime rate caused by immigration. It is only natural that Europe, the region with a long history of immigration and experienced the crisis firsthand, would have many interesting observations. It is also noteworthy that the United States seems to have a fair share of immigration problems from long before the crisis. Famous crime movies like God Father and Goodfellas spin around the lives of Italian immigrants that turned to organized criminal activities on American soil. Although they are only products for entertainment, the narration is quite close to the reality of the era under the Al Capone mafia family. The US is still struggling to control illegally Mexican immigrants and internal cartel activity despite a wall built by the Trump administration. United Nations International Migration report in 2019 listed that most immigrant concentration is still in the United States. For that, US criminology scholar has ample opportunity to study the relationship between crime and immigration.

All the literature mentioned was about immigration from another country; what does it have to do with internal immigrants? Vietnam's type of immigrant trouble is inherently different from the immigrants in these studies. Many international immigrants are refugees trying to escape conflict and are unlikely to return to their homes, while internal immigrants will return to their homes occasionally (mostly on holidays). It would be logical to conclude that literature on immigration from the West would be inappropriate for Vietnam. Yet one could present a sound counterargument that the crime rates measured are not strictly the ones committed by the immigrants but crimes committed and recorded within the city and its vicinity. Further discussion of the literature will reveal that the sharp increase in population density is the cause rather than immigration itself. As a result, whether or not the immigrants are more criminogenic than the local populace will not be the concern of this paper, but rather whether or not the city's crimes are affected by the influx of large and unplanned waves of people.

2.2 Research gap

With so many foreign researchers taking matters into their own hands and pursuing the truth, the gap that Vietnamese criminologists have left untouched has become much more notable. It could result from the insignificant number of international immigrants that failed to spark any light of curiosity. Or it may be due to the heavy censorship nature of the communist party that such research was deemed sensitive and hence was never encouraged. The few available studies published by national universities with relevant specialties like the University of People's Security, Ho Chi Minh Police Academy, etc., are depressively low-quality. They don't have proper citations and sources, and there is zero mathematics usage even at Ph.D. level research. To even classify them as research is far stretched. The very few properly publicized papers only focused on the theoretical discussion with no rigid methodology and were conducted by researchers from unrelated fields. The reason why such a gap exists was uncovered later in a hard and painful way. In other words, the gap is too vast for any hope to fill with only one paper, but it is a start.

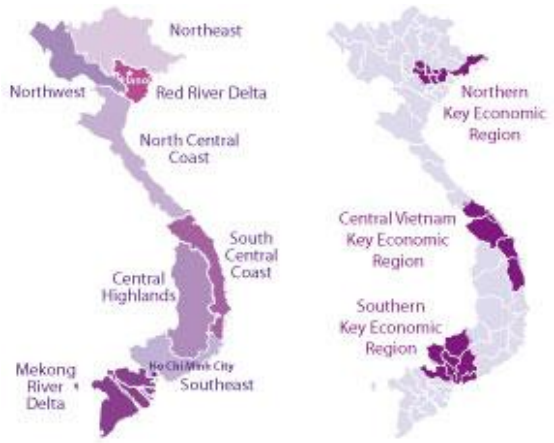

Figure 2.1 Economics key region map of Vietnam

But why choose Ho Chi Minh as the place to start? First and foremost, it is the city with the most in-immigrate rate in the country, for a good reason. The city has witnessed and built itself up upon the foundation of millions of people from across the country for good reasons. In figure 2.1, the city can be seen within one of the key economic zones. Yet the figure did not show that the city is the biggest financial and industrial hub (so far) in the country. Even the very few domestically published research mentioned above was written about a much less predominant city. Which such an ideal condition, the lack of independent data collection and research are

painfully obvious. This research will hopefully ease the pain of future researchers who want to pursue this knowledge

2.3 Theoretical framework

The notation that property crimes are positively linked with immigration is consistent across many findings. Post collapse of the Eastern Bloc has plunged many countries into political turmoil, with Yugoslavia being one of them. In the next few years, Italy has reported a clear impact on property crimes caused by mass immigration from neighboring states (Bianchi et al., 2012). Up to the north of Europe, with more recent pieces of evidence, the UK was one of many EU nations that absorbed the blunt of the mass refugee crisis. Yet, the result and proof once again were mixed on the matter, with only robbery crimes being the exception being increased (Bell et al., 2013). Across the Atlantic Ocean, the United States, the country with notorious immigration problems, also reported results aligned with its European counterpart. That is a clear increase in robbery crimes while other types of crimes are largely unaffected, even reduced in some cases. (Stowell et al., 2009)

Saigon is an entirely different culture facing a vastly different type of immigration, as mentioned. But, both share somewhat a similar context, being attractive destinations for many people who came from an area with a lower living standard and harsher environment. Both have overwhelming pulling factors housing migrants from places with detrimental pushing factors. Therefore, a similar result is anticipated

Table 2.1 Summary of key papers

Name of Paper	Year	Author	Journal	Key Word	Methodology	Conclusion
Crime and immigration: Evidence from large immigration wave	2013	Brian Bell, Francesco Fasani, and Stephen Machin	The Review of Economics and Statistics	Crime, immigration, UK	OLS regression and Panel analysis	The first wave of asylum seekers causes a slight increase in property crimes, while the second wave of workers from EU countries has a slightly negative impact.
Do immigrants cause crimes?	2012	Milo Bianchi, Paolo Pinotti, Paolo Buonanno	Journal of the European Economic Association	Crime, immigration, Italy	OLS regression and Panel analysis	The size of the immigration population is positively correlated with property crime which is a small proportion of all crimes. Thus, the crime rate at large is mostly unaffected
Immigration and the recent violent crime drop in the United States: A pooled, cross-sectional time-series analysis of metropolitan areas.	2009	Stowell, J. I., Messner, S. F., Mcgeever, K. F., & Raffalovich, L. E.	American Society of Criminology	immigration, crime drop, violence, time series	OLS regression and Pooled, Cross-sectional time-series analysis	Immigration is unexpectedly associated with lower rates of violent crimes, but it is the opposite with robbery crimes

There are many reasons for human to leave their familiar zone. From the hunter-gather ages, human has learned to explore and scout their surrounding for hunting ground and farmland. When an area is crowded enough, a group of daring settlers would repeat the process until the globe was populated. But in modern times, the reason we moved has changed, most people don't hunt for meat or grow vegetables by themselves anymore, but the theme of our motivation is anything but different from our ancestors. It has been and always will be the pursuit of a better life.

But it is not always as simple as that. Economists, archeologists, and behavioral analysts alike have many different takes but there are mainly three categories of immigration theory: Those that approach this from a macro perspective (seeking promising opportunity), those that inspect this from a micro perspective (improving chance of survival), and those that have mixed perspective (Hagen-Zanker, 2008). In the micro category, Push and pull factors by Everett S. Lee in 1975 is one of the famous bedrocks of migration theory. It might be deceptively simple but very capable of explaining why so many people move to Saigon by distinguishing the incentives that cause humans to migrate from one place to another (Briefing, 2012). In short, the pull factor is found in a place that is attractive for the settler, such as a habitable climate with abundant job opportunities. The push factors of a place are undesirable factors and push people away like war, diseases, harsh environment, failing economy, etc.

The Oxford dictionary defines an immigrant simply as someone who travels to settle in a different country away from their native area. While this is a clear-cut definition, it is much more complicated in the case of internal immigration in Vietnam. The first and only official report on inter-immigration published in 2016 divided immigration into 5 categories:

1. Inter-regional migration: includes people 5 years of age and older living in Vietnam and 5 years ago before the time of the survey lived in a different region from the region they currently reside in.
2. Inter-provincial migration: includes people 5 years of age and older living in Vietnam and 5 years ago before the time of the survey lived in a province other than the province they currently reside in. This description is the closest match the profile to the research target. Immigrants who move from rural areas to more developed cities like Saigon.
3. Inter-district migration: includes people 5 years and older, 5 years ago before the time of the survey lived in the same province, but in a different district from the district they currently reside in.
4. Migrants within the district: include people 5 years of age and older, 5 years ago before the time of the survey lived in the same district but in a different commune/ward with the commune/ward currently residing.
5. Non-migrant includes people 5 years of age or older and 5 years before the time surveyed who live in the same commune as the actual place of permanent residence (not migrating between communes).

The most striking flaw of this definition is the simplistic assumption that a person will not move back and forth between the destination and his/her hometown in the span of 5 years. If based on this definition, a worker who travels half a country and spends the majority of 5 years in Saigon is virtually no different from a businesswoman who travels a lot but happens to be in the city for the period of the survey and people who have spent more than 5 years in the city will be left out. Yet, the report claim that this definition was in use since 2009 and is still in use at the time of the report (2016), so there is a valid reason to believe that this definition will still be used in current and future report. Regarding the trend of migration, the most common reason to migrate was exactly as expected when applying the Push and Pull factors theory. Table Appendix 1 was extracted from the government's official population census in 2019. Notice to the highlighted figures; the Centers region can be seen as a region with the second highest out-immigrant rate, an outdated but still similar visual presentation can be seen in figure 2.2, the darker the shade of green, the more out-immigrants are recorded. It is a widely known fact that of all the areas in Vietnam, the Center is the one with the harshest condition. Hot and dry climate makes growing crops a difficult task, and livestock find it much less enjoyable to graze grass under the burning sun. On top of that, flooding and typhoon are a yearly occurrence in the region. The most recent and most devastating ever recorded in the country is in 2020, with an estimated more than half a billion USD in total financial damage, 249 deaths or missing and almost 1,600 homes destroyed (Chung, 2021). Devastated by climate and ravaged by disasters, most families living in the Center would work double time to send one of their family members, most of the time it is their sons and daughters, to the south to find a better job or acquire a university education. Ideally, the sent away family member would send some money back or save in the hope of affording permeant housing for their offspring, effectively migrating to the city. It is a coping mechanism for the locals to move away from the unforgiving area they live in. (Gröger & Zylberberg, 2016)

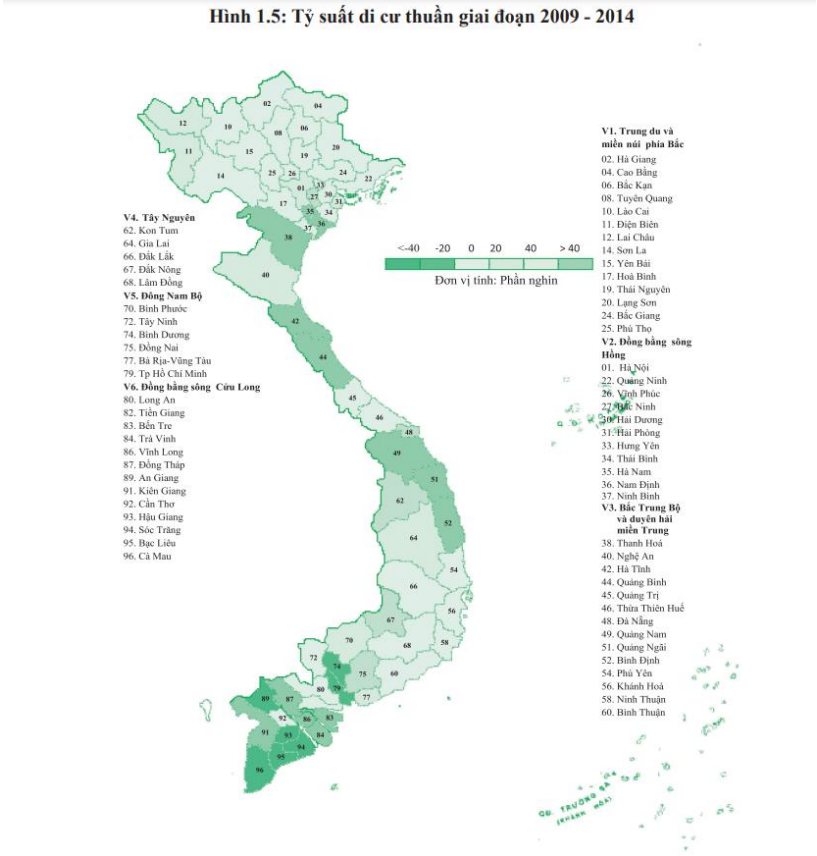

Figure 2.2 Extracted from 2016 official report

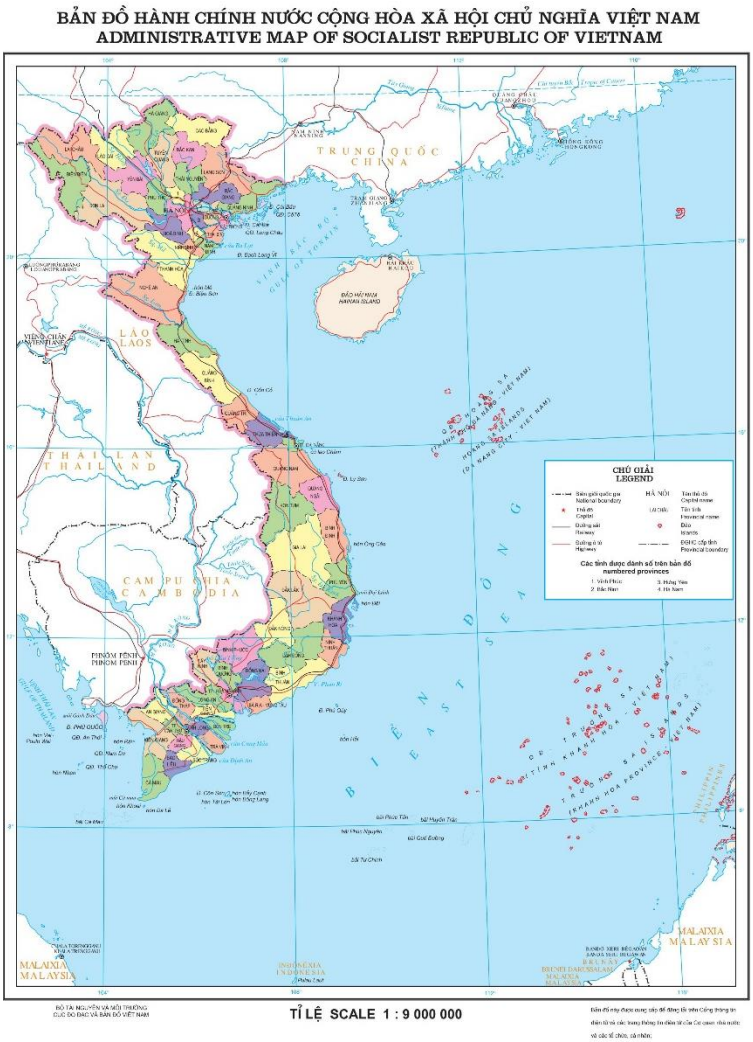

Figure 2.3 Official administrative map of Vietnam

On the flip side, despite having much less harsh natural conditions, the Mekong River delta gravitated toward Saigon anyway. It stood as the region with the highest out immigrants, besides Saigon's apparent pulling factors, like the promise of a high-paying job (highest concentration of factories in the country), good health care, quality education, and the promise of a more prosperous life. The ease of transportation and the shorter distance they must travel to Saigon in comparison to someone from the Center or the Northern region (Figure 2.3) strongly encourage mass migration. It is worth noticing that while Sai Gon remains the most attractive city right now (at least in terms of statistics), its neighbor province in the north, Binh Duong, has gained rapid growth in population in recent years sheerly through immigration and was speculated to surpass Saigon. This is partly due to Binh Duong having planned to be a dedicated manufacturing hub as opposed to Ho Chi Minh being a mixed of financial and cultural hub. Factories after factories of both domestic and foreign investment alike were built and provided jobs for the much-needed immigrants that struggled to get a foothold in the big but quite saturated labor market of Saigon.

It is clear that this city is a textbook example of Everett S. Lee's theory, but why is immigration associated with crimes? It is much more than a belief that root in common xenophobia. Chicago School urban sociology is one of the first significant and influential theories that laid the foundation for studies about crimes and immigration. A classic study applying Chicago School to explain the link between crimes and immigration is Shaw and McKay. They argue that it is not the characteristic of the immigrant that causes crime but the structural characteristic of their destination place that makes them susceptible to unlawful acts. Chicago School points out that the three main civil structural factors to examine to what extent an area is socially disrupted are economic deprivation, residential mobility, and racial/ethnic heterogeneity (Sampson & Groves, 1989). Even without prior knowledge of Social disorganization theory, one could have solid gaps of the first two factors with common sense. Labor market saturation is bound to happen, and it will be much more difficult to compete against the local populace. The inflating real estate bubble would also block out residents who

can’t afford rent. Naturally, an unemployed and desperate young man that has nowhere to go is no doubt much more likely to commit crimes than a factory worker with a steady income that can afford rent. What is less clear and potentially controversial factor is racial/ethnic heterogeneity. In the context of internal migration, immigrants sharing the same language and cultural values as the destination occupant should have no problems finding their places among the city inhabitants, yet the reality is nowhere near ideal. There are few official and published papers about the differences in culture between the region, but there is plenty of news covering southern company discrimination against applications of people from certain provinces, essentially provincial profiling (similar to racial profiling but based on place of origin). It is well established that different environments create different people with different beliefs. The roughness and frugality of the Center Vietnamese are often mistaken as brute and miserly, the generosity and honesty of the Southerners are occasionally disregarded as wasteful and naïve, and the delicate and diplomatic nature of the Northern is sometimes confused with deceit and malice. Regional discrimination is a real yet elusive problem that is rooted deeply in Vietnam society. Despite having enough things in common to call each other fellow countrymen, Vietnamese from different regions are still different enough to incite potential conflicts of interest. Therefore, after considering all three factors, it can be argued that a higher crime rate is expected post mass immigration since it increases disorder and there are consistent findings that confirm immigrants do increase crimes to some extent, especially property crimes.

Chapter 3 : Methodology

3.1 Data

Most literature regarding this matter used government-collected data and census or combined the survey. Since the survey is extremely unlikely to conduct during the covid epidemic and budget constrain, the research had to be conducted with secondary data. While the government's demographic data occasionally publicized were vague and unfit for any mathematical approach, official crime data is kept discreet for unknown reasons, making obtaining data the most dreadful part of the process. Fortunately, Dr. Pham Khanh Nam administrated the usage of demographic data collected by the Economy and Environment Partnership for Southeast Asia (EEPSEA) institution, which is a part of the University of Economics Ho Chi Minh city. Additionally, low-security clearance criminal reports were provided in an unconventional way, meaning utilizing the backdoor connection within the General Statistics Office of Vietnam and the Ho Chi Minh City Police Department-the two agencies that manage the data on crime and immigration every year (otherwise, this research would be impossible).

In short, data acquired include immigration and crime for eight years from 2011 to 2018 across 23 districts of the city (old data before the formation of Thu Duc city- a city belonging to Ho Chi Minh city).

3.2 Variables

The author's research topic includes 23 districts from 2011 to 2018 (which is 184 observations, 23 districts × 8 years), so the author will use panel data to analyze, and Stata 12 software will be used to achieve the results.

Checking for multicollinearity by the variance amplification factor VIF. At the same time, the correlation between the variables by the Pearson correlation coefficient of the variables is included in the model. The author will run the data on all 3 regression models (POLS), fixed effects model (FEM), and random effects model (REM). Next, the author will use the Likelihood Ratio test to select a suitable model between the POLS and FEM models. Then the author will use the Breusch and Pagan Lagrangian multiplier test between the POLS and REM models to select the appropriate model fit. If during the test, there is an absolute of 1, the author will use the White test to reevaluate.

And finally, the author will use Hausman Test to consider whether to use FEM or REM. Thereby giving a suitable model to be able to find out how much independent variables affect the dependent variable. Finally, the author considers whether the model has Heteroscedasticity and autocorrelation. If so, the author will use a general regression model (GLS) to overcome the above problems.

3.2.1 Dependent variables

The research is concerned with the impact of immigration factors on the dependent variable which are economic and environmental crimes, drug crimes, and social order crimes (known in Vietnamese as *tội phạm trật tự xã hội*.) Noted that in table A2, the crime rates are present in percentage. In the original report by the city Police Department, the number is documented as an increased rate. For instance, the rate of drug crime was 0.236 in 2015 can be understood that drug-related crimes have increased by 23.6% in comparison to the previous year. Ideally, the raw statistic would be much more preferable.

There is no particular reason why the types of crimes were classified that way other than the fact the obtained reports themselves only categorized crimes only as so. Although Economic, environmental crimes, and drug crimes are self-explanatory, social order crimes are not. Social order crimes are a very broad category of crimes. Even though it is a widely used term by local media and in bills, the lack of a clear official definition is astonishing. The closet definition of what social order is can be traced back to bill 96/2016/NĐ-CP, which can be implied that any crimes that violate or disrupt the order of society are a social order crime

Despite being broad, social order crimes are the category that aligns the most with key papers finding since they cover property crimes and violent crimes. The limitation of the indistinction between the variables will be discussed later in chapter 5

3.2.2 Independent variables

The type of immigrant that this work is interested in was pointed out in section 2.3. In short, the immigrant is anyone who, at the time of the government survey was conducted, lived in a province other than the province currently residing in 5 years ago before the time of the survey. Similar to how the crime rate is recorded, the number presented is in percentage, meaning the increase in the number of immigrants in comparison to the previous year.

The model inherits elements from Milo and Paolo's studies with its own modification to make it suitable for the actual situation:

$C_{it} = \beta_0 + \beta_1 I + e_i.$

C_{it} is the crime rate in district i at time t (including crime related to drugs, economic environment, and social order and safety) measured in percentage increase in comparison to year t-1

I is the immigration situation of district i at time t

With control variables, the model writes as follows:

$C_{it} = \beta_0 + \beta_1 I + \beta_2 \text{suburb} + \beta_3 \text{density} + \beta_4 Y + e_i$

Suburb is a dummy variable. District is divided into two categories based on if it is within the city center or not

Density is population concentration per squared kilometers; it is also a dummy variable classified as high income or low income according to cities administration

Y is income per household (ideally, income should be per district but there in such units were not available)

3.3 Processing the data

The study uses Excel software to process basic data to calculate and create values of variables to be analyzed in the model. From there, a data table is built by combining time-series data (from 2011–2018) of spatial observations.

The advantages of using panel data in estimation, according to (Gujarati, 2003), are as follows:

Panel data links instance objects over time, so there is heterogeneity between these instances. Panel data estimation techniques can account for this heterogeneity by including individual-specific variables (firms, year, ...) of the study. By combining the observation series in time and space, the panel data limit the multicollinearity between the independent variables, and the degrees of freedom are increased and more efficient. On top of that, it can better detect and measure unobservable effects on data only in time or purely in space, avoiding the omission of significant variables to some extent in the model.

Panel data can minimize the bias that may arise if combined individuals into groups.

Descriptive statistics using specialized software STATA 12 is used to characterize research data through the values of the variables in the model.

Research using specialized software STATA 12 to create correlation regression matrix and regression estimation.

3.4 Regression estimation method

For panel data, there are many methods to estimate regression for the research model. Each method has its advantages and disadvantages. Most of the previous studies proceeded in order of using the most popular model to the more complex ones.

Pool Regression estimation method (OLS for panel data).

Fixed Effect Method (FEM) regression estimation method

Random Effect Method (REM) regression estimation method

In this paper, all three methods were used in combination through all three repetitions. But depending on the circumstance of each repetition, some methods will be much more fitting and produce more accurate results.

3.5 Tests for model selection

Breusch-Pagan’s Lagrange multiplier test for choosing between OLS and REM

Hausman Test for choosing between REM and FEM

Pool Regression Model – OLS: Regression combines all observations

$Y_{it} = \alpha_1 + \beta_1 X_{1it} + ... + \beta_k X_{kit} + U_{it}$

Y_{it} is dependent variable of observation i in period t

X_{it} is independent variable of observation i in period t

For each cross unit, ε_i is an unobservable and time-variable factor that is specific to each cross-unit. If ε_i is correlated with any variable X_t, the regression estimate from the regression Y over X_t will be cross-affected by unobserved heterogeneity factors. Even if ε_i is not correlated with any of the explanatory variables, its presence renders the OLS estimators ineffective and the standard error invalid.

There is a glaring disadvantage, though, which is misidentification manifests in Durbin Watson test. Constraints are too tight on cross-units, which is unlikely in practice. Therefore, to overcome the disadvantages encountered in the Pure Pooled OLS model, the FEM and REM models are used.

Fixed effect model

With the assumption that each unit has its own unique characteristics that can affect the explanatory variables, FEM analyzes this correlation between the residuals of each unit and the explanatory variables, thereby controlling and separating the effect of the individual (time-constant) characteristics from the explanatory variables so that we can estimate the net effects of the explanatory variable on the dependent variable.

Estimated model used:

$Y_{it} = C_i + \beta X_{it} + U_{it}$

Y_{it}: time (year).

X_{it}: independent variable

C_i (i=1…. n): intercept coefficient.

β: slope for factor X.

U_{it}: error term

Random effect model

The difference between the random effects model and the fixed effect model is shown in the variation between units. If the variation between units is related to the independent variable - the explanatory variable in the fixed effect model, then in the random effects model, the variation between the units is assumed to be random and not correlated regarding the explanatory variables.

Therefore, if the difference between units influences the dependent variable, then REM will be more appropriate than FEM. In which the residual of each entity (not correlated with the explanatory variable) is considered as a new explanatory variable.

The basic idea of the random effects model also begins with the model:

$Y_{it} = C_i + \beta X_{it} + U_i$

Instead of in the above model, C_i is fixed, in REM it is assumed that it is a random variable with mean C_i, and the intercept value is described as follows:

$C_i = C + \varepsilon_i$ (i=1...n)

ε_i: Random error with mean 0 and variance 2

Substituting the model, we have:

$Y_{it} = C + \beta X_{it} + i + u_{it}$ or $Y_{it} = C + \beta X_{it} + w_{ith}$ $w_{it} = \varepsilon_i + u_{it}$

$\varepsilon_{i:}$ Error of composition of different objects (different characteristics of each enterprise)

u_{it}: Error of other combined components of both individual characteristics by object and over time.

3.6 Detail steps of the progress

Step 1: Descriptive statistics

Statistics describe some typical values of quantitative variables such as: mean, maximum, minimum, and standard deviation for general data descriptive and analysis use, from which is the basis of analysis in the study.

Step 2: Analyse the correlation coefficient matrix

To determine the relationship between dependent and independent variables. The study uses the correlation coefficient matrix between the counter variables.

Step 3: Use multivariable regression estimation to determine the relationship and level of impact of the independent variables on the dependent variable. The estimation methods used are:

1. Estimating the OLS model
2. Estimating the Random effects model
3. Estimating the Fixed effects model

At the same time, using the tests of Breusch-Pagan (1980) and Hausman (1978) to select a suitable model between the pair of models estimated by OLS method with the Random effects model and between the pair of Random effects and the random effects model. Fixed effects model.

Step 4: Check the Heteroscedasticity and autocorrelation of the selected model.

Step 5: Select a model and analyze and comment

1. Introduce a new model after correcting errors (if any).
2. Analyze and comment on the results from the selected model.

Chapter 4 : Results

4.1 Final result

The results of descriptive statistics on the 4 research variables, the study has 184 observations, with 23 districts coded in the data and each district has a period of 8 years from 2011-2018 which is classified as panel data, based on statistical values describing factor variables

Table 4.1 Statistical results describe the observed variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Social Order crimes	184	0.112	0.017	0.083	0.158
Economic and environmental crimes	184	0.178	0.222	0.007	1.187
Drug crime	184	0.105	0.056	0.002	.253
Immigration	184	0.009	0.004	0.000	.022
Income	184	0.739	0.440	0	1
Population density	184	0.603	0.490	0	1
Suburb location (outer or inner)	184	0.652	0.478	0	1

The results obtained from 180 observations with descriptive statistics such as mean, standard deviation, and min-max value show concisely the concentration, as well as the dispersion of the observed values of the data set. The standard deviation of the observed variables is not high, which shows that the data set does not contain many outlier values. The range of variation of the values of the observed variables is also spread evenly.

Table 4.2 Correlation matrix

	Social Order crimes	Immigration	Economic and environmental crimes	Drug crime	Suburb location	Population density	Income
Social Order crimes	1						
Immigration	0.962	1					
Econ. & Envi. crimes	0.880	0.841	1				
Drug crime	0.994	0.9726	0.891	1			
Suburb location	-0.006	0.038	0.022	0.010	1		
Population density	0.040	0.080	0.056	0.057	0.714	1	
Income	0.048	0.08	0.04	0.06	0.814	0.7326	1

Performing the correlation analysis between the observed variables shows that the relationship between the variables in the research model with the correlation coefficients is mostly positive, which shows that the observed variables have statistical significance in explaining the variation of the dependent variable.

Table 4.3 Pooled OLS

	Social Order Crimes	Economic and environmental crimes	Drug crime
Immigration	4.154 *(0.088)*	46.685 *(2.244)*	13.631 *(0.243)*
Income	0.001 *(0.001)*	-0.031 *(0.037)*	0.002 *(0.004)*
Population density	-0.001 *(0.001)*	0.05 *(0.028)*	-0.001 *(0.003)*
Suburb Location	-0.002 *(0.001)*	0.014 *(0.034)*	-0.004 *(0.003)*
Cons_	0.075 *(0.001)*	-0.233 *(0.026)*	-0.016 *(0.002)*
R^2	0.925	0.709	0.947
F-stats	556.55	108.82	797.18

The results of regression analysis by the OLS method show the specific relationship of the independent variables to the dependent variable through the P-value of the beta coefficient. Besides, the R^2 coefficients of the 3 models are at a high acceptance threshold, the lowest is 0.709, and the highest is 0.947.

Table 4.4 Random Effect Model

	Social Order Crimes	Economic and environmental crimes	Drug crime
Immigration	4.154 *(0.088)*	46.685 *(2.244)*	13.631 *(0.243)*
Income	0.001 *(0.001)*	-0.031 *(0.037)*	0.002 *(0.004)*
Population density	-0.001 *(0.001)*	0.05 *(0.028)*	-0.001 *(0.003)*
Suburb Location	-0.002 *(0.001)*	0.014 *(0.034)*	-0.004 *(0.003)*
Cons_	0.075 *(0.001)*	-0.233 *(0.026)*	-0.016 *(0.002)*
R^2	0.925	0.709	0.947
F stats	2266.20	435.29	3188.72

Continuing to estimate the relationship between the independent and dependent variables by the REM method, we also find the relationship between the independent variables and the dependent variable. The adjusted R2 coefficients of the 3 models are also at the acceptable threshold. The P-values show that there is a difference between the variables in the research model.

Table 4.5 Fixed Effect Model

	Social Order Crimes	Economic and environmental crimes	Drug crime
Immigration	4.154 *(0.088)*	46.685 *(2.244)*	13.631 *(0.243)*
Income	0.001 *(0.001)*	-0.031 *(0.037)*	0.002 *(0.004)*
Population density	-0.001 *(0.001)*	0.05 *(0.028)*	-0.001 *(0.003)*
Suburb Location	-0.002 *(0.001)*	0.014 *(0.034)*	-0.004 *(0.003)*
Cons_	0.075 *(0.001)*	-0.233 *(0.026)*	-0.016 *(0.002)*
R^2	0.925	0.709	0.947
F stats	540.26	107.94	763.46

Sử dụng pp tác động cố định để xem xét mối quan hệ của yêu tố không gian và thời gian lên trên biến phụ thuộc, ta thấy được các giá trị kiểm định thống kê

Table 4.6 Combined results

Variables	Social Order Crimes			Economic and environmental crimes			Drug crime		
	OLS	RE	FE	OLS	RE	FE	OLS	RE	FE
Immigration	4.154 *(0.088)*	4.154 *(0.088)*	4.154 *(0.088)*	46.685 *(2.244)*	46.685 *(2.244)*	46.685 *(2.244)*	13.631 *(0.243)*	13.631 *(0.243)*	13.631 *(0.243)*
Income	0.001 *(0.001)*	0.001 *(0.001)*	0.001 *(0.001)*	-0.031 *(0.037)*	-0.031 *(0.037)*	-0.031 *(0.037)*	0.002 *(0.004)*	0.002 *(0.004)*	0.002 *(0.004)*
Population density	-0.001 *(0.001)*	-0.001 *(0.001)*	-0.001 *(0.001)*	0.05 *(0.028)*	0.05 *(0.028)*	0.05 *(0.028)*	-0.001 *(0.003)*	-0.001 *(0.003)*	-0.001 *(0.003)*
Suburb Location	-0.002 *(0.001)*	-0.002 *(0.001)*	-0.002 *(0.001)*	0.014 *(0.034)*	0.014 *(0.034)*	0.014 *(0.034)*	-0.004 *(0.003)*	-0.004 *(0.003)*	-0.004 *(0.003)*
Cons_	0.075 *(0.001)*	0.075 *(0.001)*	0.075 *(0.001)*	-0.233 *(0.026)*	-0.233 *(0.026)*	-0.233 *(0.026)*	-0.016 *(0.002)*	-0.016 *(0.002)*	-0.016 *(0.002)*
R^2	0.925	0.925	0.925	0.709	0.709	0.709	0.947	0.947	0.947
F-stats	556.55	2266.20	540.26	108.82	435.29	107.94	797.18	3188.72	763.46

For convenience shake, all discussions regarding OLS, REM, and FEM are all referred to in this combined table.

4.2 Testing the relationship between social order crimes and the immigration variable

After determining the variables in the research model to consider the correlation between the research variables, based on the correlation coefficient matrix, we see that the independent variables have a rather strong relationship with the dependent variable. The high correlation can show that the explanatory level of the model is quite good, but it can also lead to multicollinearity. After testing the correlation of the factors, we carry out a regression of the independent variables according to the crime variable of social order (social order). The results show that the coefficient R Squared is 0.9247 and the adjusted R square coefficient 0.9243. This means that about 92.43% of the variation of the dependent variable is well explained by the independent variable in the research model. with P-value = 0.000 (< 0.05), so at 95% confidence level, it can be said that this model is suitable for research data.[3]

[3] To avoid repetition the next section in the chapter will be much briefer about the process since the process is just repeated

Testing for Heteroscedasticity of this Pool OLS model, we find that the P-value = 0.0540 > 0.05, so at 95% confidence we can conclude to reject the null hypothesis H_0 (variance does not change). So, it can be concluded that the model has Heteroscedasticity.

Checking the multicollinearity of the estimation model by the Pool OLS method, we see that the VIF values of the independent variables are too closely correlated, leading to multicollinearity occurring, affecting the interpretation of the meaning of the impact of the factors on the dependent variable, but because the model considers only one independent variable, this is not necessary.

To choose between the REM model or FEM model, we first estimate the two models in turn, then use Hausman test to determine the appropriate model.

Performing the estimation of the FEM model, we find that the measured values of the model fit are significant besides the estimated results also show that *at the 95% confidence level, immigration has a significant impact on social order crimes (proportional)*

Continuing to estimate the REM model for the research variables, we can see that the model indexes are consistent with the research data. Similar to this model, *at the 95% confidence level, immigration has a significant impact on social order crimes (proportional).*

Next, to compare the two models, we use Hausman test (with the hypothesis H_0 that the REM estimation model is suitable, H_1: FEM model is more suitable).

We see that the test value has P-Value = 0.7326 > 0.05, so at 95% confidence we accept the hypothesis H_0, which means that in this case, the REM model will be more suitable than the FEM model. So, between the two models FEM and Pool OLS, we consider choosing the appropriate model. In the test for estimating the Pool OLS model, there is no Heteroscedasticity, so we proceed with the test for Heteroscedasticity of the REM model.

Breusch and Pagan Lagrangian multiplier test for random effects

Social Order crimes [KV1, t] = Xb + u[KV1] + e [KV1, t]

Estimated results

	var	*sd = sqrt (Var)*
Social Order Crimes	*0.000*	*0.0173*
e	*0.000*	*0.005*
u	*8.29e-07*	*0.000*

Test: Var(u) =0

chibar2(01) = 0.38, Prob > chibar2 =0.2684

In this test, we see that the REM model is tested with a constant variance, so it is possible that between the REM model and the Pool OLS model, we prefer to choose the REM model. At the 95% confidence level, the immigration rate factor has a positive effect on the crime rate on social order and safety, P-value 0.001

Thus, with the selected REM model, it shows that the spatial factor will not be significantly correlated with the independent variable. Or in other words, the geography between districts in the city will not be correlated with immigration causing crime rates on social order. Population density and income of the district have no significant statistical impact on the drawn outcome

4.3 Testing the relationship between economic and environmental crimes and immigration

The same procedure was repeated for the following independent variables, this time environmental and economic crimes. Recognize that this one also has a strong correlation coefficient with immigrants. It has to be tested to make sure it is not the case of multicollinearity.

Checking for multicollinearity reveals VIF values of the independent variables are too closely correlated, leading to multicollinearity occurring, affecting the interpretation of the meaning of the effects of the factors on the dependent variable. However, since the model considers only one independent variable, this is not necessary.

Regression by Pool OLS method shows that the coefficient R Squared is 0.7074 and the system adjusted R square 0.7058, this means that about 70.58% of the variation of the dependent variable is well explained by immigration, the coefficient of the test value fits the model with P-value = 0.000 (< 0.05), so at 95% confidence level. This model is suitable for research data.

Testing the Heteroscedasticity of this Pool OLS model show P-value = 0.0047 < 0.05, so at 95% confidence we can conclude to reject the hypothesis H0 and conclude that the model has Heteroscedasticity.

Performing the estimation of the FEM model, we find that the measured values of the model fit are significant, besides the estimated results also show that at the 95% confidence level, *immigration has a significant impact on environmental and economic crime rates (proportional)*

Continuing to estimate the REM model for the research variables, we can see that the model indexes are consistent with the research data; similarly for this model, at 95% confidence level, *immigration has a significant impact on the rate of environmental and economic crime (proportional)*

By performing the Hausman test again, at 95% confidence, with P-Value = 0.000 < 0.05, hypothesis H_0 can safely be rejected. The FEM model will be more suitable than the REM model. So now we test for Heteroscedasticity of FEM model, which resulted that *the immigration rate factor has a positive effect on the environmental and economic crime rate at 95% confidence level*

Thus, with the selected FEM model, it shows that the spatial factor will be significantly correlated with the independent variable. Or in other words, the geography between districts in HCMC will be correlated with Immigration's impact on environmental and economic crime rates. Population density and income of the district did not change anything notable

4.4 Examining the relationship between drug crime and immigration

Same situation, high correlation could mean a good explanatory level of the model, but it could also mean multicollinearity.

Regression by the Pool OLS method reveals R Squared is 0.946 and the coefficient R square adjusted 0.9457, this means that about 94.57% of the variation of the dependent variable (drug crime) is well explained by immigration, the coefficient of the model fit test value with P-value = 0.000 (< 0.05), so at 95% confidence level this model is suitable for research data

Testing the of Heteroscedasticity of this Pool OLS model show P-value = 0.0002 < 0.05, this model has Heteroscedasticity at 95% confidence level.

Performing the estimation of the FEM model, we find that the measured values of the model fit are significant, besides the estimated results also show that at the 95% confidence level, *immigration has a significant impact on drug crime rate (proportional)*

Continuing to estimate the REM model for the research variables, we can see that the model indexes are consistent with the research data; similarly for this model, at 95% confidence level, *immigration has a significant positive impact on drug crime rate (proportional)*

With the hypothesis H_0 that the REM estimation model is suitable, H_1 the FEM model is more suitable, Hausman test accepts the hypothesis H_0 95% confidence level. Proceed to test for Heteroscedasticity of the REM model resulted in *immigration rate factor has a positive effect on the drug crime rate P-value 0.000 at 95% confidence level*

Thus, with the selected REM model, it shows that the spatial factor is not significantly correlated with the independent variable. Or in other words, the geography between districts in the city is not correlated with the independent variable. Additional control variables were added just like before, but they yielded no notable statistical change. This conclusion should be taken with a grain of salt, however. Because the sample size is limited (only 7 years) and the estimation method is not the most optimal. This conclusion also strongly contradicts previous studies and expectations of common sense. How different districts with different amounts of internal immigrants are not relevant to the crime rate could potentially be the result of a dubious crime recording process, which will be discussed more in the next chapter.

Chapter 5 : Conclusion and Policy recommendation

5.1 Conclusion and discussion

Contradicting previous studies, all types of crimes have been found to be significantly impacted accordingly to increasing immigration with no significant correlation to spatial factors. Although this is surprising, it is somewhat to be expected. There are several reasons why such a drastic difference is the case.

Firstly is the bias in collecting and reporting data. The predicted result is that the spatial factor would have a much more consequential impact since the immigration between districts is notably different. For example, district 1 is mostly a commercial hub with a luxurious living standard and is widely considered as a "foreigner street" which would have much lower immigration than those rural ones with a lower living standard. The bias in collecting data could be the result that the nature of crimes is not restricted to any district. What if any felons committed within the boundary of a district will be counted toward the crime rate in that area regardless of the convict's place of origin? How would the police keep a record of such a case? On top of that, if a drug addict assaults a bystander, will that be reported as one case of a drug crime or a case of social order crimes, or both? Would that lead to double counting? This led to the second point.

Secondly is the vagueness of the category of crime. It is noted briefly in section 3.2.2 that the category of crimes in Police reports are too broad and potentially overlap each other definitions. According to official national law, crimes are classified based on the severity of the crimes (CRIMINAL CODE 2015 No. 100/2015/QH13, 2015). In other words, the crimes will be categorized based ONLY on the damage they cause to society. This is completely different from how criminal data was provided in the report. It is not unreasonable to suspect the crimes statistic in the report were improvised into board types. This is extremely problematic for rigid study because the very definition of Social order crimes already has overlapping meanings with other types. Social order crimes are loosely defined as any crime that disrupts society, which means that any crime could be counted as one. For instance, a minor merchant who opened a small mobile food stall without any necessary license that occupied the sidewalk illegally and also littering could be counted toward any category but drug crimes. A more definitive and consistent definition and classification of crimes would ease the accuracy of any research.

Thirdly is the inherently different nature of the immigrants. As pointed out in chapter 2, although the previous study has proven invaluable to this finding, it is still undeniable that internal immigration is vastly different from international immigration and refugee. While some common motivation is shared, like yearning for a better life, a major difference is that the risk of deportation, which is powerful deterrence, was not present in this particular case (Stowell et al., 2009). Departing a fellow compatriot back to his/her hometown is unheard of, and there was no such law to be enforced. Therefore, it is possible that the lack of deportation risk makes the impact on crimes much more profound in this study.

5.2 Policy implication

As many previous studies have proved that the immigrant themselves are not necessarily more prone to commit crime than any other local dwellers of the city. Yet controlling immigrants is still a vital task for many developed country policymakers. One of the most interesting cases is New Zealand immigrant policies. The countries themselves were one of the very progressive sides yet very picky on who could stay. In short, only immigrants with medium to high income can only applied for residence and citizenship. The policy essentially pitches immigrants against each other as they have to put in tremendous effort to compete for a high-paying job in an already saturated and competitive labor market. Depending on the current objective, this may or may not be the right call. Recalled that the Chicago School of Thoughts has pointed out that the disruption of sudden and unnatural increase in population density has upset the location order. If that is the case, adopting such a policy is a sufficient temporary solution until a less hostile and appropriate solution is reached.

The big question is, could Sai Gon benefit from imitating New Zealand? There are both sides to the argument.

The answer to that question could be yes because the city could yield short-term benefits. Note that Ho Chi Minh City is the single most migrated city in the country, and it still is. The overwhelming wave has been noticed, and it is a major concern for the city residents. One of the clear effects (even more observable than the crime rate) is the infrastructure capacity is not nearly expanding enough to catch up. Extreme traffic jams, overcrowded hospitals, and overloaded schools are all frequently discussed subjects. From that perspective, a way direct way to limit the flow is not an awful choice.

Yet, in a way, this could backfire terribly. Immigrants are the blood and heart of the city's economy. The title "Richest city in the country" does not come easily without the sacrifice of millions who left behind their hometown to pursue betterment. To crack down on these honest people and essentially self-deprive the city from its rich sources of labor is nothing of a foolhardy action. A counterargument could be made that if the constant flow of immigrants actually worsen the general quality of life that many are looking for when coming to cities (like high paying wage, better medical care, etc.), then the pull factor of the city become weaker, making immigrants start to spread to other nearby thriving potential metropolises center that could outgrow Sai Gon, like Binh Duong. So, there is no need for government intervention that could jeopardize natural equilibrium.

Moreover, unlike New Zealand, there is a much higher level of bureaucratic incompetency due to higher-level corruption. Bribes and backdoor paperwork are common practices. The existence of this research is owed to said rampant corruption. (*Vietnam Corruption Barometer 2019: Vietnamese Citizens' Views and Experiences of Corruption*, 2019). As a result, an annual inspection of income to determine if an immigrant is qualified for permanent residence would be nigh impossible to achieve with the current system.

For those reasons, it is ill-advised for authorities to adopt such a punishing policy. It can, however, provide more incentive for immigration to spread to other provinces, as said. This can be accomplished by any by-the-

book developing policy. Improving living standards, attracting investment, and proper infrastructure of neighboring provinces are all solid pull factors that would, in theory, relieve the stress Sai Gon has to bear. Another way of approach is limiting the push factor. A large proportion of immigrants from the center area was motivated by the harsh condition of their hometown, so a more robust method is needed to minimize damage caused by natural disasters. There are a few suggestions. One feasible solution is investing in research and the study of natural hazards to proactive issues warning and preparation. Another way to approach this is to increase the funding of the military branch that responds to natural disasters. More searching helicopters with elite soldiers would go a long way to prevent the loss of human lives. A more intrusive approach mimics the massive flood control system of the Netherland; however, there are already claims that the dam could cause serious environmental damage, and building such a complex and delicate system would require the capital and technology that is beyond Vietnam's reach. In short, preventing and minimizing the harsh condition of the south will no doubt encourage people to stick with their hometown or at least return to it to make a living.

On the other hand, should economic incentives outweigh the drawback, a much less aggressive way to reduce the negative impact of a large immigration wave is to organize it better. To put it differently, greater support from the government in aiding immigrants that are looking for jobs and shelter will surely reduce the chance of them turning to petty crimes out of desperation. To do that, a more concise management system needs to be developed to record the number of immigrants accurately because there is a huge proportion of the immigrants were left uncounted this brings up the next point, better tracking of the flow. But this will not be an easy feat, and unlike New Zealand, Sai Gon is not an island in the middle of an ocean. Anyone from any part of the country could easily go into the city with numerous accessible means of transportation. Private transporting companies would have twice the loopholes they have to jump, or they can outright resolve to smuggle people in and out of the city. An attempt to register such a movement would require tremendous cooperation between transport companies and the government. How long does one have to stay to be classified as an immigrant? In the government report mentioned in chapter 2, it was determined by comparing the last known residence of a person 5 years ago to their current residence to determine whether or not that person could be classified as an internal immigrant. Obviously, this is a flawed approach, but it is unclear if a better definition was in use since there are no more reports in a similar fashion that could be found since 2014.

The most straightforward way is to expand/upgrade the city infrastructure to increase its max capacity. Although overcrowded, the density of the population is not equally distributed among districts. This is most observable in the rural and outer districts where there is plenty of unused land. Developing thinly populated districts would greatly extend the overall capacity of the city, a decent approach provided that the construction speed is able to keep up with immigration.

On a final note, it would be very beneficial to publicize known reports and statistics for the public. At pointed out in chapter 2, domestic research topics in this research are extremely rare and few between, and one with

an actual mathematic model is next to none. A reason for such desolation of intellectual interest was later learned in dismay that the “official data” of crimes and immigration were extremely outdated, lacking, poorly represented, or just straight up not available for the public. Transparency of the data would also force the department responsible for collecting data actually do their tax worth and reduce the chance of data manipulation and poorly collected samples. The political reason behind such a discreet was unknown and left room for speculation, but whatever it is, the gain of sparking interest from scholars promises a wide arrange of evaluation and research that policymakers can benefit from greatly

5.3 Limits of the study and future direction

Despite the arguably conclusive statistical results and the somewhat strong suggestion, one has to exercise caution when taking this finding into actual policymaking. The proof achieved in this research is as reliable as government statistics. Research is only as good as its data, and the data used for this research is quite incomplete, to put it lightly. Aside from the highlighted issues of overlapping definitions of crimes category, the lack of access to unprocessed raw data was definitively set back. Recalling the fact that these data were classified and not publicized, one cannot judge and evaluate how rigorous the data collecting process was as the data used were extracted from reports and not in raw statistic form. The mentioned 2014 report was the first and only detailed investigation into internal immigration. Even then, the report itself did not cover the entire country and did not provide much at the district level, which is needed by this research.

An ambitious next step would be an attempt to increase the scale of the report. In the previous finding, spatial factors were a definite impact on the provincial scale. Alternatively, revisiting this research again with a more accurate, up-to-date, and richer set of data could also be solid move. In the beginning, the research was first intended to be a part of a much bigger question which is whether or not the constant large wave of immigration could do more harm than good, and its impact on the crime rate is one of many ways to answer the question. Perhaps a change of target city could be a viable way to develop the topic, developing new cities near Sai Gon like Bind Duong also experiencing a surge in immigration. Maybe inspecting fresh cities that were just beginning to traverse the same path as Sai Gon would provide another meaningful insight? Another way to advance the topic is a separate paper dedicated to the classification of immigration based on a common pattern like motivation, the possibility of returning, etc.

But for the moment, this research will hopefully be served as a valuable reference for future scholars that want to take on the challenge of investigating internal immigration in Vietnam.

Appendix

Table A1 Official domestic immigration report, 01/4/2019

	Population (Persons)	In-migrant (Persons)	Out-migrant (Persons)	In-migration rate (‰)	Out-migration rate (‰)	Net migration rate (‰)
TOTAL						
Socio-economic region						
Northern midlands and mountains area	11.302.450	59.049	260.701	5.224	23.066	-17.841
Red River Delta	20.613.888	341.881	186.943	16.585	9.069	7.516
North Central and Central Coast area	18.410.457	90.522	544.464	4.917	29.574	-24.657
Central Highlands	5.273.547	58.773	122.320	11.145	23.195	-12.050
South East	16.609.796	1.334.092	124.220	80.320	7.479	72.841
Mekong River Delta	16.171.849	79.091	724.760	4.891	44.816	-39.925

Province/City	Population (Persons)	In-migrant (Persons)	Out-migrant (Persons)	In-migration rate (‰)	Out-migration rate (‰)	Net migration rate (‰)
Hà Nội	7.356.803	322.052	91.349	43.776	12.417	31.359
Hà Giang	756.598	3.936	18.038	5.203	23.840	-18.638
Cao Bằng	480.306	4.371	17.954	9.101	37.380	-28.278
Bắc Kạn	285.471	2.233	13.691	7.821	47.961	-40.140
Tuyên Quang	710.578	5.796	32.911	8.157	46.316	-38.159
Lào Cai	653.545	7.190	12.236	11.002	18.723	-7.720
Lai Châu	405.513	5.925	5.706	14.610	14.072	0.538
Sơn La	1.115.358	4.088	21.865	3.665	19.603	-15.938
Yên Bái	739.107	5.952	22.631	8.053	30.619	-22.567
Hoà Bình	780.707	6.340	27.290	8.121	34.956	-26.835
Thái Nguyên	1.175.292	40.704	28.909	34.633	24.597	10.036
Lạng Sơn	711.952	4.769	30.933	6.699	43.448	-36.749
Quảng Ninh	1.209.189	14.482	23.035	11.976	19.050	-7.073
Bắc Giang	1.628.350	19.974	44.976	12.266	27.621	-15.354
Phú Thọ	1.331.893	8.625	37.805	6.476	28.384	-21.908
Vĩnh Phúc	1.043.439	12.843	24.850	12.309	23.815	-11.506
Bắc Ninh	1.244.670	132.955	26.777	106.819	21.513	85.306
Hải Dương	1.732.062	21.539	40.992	12.435	23.666	-11.231
Hải Phòng	1.867.860	24.792	25.186	13.273	13.484	-0.211
Hưng Yên	1.144.328	25.911	28.563	22.643	24.961	-2.317
Thái Bình	1.718.200	14.459	60.713	8.415	35.335	-26.920
Hà Nam	778.381	12.857	26.053	16.518	33.471	-16.953
Nam Định	1.631.603	13.231	75.588	8.109	46.327	-38.218
Ninh Bình	887.353	11.546	28.625	13.011	32.259	-19.248

Thanh Hoá	3.305.666	17.505	141.000	5.295	42.654	-37.359
Nghệ An	2.994.674	14.739	105.280	4.922	35.156	-30.234
Hà Tĩnh	1.160.289	14.775	47.075	12.734	40.572	-27.838
Quảng Bình	808.422	7.497	29.672	9.274	36.704	-27.430
Quảng Trị	572.375	6.489	27.237	11.337	47.586	-36.249
Thừa Thiên Huế	1.033.688	15.818	38.333	15.303	37.084	-21.781
Đà Nẵng	1.039.380	86.666	15.550	83.383	14.960	68.422
Quảng Nam	1.370.573	11.224	52.586	8.190	38.368	-30.178
Quảng Ngãi	1.132.629	7.356	54.318	6.495	47.958	-41.463
Bình Định	1.378.072	9.610	57.508	6.973	41.731	-34.758
Phú Yên	804.799	4.578	29.978	5.688	37.249	-31.561
Khánh Hoà	1.138.701	11.055	22.081	9.708	19.391	-9.683
Ninh Thuận	538.291	3.465	20.654	6.436	38.370	-31.934
Bình Thuận	1.132.898	8.014	31.459	7.074	27.769	-20.695
Kon Tum	480.066	6.495	9.940	13.529	20.706	-7.177
Gia Lai	1.357.366	12.811	29.003	9.438	21.367	-11.929
Đắk Lắk	1.696.977	16.796	52.330	9.898	30.837	-20.940
Đắk Nông	554.472	17.989	15.546	32.443	28.037	4.406
Lâm Đồng	1.184.665	22.387	33.206	18.897	28.030	-9.133
Bình Phước	907.341	22.511	30.381	24.810	33.484	-8.674
Tây Ninh	1.096.110	16.015	24.393	14.610	22.254	-7.643
Bình Dương	2.252.947	489.241	37.800	217.156	16.778	200.378
Đồng Nai	2.850.593	189.260	65.289	66.393	22.904	43.490
Bà Rịa - Vũng Tàu	1.060.725	40.484	30.727	38.166	28.968	9.199
Hồ Chí Minh City	8.442.080	772.009	131.059	91.448	15.525	75.923
Long An	1.582.898	75.552	47.824	47.730	30.213	17.517
Tiền Giang	1.654.416	22.599	63.640	13.660	38.467	-24.807
Bến Tre	1.209.429	15.402	58.229	12.735	48.146	-35.411
Trà Vinh	936.229	8.037	49.599	8.584	52.978	-44.394
Vĩnh Long	960.249	15.640	52.448	16.287	54.620	-38.332
Đồng Tháp	1.501.059	11.823	96.016	7.876	63.965	-56.089
An Giang	1.781.628	10.376	138.780	5.824	77.895	-72.071
Kiên Giang	1.609.593	22.494	91.203	13.975	56.662	-42.687
Cần Thơ	1.163.447	52.268	41.843	44.926	35.965	8.961
Hậu Giang	686.210	8.032	50.050	11.704	72.937	-61.232
Sóc Trăng	1.119.580	6.494	90.418	5.800	80.761	-74.961
Bạc Liêu	853.389	5.975	50.513	7.002	59.191	-52.190
Cà Mau	1.113.722	7.092	76.888	6.368	69.037	-62.669

Table A2 DATA

Order	Immig	Econ	Drug	year	District	NT	DS	TN
0.1468	0.0170	0.7851	0.2259	2,011	1	1	1	1
0.1470	0.0172	0.8014	0.2291	2,012	1	1	1	1
0.1489	0.0175	0.8284	0.2321	2,013	1	1	1	1
0.1494	0.0189	0.8963	0.2332	2,014	1	1	1	1
0.1515	0.0201	0.9155	0.2361	2,015	1	1	1	1
0.1524	0.0219	0.9188	0.2393	2,016	1	1	1	1
0.1582	0.0220	1.1869	0.2520	2,017	1	1	1	1
0.0836	0.0004	0.0075	0.0025	2,018	1	1	1	1
0.1309	0.0118	0.4334	0.1638	2,011	2	1	0	1
0.0953	0.0055	0.0319	0.0577	2,012	2	1	0	1
0.1179	0.0103	0.1264	0.1222	2,013	2	1	0	1
0.1289	0.0115	0.2972	0.1473	2,014	2	1	0	1
0.1145	0.0096	0.0839	0.1041	2,015	2	1	0	1
0.0909	0.0040	0.0218	0.0409	2,016	2	1	0	1
0.1300	0.0115	0.3430	0.1553	2,017	2	1	0	1
0.1019	0.0081	0.0463	0.0722	2,018	2	1	0	1
0.1234	0.0110	0.1907	0.1334	2,011	3	1	0	1
0.1404	0.0155	0.6670	0.2049	2,012	3	1	1	1
0.0895	0.0025	0.0181	0.0293	2,013	3	1	1	1
0.1176	0.0103	0.1221	0.1217	2,014	3	1	1	1
0.0994	0.0077	0.0427	0.0665	2,015	3	1	1	1
0.1106	0.0093	0.0699	0.0995	2,016	3	1	1	1
0.1272	0.0112	0.2781	0.1422	2,017	3	1	1	1
0.1281	0.0113	0.2816	0.1458	2,018	3	1	1	1
0.0889	0.0022	0.0164	0.0245	2,011	4	1	1	1
0.1280	0.0113	0.2812	0.1443	2,012	4	1	1	1
0.1145	0.0097	0.0859	0.1064	2,013	4	1	1	1
0.1365	0.0144	0.5824	0.1902	2,014	4	1	1	1
0.1201	0.0107	0.1463	0.1291	2,015	4	1	1	1
0.1027	0.0084	0.0477	0.0759	2,016	4	1	1	1
0.0931	0.0042	0.0281	0.0508	2,017	4	1	1	1
0.0947	0.0053	0.0313	0.0554	2,018	4	1	1	1
0.0953	0.0055	0.0325	0.0581	2,011	5	1	1	1
0.0999	0.0079	0.0428	0.0671	2,012	5	1	1	1
0.0881	0.0022	0.0141	0.0158	2,013	5	1	1	1
0.1377	0.0147	0.5997	0.1986	2,014	5	1	1	1
0.0901	0.0030	0.0196	0.0356	2,015	5	1	1	1
0.1082	0.0091	0.0629	0.0950	2,016		1	1	1
0.0947	0.0054	0.0317	0.0570	2,017	5	1	1	1
0.1372	0.0146	0.5992	0.1965	2,018	5	1	1	1
0.1439	0.0158	0.6959	0.2169	2,011	6	1	1	1
0.0914	0.0040	0.0247	0.0449	2,012	6	1	1	1
0.1032	0.0085	0.0488	0.0783	2,013	6	1	1	1
0.1256	0.0112	0.2313	0.1404	2,014	6	1	1	1
0.0990	0.0076	0.0424	0.0652	2,015	6	1	1	1
0.1042	0.0088	0.0546	0.0848	2,016	6	1	1	1
0.0971	0.0066	0.0363	0.0606	2,017	6	1	1	1
0.1145	0.0096	0.0854	0.1048	2,018	6	1	1	1
0.1026	0.0082	0.0470	0.0736	2,011	7	1	0	1
0.0889	0.0024	0.0166	0.0253	2,012	7	1	0	1
0.0962	0.0059	0.0359	0.0602	2,013	7	1	0	1

0.1204	0.0108	0.1641	0.1316	2,014	7	1	0	1
0.0868	0.0021	0.0137	0.0126	2,015	7	1	0	1
0.1034	0.0086	0.0491	0.0804	2,016	7	1	0	1
0.0983	0.0066	0.0381	0.0615	2,017	7	1	0	1
0.1030	0.0085	0.0482	0.0776	2,018	7	1	0	1
0.1214	0.0110	0.1699	0.1321	2,011	8	1	1	1
0.0983	0.0072	0.0390	0.0621	2,012	8	1	1	1
0.1035	0.0086	0.0498	0.0815	2,013	8	1	1	1
0.0906	0.0035	0.0204	0.0360	2,014	8	1	1	1
0.1005	0.0079	0.0428	0.0678	2,015	8	1	1	1
0.1318	0.0122	0.4438	0.1704	2,016	8	1	1	1
0.0969	0.0065	0.0361	0.0605	2,017	8	1	1	1
0.1241	0.0111	0.2099	0.1372	2,018	8	1	1	1
0.1058	0.0088	0.0548	0.0857	2,011	9	0	0	0
0.0830	0.0002	0.0068	0.0020	2,012	9	0	0	0
0.1016	0.0081	0.0451	0.0722	2,013	9	0	0	0
0.0840	0.0010	0.0094	0.0040	2,014	9	0	0	0
0.1168	0.0101	0.1147	0.1179	2,015	9	0	0	0
0.1104	0.0092	0.0679	0.0971	2,016	9	0	0	0
0.1040	0.0087	0.0516	0.0821	2,017	9	0	0	0
0.1457	0.0169	0.7041	0.2197	2,018	9	0	0	0
0.1165	0.0101	0.1045	0.1152	2,011	10	1	1	1
0.0889	0.0022	0.0148	0.0230	2,012	10	1	1	1
0.1291	0.0115	0.3038	0.1498	2,013	10	1	1	1
0.1437	0.0157	0.6872	0.2089	2,014	10	1	1	1
0.1067	0.0088	0.0563	0.0885	2,015	10	1	1	1
0.0914	0.0041	0.0247	0.0469	2,016	10	1	1	1
0.1075	0.0089	0.0566	0.0929	2,017	10	1	1	1
0.1205	0.0109	0.1662	0.1317	2,018	10	1	1	1
0.1035	0.0086	0.0496	0.0807	2,011	11	1	1	1
0.1283	0.0113	0.2949	0.1470	2,012	11	1	1	1
0.0898	0.0030	0.0191	0.0351	2,013	11	1	1	1
0.1163	0.0101	0.1011	0.1142	2,014	11	1	1	1
0.0958	0.0059	0.0359	0.0595	2,015	11	1	1	1
0.1293	0.0115	0.3050	0.1509	2,016	11	1	1	1
0.1315	0.0120	0.4404	0.1693	2,017	11	1	1	1
0.1305	0.0115	0.3685	0.1584	2,018	11	1	1	1
0.1328	0.0122	0.4673	0.1713	2,011	12	0	0	1
0.1163	0.0099	0.0994	0.1085	2,012	12	0	0	1
0.1309	0.0117	0.4068	0.1633	2,013	12	0	0	1
0.1007	0.0080	0.0430	0.0690	2,014	12	0	0	1
0.1293	0.0115	0.3048	0.1506	2,015	12	0	0	1
0.1345	0.0128	0.5043	0.1789	2,016	12	0	0	1
0.1170	0.0102	0.1199	0.1200	2,017	12	0	0	1
0.1185	0.0104	0.1354	0.1245	2,018	12	0	0	1
0.1260	0.0112	0.2447	0.1411	2,011	Bình Tân	0	1	1
0.1265	0.0112	0.2491	0.1415	2,012	Bình Tân	0	1	1
0.0941	0.0053	0.0304	0.0537	2,013	Bình Tân	0	1	1
0.1080	0.0091	0.0594	0.0942	2,014	Bình Tân	0	1	1
0.1209	0.0109	0.1690	0.1317	2,015	Bình Tân	0	1	1
0.1266	0.0112	0.2661	0.1416	2,016	Bình Tân	0	1	1
0.0938	0.0053	0.0294	0.0531	2,017	Bình Tân	0	1	1
0.0969	0.0066	0.0362	0.0605	2,018	Bình Tân	0	1	1

0.1121	0.0094	0.0792	0.1031	2,011	Bình Thạnh	1	1	1
0.1185	0.0104	0.1406	0.1263	2,012	Bình Thạnh	1	1	1
0.0930	0.0042	0.0275	0.0506	2,013	Bình Thạnh	1	1	1
0.1075	0.0091	0.0576	0.0929	2,014	Bình Thạnh	1	1	1
0.1236	0.0110	0.1920	0.1343	2,015	Bình Thạnh	1	1	1
0.1037	0.0086	0.0500	0.0820	2,016	Bình Thạnh	1	1	1
0.1112	0.0093	0.0765	0.1019	2,017	Bình Thạnh	1	1	1
0.1152	0.0099	0.0935	0.1074	2,018	Bình Thạnh	1	1	1
0.1013	0.0081	0.0445	0.0706	2,011	Gò Vấp	1	1	1
0.1276	0.0112	0.2802	0.1428	2,012	Gò Vấp	1	1	1
0.0917	0.0042	0.0265	0.0473	2,013	Gò Vấp	1	1	1
0.1170	0.0102	0.1198	0.1182	2,014	Gò Vấp	1	1	1
0.1111	0.0093	0.0716	0.1019	2,015	Gò Vấp	1	1	1
0.0842	0.0014	0.0098	0.0040	2,016	Gò Vấp	1	1	1
0.1183	0.0103	0.1298	0.1228	2,017	Gò Vấp	1	1	1
0.1141	0.0096	0.0807	0.1040	2,018	Gò Vấp	1	1	1
0.0927	0.0042	0.0267	0.0489	2,011	Phú Nhuận	1	1	1
0.1090	0.0091	0.0642	0.0965	2,012	Phú Nhuận	1	1	1
0.1068	0.0089	0.0564	0.0902	2,013	Phú Nhuận	1	1	1
0.1240	0.0110	0.2046	0.1357	2,014	Phú Nhuận	1	1	1
0.1041	0.0088	0.0535	0.0846	2,015	Phú Nhuận	1	1	1
0.1080	0.0091	0.0597	0.0945	2,016	Phú Nhuận	1	1	1
0.0955	0.0057	0.0332	0.0582	2,017	Phú Nhuận	1	1	1
0.1100	0.0092	0.0659	0.0969	2,018	Phú Nhuận	1	1	1
0.1104	0.0092	0.0686	0.0979	2,011	Tân Bình	1	1	1
0.0933	0.0053	0.0281	0.0523	2,012	Tân Bình	1	1	1
0.0838	0.0009	0.0093	0.0034	2,013	Tân Bình	1	1	1
0.0898	0.0025	0.0186	0.0300	2,014	Tân Bình	1	1	1
0.1114	0.0093	0.0766	0.1019	2,015	Tân Bình	1	1	1
0.1236	0.0110	0.2043	0.1353	2,016	Tân Bình	1	1	1
0.1280	0.0112	0.2803	0.1429	2,017	Tân Bình	1	1	1
0.1171	0.0103	0.1211	0.1202	2,018	Tân Bình	1	1	1
0.1281	0.0113	0.2852	0.1463	2,011	Tân Phú	1	1	1
0.1096	0.0092	0.0652	0.0967	2,012	Tân Phú	1	1	1
0.1062	0.0088	0.0555	0.0859	2,013	Tân Phú	1	1	1
0.1188	0.0104	0.1414	0.1264	2,014	Tân Phú	1	1	1
0.1106	0.0093	0.0695	0.0982	2,015	Tân Phú	1	1	1
0.1153	0.0099	0.0940	0.1080	2,016	Tân Phú	1	1	1
0.1351	0.0143	0.5279	0.1835	2,017	Tân Phú	1	1	1
0.1013	0.0080	0.0433	0.0694	2,018	Tân Phú	1	1	1
0.1034	0.0085	0.0491	0.0799	2,011	Bình Chánh	0	0	0
0.1297	0.0115	0.3215	0.1511	2,012	Bình Chánh	0	0	0
0.0874	0.0021	0.0141	0.0138	2,013	Bình Chánh	0	0	0
0.1100	0.0092	0.0679	0.0970	2,014	Bình Chánh	0	0	0
0.1166	0.0101	0.1117	0.1171	2,015	Bình Chánh	0	0	0
0.1345	0.0136	0.5220	0.1804	2,016	Bình Chánh	0	0	0
0.1067	0.0088	0.0557	0.0862	2,017	Bình Chánh	0	0	0
0.0990	0.0073	0.0418	0.0650	2,018	Bình Chánh	0	0	0
0.0904	0.0032	0.0202	0.0358	2,011	Cần Giờ	0	0	0
0.1163	0.0100	0.1005	0.1122	2,012	Cần Giờ	0	0	0
0.1465	0.0169	0.7379	0.2208	2,013	Cần Giờ	0	0	0
0.1163	0.0101	0.1024	0.1143	2,014	Cần Giờ	0	0	0
0.1121	0.0094	0.0789	0.1022	2,015	Cần Giờ	0	0	0

0.1308	0.0116	0.3829	0.1608	2,016	Cần Giờ	0	0	0
0.1308	0.0115	0.3696	0.1597	2,017	Cần Giờ	0	0	0
0.1240	0.0111	0.2060	0.1363	2,018	Cần Giờ	0	0	0
0.1027	0.0083	0.0472	0.0755	2,011	Cần Giờ	0	0	0
0.1204	0.0108	0.1581	0.1312	2,012	Cần Giờ	0	0	0
0.0868	0.0019	0.0137	0.0110	2,013	Cần Giờ	0	0	0
0.1195	0.0106	0.1459	0.1291	2,014	Cần Giờ	0	0	0
0.1214	0.0110	0.1723	0.1324	2,015	Cần Giờ	0	0	0
0.1303	0.0115	0.3662	0.1574	2,016	Cần Giờ	0	0	0
0.0930	0.0042	0.0272	0.0490	2,017	Cần Giờ	0	0	0
0.1310	0.0119	0.4337	0.1686	2,018	Cần Giờ	0	0	0
0.1165	0.0101	0.1054	0.1170	2,011	Hóc Môn	0	0	0
0.1041	0.0087	0.0530	0.0844	2,012	Hóc Môn	0	0	0
0.1330	0.0122	0.4693	0.1733	2,013	Hóc Môn	0	0	0
0.0846	0.0014	0.0099	0.0058	2,014	Hóc Môn	0	0	0
0.1300	0.0115	0.3403	0.1536	2,015	Hóc Môn	0	0	0
0.1301	0.0115	0.3558	0.1571	2,016	Hóc Môn	0	0	0
0.1168	0.0102	0.1178	0.1180	2,017	Hóc Môn	0	0	0
0.0895	0.0024	0.0171	0.0253	2,018	Hóc Môn	0	0	0
0.1146	0.0098	0.0912	0.1069	2,011	Nhà Bè	0	0	0
0.0950	0.0054	0.0318	0.0576	2,012	Nhà Bè	0	0	0
0.1032	0.0085	0.0486	0.0783	2,013	Nhà Bè	0	0	0
0.1333	0.0123	0.4825	0.1775	2,014	Nhà Bè	0	0	0
0.0917	0.0041	0.0258	0.0473	2,015	Nhà Bè	0	0	0
0.0867	0.0018	0.0126	0.0063	2,016	Nhà Bè	0	0	0
0.0985	0.0072	0.0411	0.0622	2,017	Nhà Bè	0	0	0
0.0867	0.0019	0.0135	0.0068	2,018	Nhà Bè	0	0	0

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