

Irvine Laboratory for the Study of Space and Crime

*Irvine at 50:
A Tale of Continuity and Change
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Presented by the Irvine Laboratory for the Study of Space and Crime (ILSSC)

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About the Irvine Lab for the Study of Space and Crime (ILSSC)



The Irvine Laboratory for the Study of Space and Crime (ILSSC) in the Department of Criminology, Law & Society at the University of California, Irvine is dedicated to researching the social ecology of crime at all levels of analysis including street segments, blocks, neighborhoods, cities, counties, and metropolitan areas. Together with our collaborators and community partners, our team seeks to generate high quality scientific research on the space-crime nexus, and to foster intellectual exchange among faculty, graduate students, and undergraduate students at the University of California, Irvine, as well as members of the larger community. The team studies: 1) Foundational issues, including the dynamics of urban crime, the micro-environment of crime, and the role of local institutional resources for fighting crime; 2) Enduring challenges, including inequality, concentrated poverty and concentrated affluence, urban processes such as economic redevelopment and gentrification, and trends in immigration and other demographic population shifts; and, 3)

Contemporary challenges, including the housing crisis and foreclosures, the spatial clustering of multiple social problems, and the continuous cycling of offenders in and out of prison and on and off of supervision. The ILSSC is a subsidiary of the Metropolitan Futures Initiative (MFI).

Acknowledgements

We thank previous Irvine Police Department Chief David Maggard for inspiring this Report.

We thank retiring Irvine Police Department Chief Mike Hamel for his comments on an earlier draft.



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Charis E. Kubrin Charis E. Kubrin is co-director of the Irvine Lab for the Study of Space and Crime (ILSSC) and Professor of Criminology, Law and Society and (by courtesy) Sociology at the University of California, Irvine. Her research focuses on neighborhood correlates of crime, with an emphasis on race and violent crime. Recent work in this area examines the immigration-crime nexus across neighborhoods and cities, as well as assesses the impact of criminal justice reform on crime rates. Professor Kubrin has received several national awards including the Ruth Shonle Cavan Young Scholar Award from the American Society of Criminology (for outstanding scholarly contributions to the discipline of criminology); the Coramae Richey Mann Award from the Division on People of Color and Crime, the American Society of Criminology (for outstanding contributions of scholarship on race/ethnicity, crime, and justice); and the W.E.B. DuBois Award from the Western Society of Criminology (for significant contributions to racial and ethnic issues in the field of criminology). Most recently, she received the Paul Tappan Award from the Western Society of Criminology (for outstanding contributions to the field of criminology). In 2019, she was named a Fellow of the American Society of Criminology



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Report Highlights

- Irvine's crime level is so low that for 15 straight years it has been named America's safest city of its size, based on FBI Uniform Crime Reporting statistics from 18,000 jurisdictions (<https://www.irvinestandard.com/2020/irvine-residents-live-in-americas-safest-city/>).
- By the 2010s, Irvine's violent crime rate was one half to one third the rate of the 1980s and 1990s, and one fifth the rate of the late 1970s
- Property crime declined in Irvine during the 1990s and 2000s, and in the 2010s is about one half to one third the rate of the 1990s and 1980s
- Property crime in Irvine began declining in 1995 and by the late 2000s was just 45% that of an average U.S. city
- Violent crime in Irvine has always remained less than 40% that of the average U.S. city; by the early 1990s it was just 20%, and since the mid-2000s is just 15% that of an average city
- Although the size of the Irvine police force has grown, the officers per capita has steadily declined since 1988

Irvine's demographics, relevant for understanding crime rates. Compared to the average city in the U.S.:

- Irvine has over twice as many highly educated residents
- Average income of Irvine residents is 50%-80% higher
- Average home values in Irvine are currently 250% higher
- Percent Asian in Irvine is 700% larger
- Racial heterogeneity in Irvine is 40%-50% greater
- Since 1990 Irvine has had about 200% more immigrants
- Irvine currently has over 50% more apartments
- Irvine's population is currently 270% larger
- Irvine now has nearly 33% more population density
- Irvine has about 5%-20% more children
- Irvine's teenage school dropout rate is 175%-250% less

Crime levels after taking into account city demographics:

- Since 1990, Irvine has had much less violent crime than is predicted given the city's demographic profile, with 43% less violent crime in 1990 and currently 68% less
- Since 2000, Irvine has had much less property crime than predicted: from 34% less in 2000 to 47% less currently

Crime in Irvine's Neighborhoods:

- Largest increases in crime occurred in Irvine neighborhoods with: more aging housing, increasing percent aged 16-29 and percent drop out teens
- Largest decreases in crime occurred in Irvine neighborhoods with: increasing immigrants, percent Asian, population density, and retail employees

What might explain Irvine's lower crime?

- Is it cul-de-sacs? No, Irvine only has slightly more than the average city in the region
- Is it well-maintained apartment complexes? No evidence to support this, as although Irvine has a relatively high concentration of apartment units, it still has less crime
- Is it well-maintained commercial complexes? No evidence to support this
- Although Irvine has high racial/ethnic mixing, it still has less crime; in fact, racially mixed neighborhoods in Irvine have less crime than those in the rest of the region

Chapter 1

Introduction

The city of Irvine has experienced significant change over its 50-year history, and yet one constant is that crime has remained at a low level, and, if anything, has been declining in the most recent decade. Why is that? In this report, we explore some of the possible factors that may help account for this phenomenon. Foreshadowing a key conclusion, Irvine contains some characteristics that criminologists typically identify in cities with higher crime rates. These include features such as population growth, racial and ethnic diversity, a relatively high concentration of rental housing units, and the presence of a large industrial area. Nonetheless, the city has maintained a relatively low level of crime, so low in fact that for 15 straight years, Irvine has been named America's safest city of its size, based on FBI Uniform Crime Reporting statistics from 18,000 jurisdictions (<https://www.irvinestandard.com/2020/irvine-residents-live-in-americas-safest-city/>).

In the report that follows, starting with this Chapter, we provide a brief history of the city of Irvine, including a discussion of the Irvine Police Department. In Chapter 2 we describe the pattern of demographic changes that have occurred in the city over its history, as well as changes in crime levels in Irvine during this time period. Chapter 3 compares demographics and crime trends in Irvine to those in other U.S. cities, focusing on cities similar to Irvine. This chapter answers key questions including: How does Irvine's crime levels compare to expectations? What features of the city might explain Irvine's relatively lower crime levels? In Chapter 4 we zero in on crime in Irvine neighborhoods, examining where crime clusters within the city and identifying those neighborhoods with the highest crime rates. We also consider which Irvine neighborhoods have experienced the greatest changes in crime levels over time. Finally, Chapter 5 concludes the report by looking ahead to consider Irvine's future.

A Brief History of Irvine

The city of Irvine developed from the Irvine Ranch, a large plot of land of about 100,000 acres initially owned by James Irvine, later the James Irvine Foundation, and eventually divested to the Irvine Company. With the rapid growth of Orange County post-World War II as a suburb of Los Angeles, there was gradually greater impetus for the Irvine Company to consider developing the land. This occurred because the encroaching development of nearby cities was raising the "best use" value of the land, increasing property taxes that the Irvine Company paid on the land. As a consequence, the agricultural activity on the land was no longer economically viable. The Irvine Company eventually began planning for development that would slowly replace the agricultural activity.

An historical event was the donation of 1,000 acres to the University of California in the southern portion of the ranch. This followed a search begun in 1957 by architect and planner William Pereira to locate a site of a new University of California campus in Orange County or east Los Angeles County (Brower 1994). Early on, UC Irvine was essentially a commuter school, with very few students residing nearby when the first classes began in 1965.

Fast forward 50 years: now a large proportion of students live on campus and in rentals in the area surrounding the university.

Rather than selling the land to allow developers to develop it as they wished—a common practice in the northern part of Orange County up to that point—the Irvine Company instead maintained the land under their own control and created a comprehensive development plan for the ranch, which allowed them to retain control over how the land was developed. This coincided with a movement in the architectural field of what are termed "New communities," or developments that tend to be larger than 2500 acres and have a comprehensive and mixed-use design (Forsyth 2016). The first master plan for Irvine was prepared by William Pereira in 1960, and then revised over time (Hess 2014).

One important feature of Irvine's development plan was the concept of architectural villages, which attempt to create a sense of place (Forsyth and Crewe 2009). This led to the idea of creating a central focus to each village, which generally contained a community retail center, as well as park area, a high school, and even greenbelts in some villages leading to this center. We highlight that these are village centers, and not downtowns, and therefore they are of a smaller scale than in more urbanized cities.



Thus, one feature of Irvine is the presence of a large number of walking and biking trails. Another key feature—given the focus on self-contained villages—is the large proportion of cul-de-sacs in the street patterns of residential areas. This occurred because of the strategy of using superblocks for the main thoroughfares that gave the planners more ability to deviate from the conventional suburban grid and create more mixing of open space and various housing types (Hess 2014).

A notable strategy by the Irvine Company was to maintain ownership—as well as management—of the land that was developed into retail and commercial districts, as well as land that was developed into apartment complexes. By doing so, the Irvine Company remained active in the community (rather than simply selling the land and leaving) long playing an important management role. For retail, this role has included choosing the mix of retail establishments in locations, identifying a plan to undergo routine maintenance and periodic freshening up of buildings, and creating an active security force that patrols these locations. Given that commercial districts are often the locations of more frequent crime, the management of such locations may be particularly important. And after building a larger proportion of single-family housing units in the earliest decades of the city's existence, the Irvine Company has been active in building and managing apartment complexes in more recent decades. This is of particular interest given that criminologists also document that locations with more rental units often have more crime.

An important feature of Irvine is that the south-western portion of the ranch was developed into a very large business district (the Irvine Business Center). This area is adjacent to the Orange County Airport, and has become one of the largest job centers in the southern California region (see the Report from the Metropolitan Futures Initiative titled *Irvine at 50: Not Just a Planned Suburb, but a Job Center*). The presence of jobs is, of course, an amenity for Irvine residents, as this can reduce commute distances. A feature of the Irvine Business District is the high proportion of white-collar jobs located in the high rise buildings that are part of the district. At the same time, commercial districts—even those not directly catering to customers—can have higher levels of crime.

Irvine's business district generates considerable tax revenue for the city. Indeed, the potential for high tax revenues was the primary impetus for the incorporation of the city in late 1971, as there was considerable concern that adjacent cities were going to annex portions of the business district (and its corresponding tax base). In fact, attempts had already been undertaken by nearby cities to annex portions of the business district. For this reason, in November 1971, citizens of the area voted 2 to 1 to incorporate as a city. And on December 28, 1971, Irvine officially became a city in the state of California.

A Brief History of the Irvine Police Department

After Irvine became incorporated, the Orange County Sheriff's Department began providing police services to the city. Irvine contracted with the police department of the city of Costa Mesa in September of 1972 to provide policing services until the middle of 1975. On July 1, 1975, Irvine formed its own Police Department, under the command of Chief of Police Leo E. Peart. The department began with 41 sworn police officers and 10 non-sworn employees. Operating from a portable trailer on Verano Place, adjacent to what is now Campus Plaza, the new Department responded to over 64,000 calls for service in its first year among the nearly 40,000 residents in the city. The Department's 24 vehicles were distinguishable with a white background and green-and-blue racing stripes.¹

Over time, the Irvine Police Department enhanced its capability. It added a K9 unit in 1981. To address traffic issues, it added a motorcycle enforcement unit that year as well. The Department added a new emergency response vehicle to the fleet when the city hosted the swimming portion of the pentathlon at Heritage Park Aquatics Center for the 1984 Olympic Games. In the late 1980s, the Department moved into their permanent facility at the (then) newly built City Hall Civic Center, located at the corner of Harvard Avenue and Alton Parkway.

In the early 1990s, the Department adopted geographic-based policing, in which the strategy is to bring officers into closer contact with residents and businesses. This was accomplished by dividing the city into three geographic areas: 1) University (in the southern portion of the city); 2) Crossroads (the central portion); 3) Portola (the northern portion), and then assigning police to patrol a particular area. Around this time (1993), Irvine was first

recognized as the "Safest City in America" by the FBI, and has remained among the 10 safest cities in the country since then.

In the 2000s, the Department installed video cameras in all patrol vehicles, which allow them to record various interactions. The digital recording devices automatically activate whenever officers drive with lights and siren or when involved in citizen contact. The video data is downloaded to electronic storage locations, and then used for court purposes. In 2004, the Department began patrolling the area of the Orange County Great Park, an area which previously was the location of the since shuttered U.S. El Toro Marine Corp. air base, and now continues to be developed into a park, several athletic locations and fields, as well as residential and commercial areas. A crucial position added by the Department in 2007 was a "Youth Liaison Officer" who assists the Special Investigations Unit that identifies and works with at-risk teens in the community. This Officer works in partnership with various stakeholders in the community, including Irvine School Resource Officers, schools and school districts, homeowner associations, apartment and property managers, and other members of the community. Their goal is to keep at-risk youth from forming gangs or engaging in serious delinquency. This brief history, of both Irvine and its police department, offers important background and context for the analysis that follows.

¹ Information for this section primarily comes from the Irvine Police Department website: <https://www.cityofirvine.org/irvine-police-department/department-history>.

Chapter 2

Changing Crime and Changing Demographics

In this Chapter we describe the pattern of demographic changes that have occurred in the city of Irvine over its history, as well as changes in crime levels during this time period. We begin by showing changes in violent and property crime over the history of the city. Although Irvine was incorporated in 1971, the earliest year for which crime data are available is 1975. We therefore plot levels of crime since that time point expressed as crime rates per 10,000 population.²

Figure 2.1 shows trends in violent crime rates from 1975 to 2019, the most recent year for which crime data are available (data for 2020 are not publicly available). It also compares Irvine's violent crime rate to the average violent crime rate of all cities in the U.S. with a population greater than 25,000. The green line in this figure plots the violent crime rate for Irvine, and the blue line plots the average violent crime rate for other U.S. cities. As the Figure reveals, after having a more modest violent crime rate in the first two years (1975-76), Irvine's violent crime rate was much higher in 1977-78. But since then the violent crime rate has generally shown a long, steady decline. From 1979 to 2001, the violent crime rate remained quite low (with only a couple of small spikes in 1989 and 1996). And since 1996, violent crime in Irvine has fallen to particularly low levels. In the 2010s, the violent crime rate of 50 incidents per 10,000 population is one half to one third the rate of the 1980s and 1990s, and one fifth the rate of the late 1970s.

² The data in this section come from the FBI's Uniform Crime Reporting (UCR) program data, which provides crime data for all cities that reported their information to the FBI.

Figure 2.1. Violent crime rates: Irvine and average U.S. cities

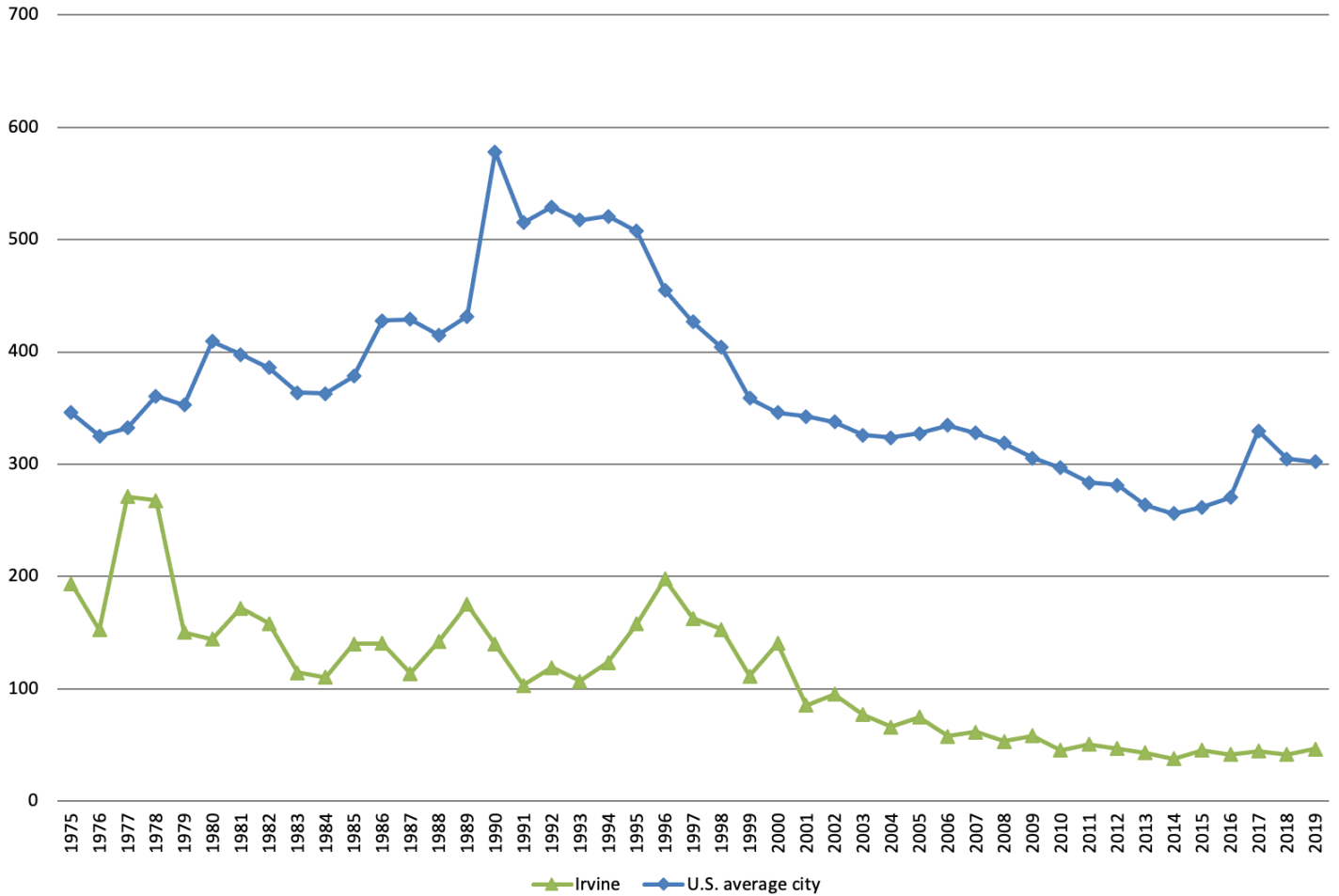


Figure 2.1

Figure 2.2. Property crime rates: Irvine and average U.S. cities

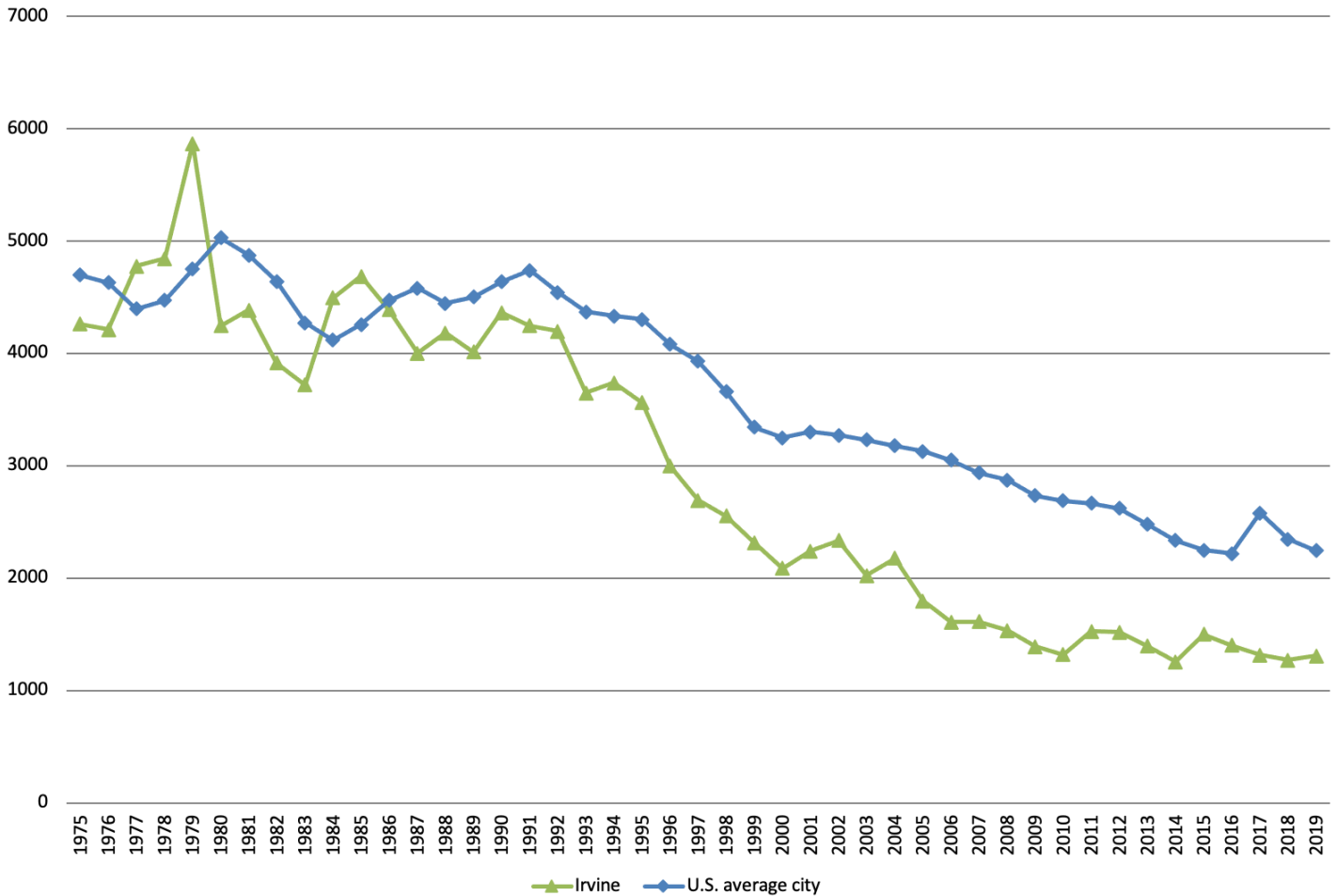


Figure 2.2

Figure 2.2 shows a similar set of plots for property crime in Irvine (green line) and the average U.S. city with a population greater than 25,000 (blue line). The property crime rate has shown an even more consistent decline over this time period. Although property crime did have a small spike in the late 1970s (just as violent crime did), as well as in 1985, since that time property crime has shown a long, steady decline. Property crime declined quite consistently during both the 1990s and 2000s. Property crime in the 2010s is about one half to one third the rate of the 1990s and 1980s. In sum, the amount of crime in Irvine—both violent and property—has dropped precipitously during the last 45 years.

From these graphs it appears that Irvine has less crime than the average city. So how much less crime does Irvine have? To answer this question, we adjusted Irvine's violent and property crime rates in order to compare them to rates in all U.S. cities with at least 25,000 population. For these adjusted crime rates, a city with a crime rate that is equal to the average city in the U.S. would have a value of 100. A city with a value of 150, for example, would have 50% more crime compared to an average city, whereas a city with a value of 60, for example, would have only 60% as much crime as an average city.

Figure 2.3 shows how Irvine's property and violent crime rates have compared to the average city in the U.S. over the time period. The blue line represents the adjusted property crime, and reveals that Irvine almost always has had a property crime rate that is less than the average city in the country. With the exception of 1979—when Irvine had a property crime rate roughly the same as the average city—property crime in Irvine has been lower. In the first two years (1975-76), Irvine had only 80% as much property crime as the average U.S. city. This means that for every 10 crimes in an average city, Irvine had just 8. Up until 1986, Irvine's property crime rate remained between only 75% and 90% of the average city. From 1987 to 1995, the city's property crime rate was just 80% as much as the average city, and then from that point on property crime showed a long steady decline. By the late 2000s, Irvine's property crime was just 45% that of an average U.S. city. In the 2010s, Irvine's relative property crime has crept up. Recall that in the prior figure we showed that property crime has, in fact, held steady in the 2010s. However, since property crime has generally been falling in other U.S. cities, by the latter part of the decade, Irvine had property crime about 60% that of an average city.

Irvine's violent crime rate is even more impressive over this time period, and is a key reason the city has earned the designation of America's safest city on several occasions. With the exception of a small spike in the late 1970s in which violent crime was about 60-70% that of the average city (so still notably lower), violent crime has always remained less than 40% that of the average U.S. city. In the early 1990s, Irvine's violent crime rate was just 20% that of the average city so for every violent crime incident in Irvine, there were five such incidents in the average U.S. city. And since the mid-2000s, the relative violent crime rate has fallen even further and is now just 15% that of an average city.

Figure 2.3. Adjusted property and violent crime (Average city = 100)

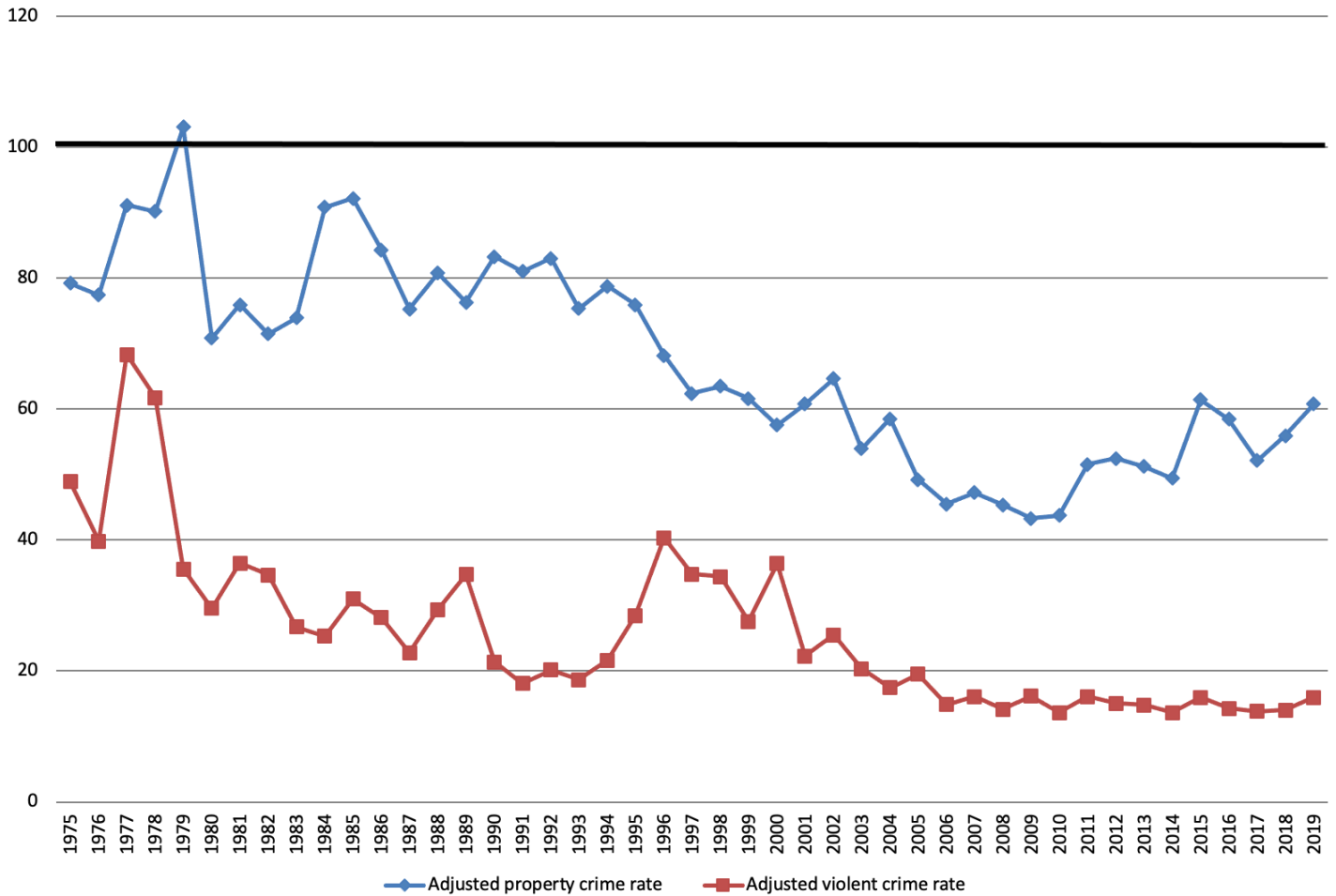


Figure 2.3

To explore these trends further, in the next three figures, we separate violent crime into its three main subtypes (homicides, aggravated assaults, and robberies), and property crime into its three main subtypes (burglaries, motor vehicle thefts, and larcenies).

Figure 2.4 Rates of aggravated assault and robbery

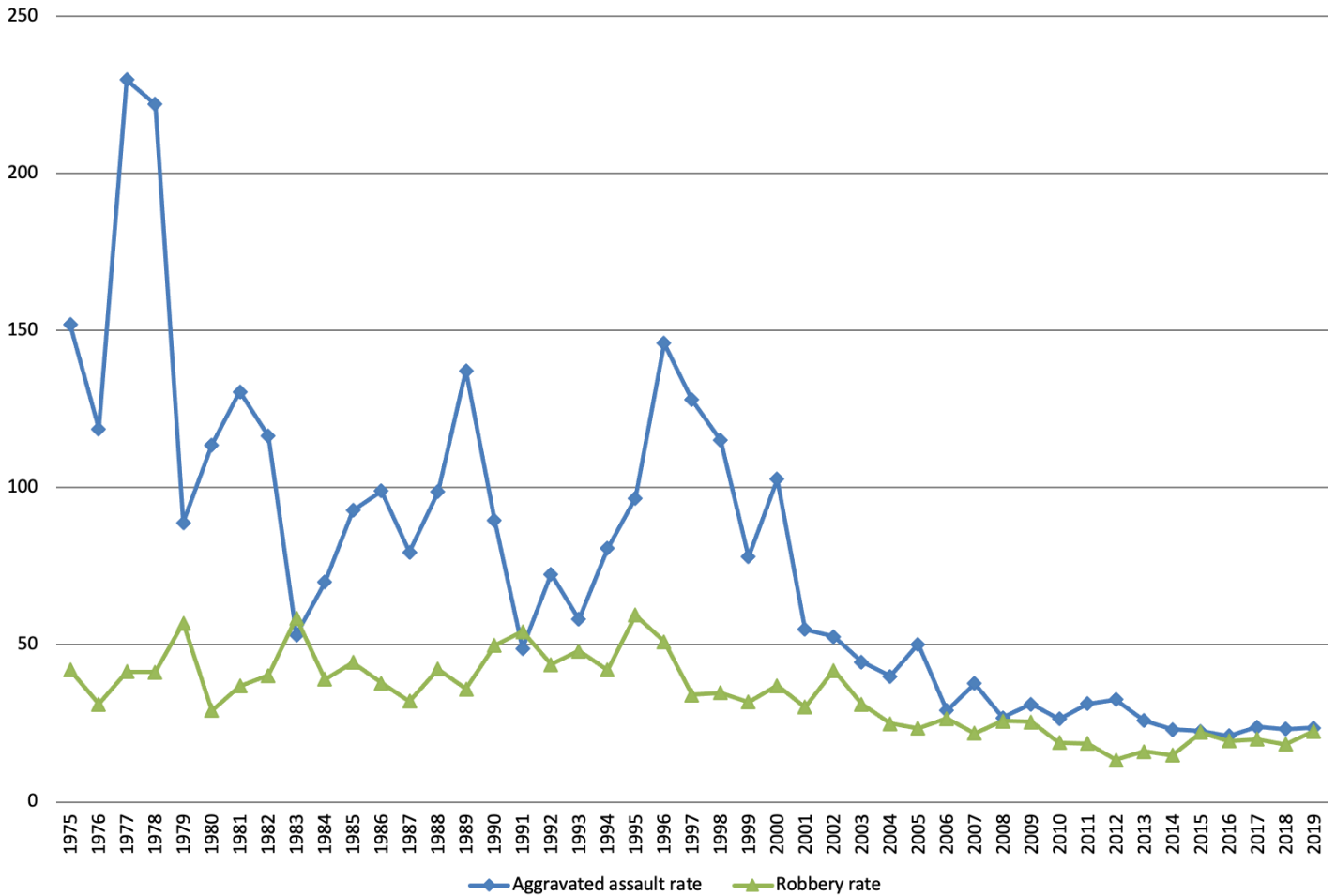


Figure 2.4

For robbery and aggravated assault, we see in Figure 2.4 that Irvine’s robbery rate (green line) has remained relatively low over the entire time period. The aggravated assault rate (blue line) has shown various small spikes over time, but has generally remained low, and has fallen even lower during the 2000s and 2010s.

Figure 2.5 Rates of homicide (3-year averages)

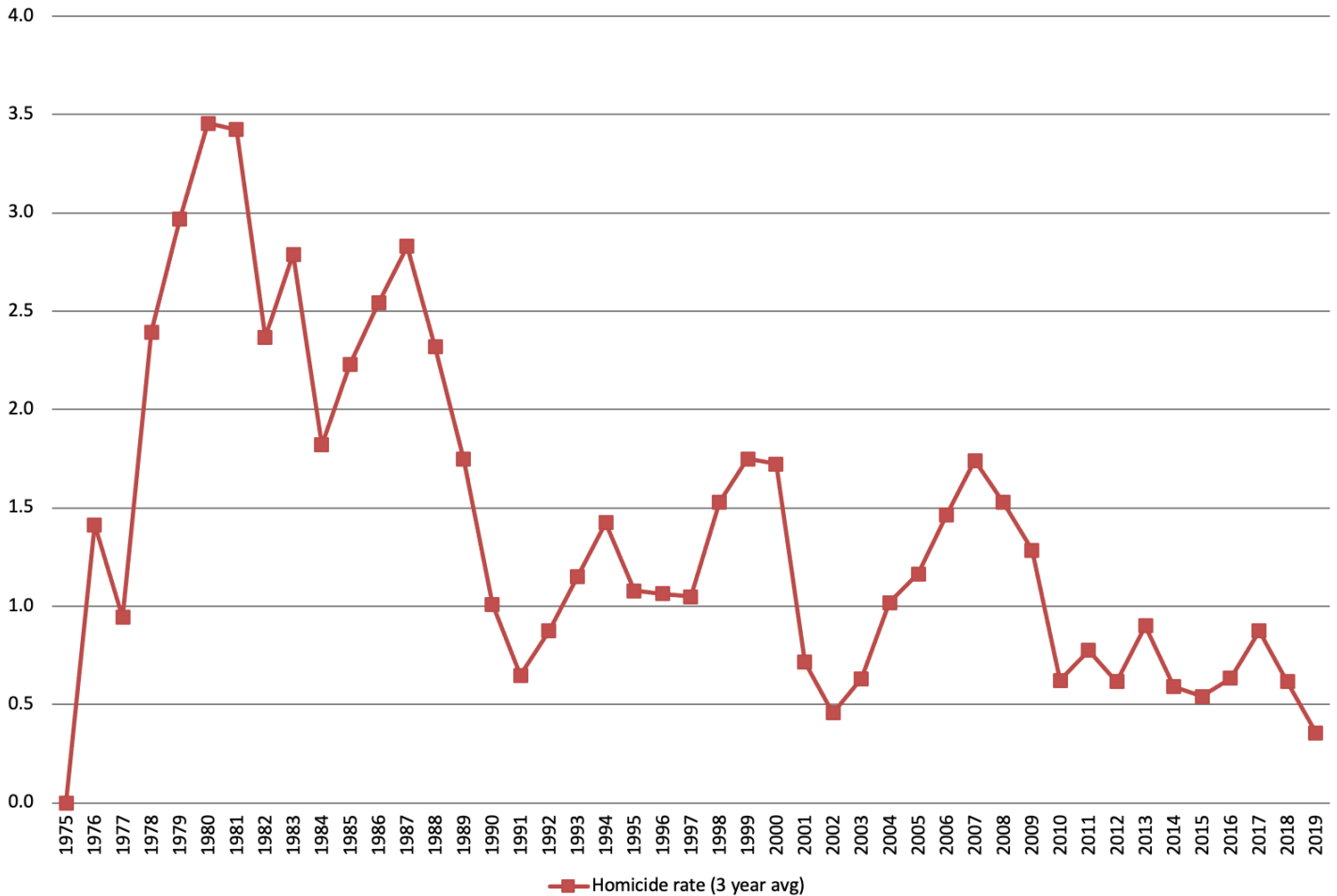


Figure 2.5

In Figure 2.5, we show the trend for homicides. Given that homicides occur quite rarely, we computed rolling 3-year averages to smooth out anomalous spikes. It does appear that there was a rise in homicides in the late 1970s. Nonetheless, since then homicides in Irvine have consistently remained at a very low level.

Figure 2.6. Rates of types of property crime

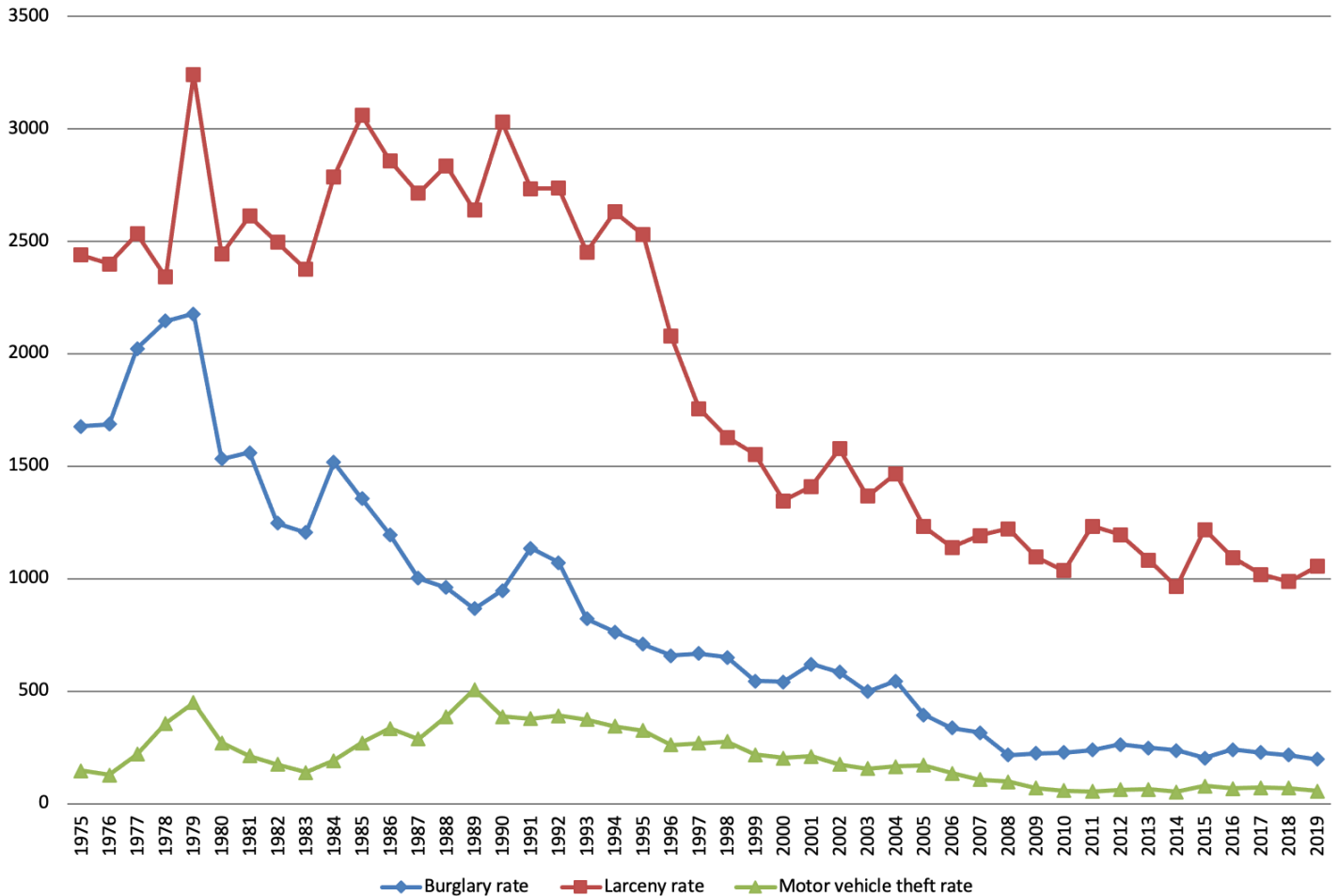


Figure 2.6

The property crime subtypes all have exhibited downward trajectories over this time period, as seen in Figure 2.6. The most common crime—and arguably the least serious—are larcenies (red line), which have exhibited a strong downward slope since 1995. The next most common crimes are burglaries (blue line), and since peaking in 1979, they have exhibited a very strong, consistent, downward trajectory. Finally, motor vehicle thefts (green line) also have shown a consistent decline since peaking in 1989.

Figure 2.7. Adjusted violent crime types

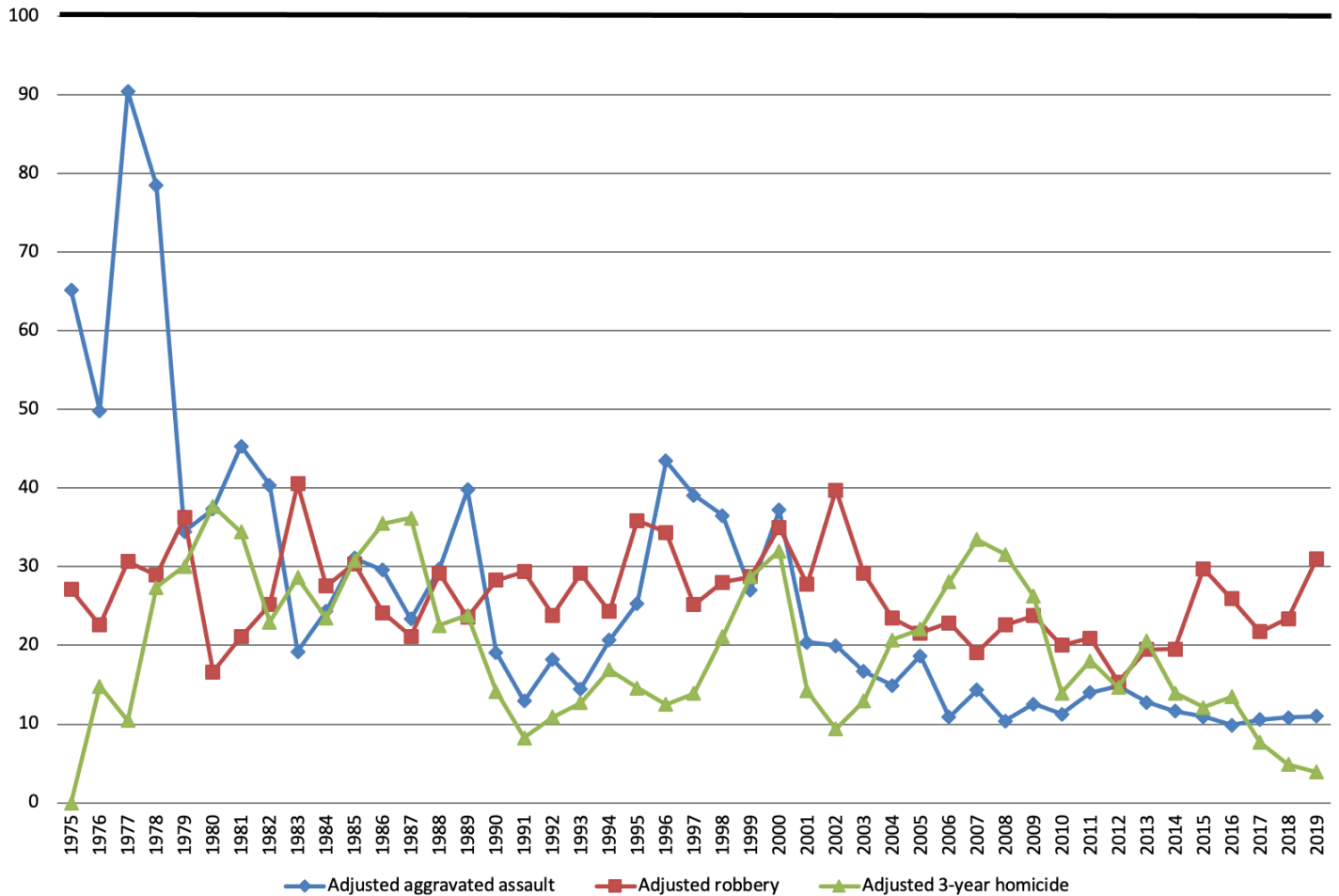


Figure 2.7

How does Irvine compare to other cities when it comes to homicide, robbery, and aggravated assault? Figure 2.7 adjusts the crime rates once again such that 100 indicates the average U.S. city with at least 25,000 population. Except for aggravated assault in the late 1970s, Irvine consistently has violent crime rates just 40%--or less--that of an average city. During the 2000s and 2010s, Irvine's aggravated assault rate fell to just 20% and even 10% that of an average city. Thus, for every aggravated assault incident in Irvine in the last two decades, there were 5 to 10 in an average city. Irvine's adjusted robbery rate has consistently stayed between 20%-40% of an average city, and the adjusted homicide rate has generally been just 10%-35% of an average city. Recall that in Figure 2.5 we saw that Irvine experienced an increase in homicides in the late 1970s; this plot makes clear that even at the peak in 1980, Irvine's homicide rate was not even 40% that of an average U.S. city.

Figure 2.8. Adjusted property crime types

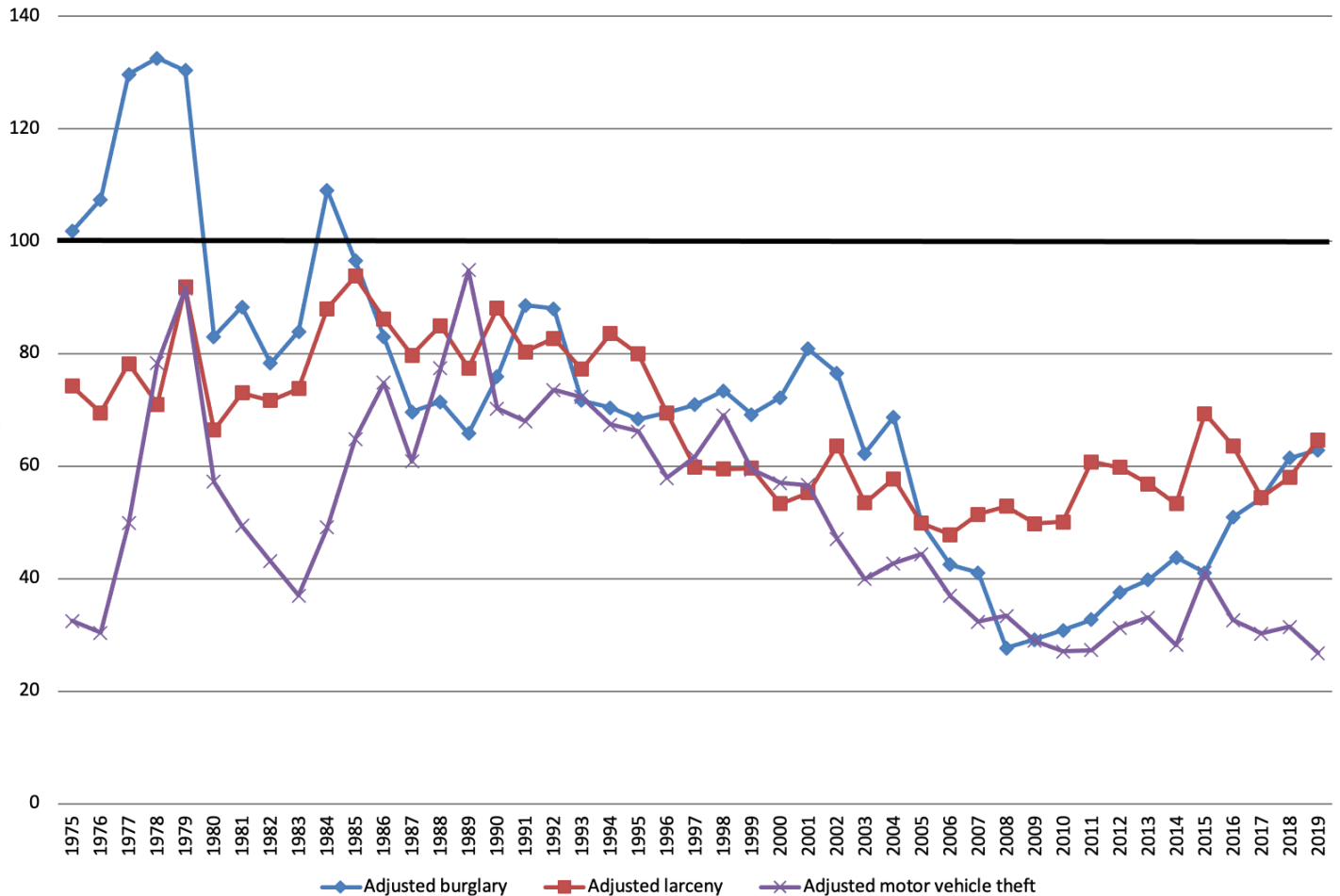


Figure 2.8

For the three property subtypes (Figure 2.8), we see that larceny (red line) has consistently remained below the average city. Up until the mid-1990s, Irvine’s larceny rate bounced between 70%-90% of an average city, and has since fallen to about 60% of an average city. The motor vehicle theft rate also has been low (purple line), though it has fluctuated between 30%-90% of the average city in earlier years. From the early 1990s until 2010, the motor vehicle theft rate consistently declined compared to the average city to be just 30% as large. During the 2010s, for every motor vehicle theft in Irvine, the average city experiences about 3. The story is a bit different for burglaries (blue line). In the late 1970s, Irvine had a burglary rate that was about 30% higher than an average city. During the 1980s, however, Irvine’s burglary rate was only 70%-90% that of an average city (with the exception of a small spike in 1984). During the 1990s, Irvine’s burglary rate was about 70% of the average city, and then during the 2000s the burglary rate underwent a long steady decline. By 2008, the rate was just 28% that of the average city. However since then the relative burglary rate has been rising. Recall that the burglary rate has been holding steady, as Figure 2.6 showed. Given that burglary rates are generally decreasing in other cities, Irvine’s relative burglary rate has risen to about 60% that of an average city—still quite impressive.

Figure 2.9. Irvine Police Officers, 1976-2019

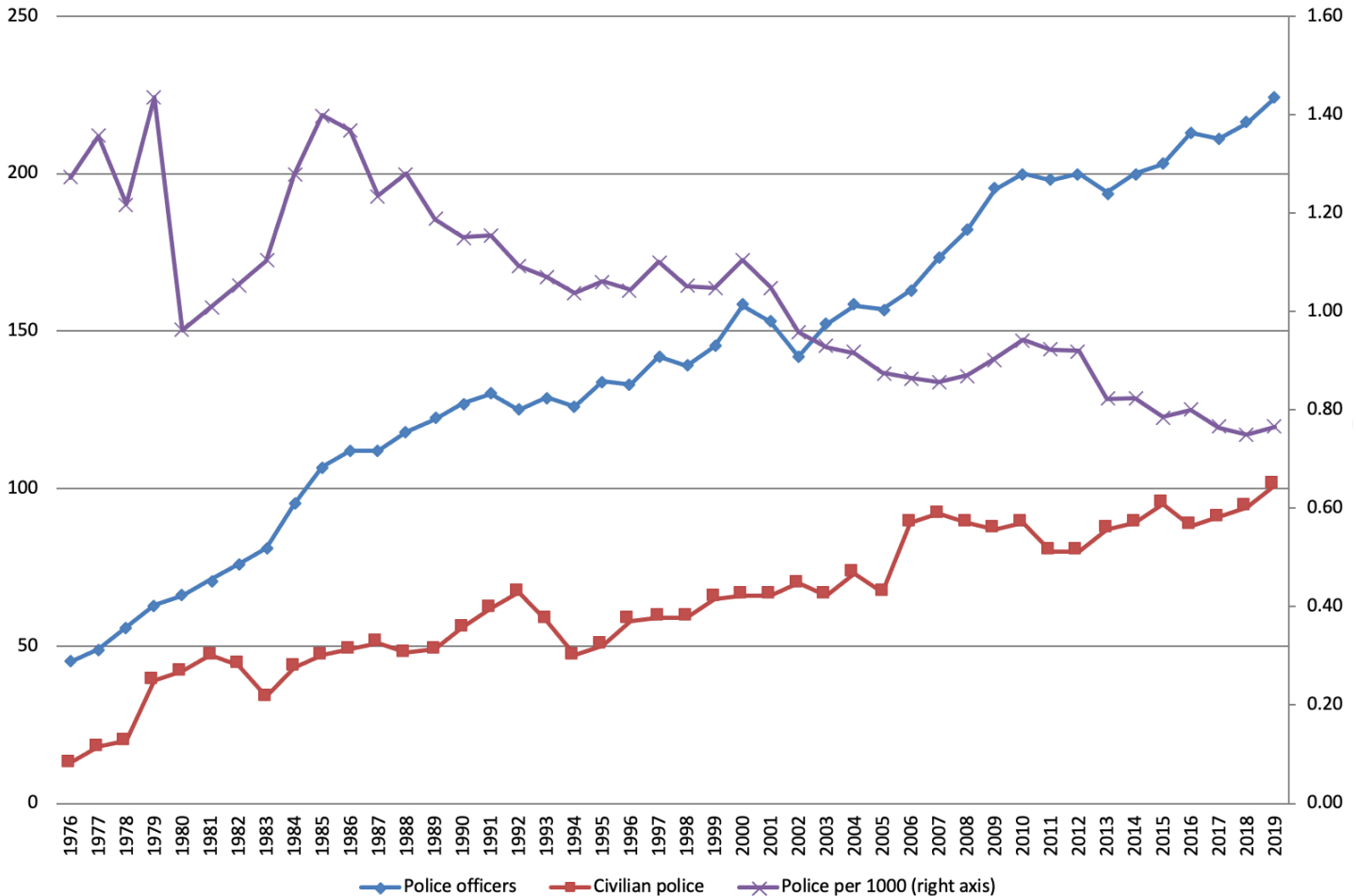


Figure 2.9

How has the size of Irvine’s police force changed over this time period? We address this question in Figure 2.9. As shown, the number of sworn police officers (blue line) has shown a steady increase from 1975 to 2019. From 45 sworn officers in 1976, the force has consistently grown and has over 220 in the most recent years. In addition to sworn officers who routinely interact with the public, there are also (non-sworn) civilian employees who serve in various capacities including as civilian public safety assistants, animal service officers, civilian traffic investigators, and other administrative positions. There has been growth in these positions as well (red line), although not as steep. Of course, these increases are to be expected as Irvine has grown in population size as well over this time period. Has the growth in officers matched that of the population? In fact, it has not, as the officers per capita (purple line) were about 1.3-1.4 officers per 1,000 population up until 1988, and since that time there has been a steady decline in police officers per capita. In recent years the number of officers per 1,000 population has fallen below 0.8. Importantly, this has not resulted in crime increases, as the previous Figures reveal.

Change in Demographics in Irvine

We next describe how the demographics of Irvine have changed over this time period. For the following figures, we computed adjusted values of each measure to compare Irvine to the average city with at least 25,000 population. We present adjusted measures that show how much higher, or lower, Irvine falls on a particular dimension compared to the average U.S. city (with at least 25,000 population). However, these computations are a little different than the ones for crime rates. In these figures, Irvine will have a value of zero if it is the same as an average city on the measure. A value of 50 for Irvine would indicate that it has 50% more of that measure compared to an average city, whereas a value of -40 would indicate that Irvine has 40% less of that measure compared to an average city.³ We used city-level data from the U.S. Census (for 1980, 1990, and 2000) along with American Community Survey 5-year estimates data for 2010 (using the 2008-2012 5-year estimates) and 2017 (using the 2015-2019 5-year estimates).⁴

In Figure 2.10, we compare Irvine to other cities based on various socio-economic status (SES) measures. This figure shows that:

- Relatively speaking, Irvine residents are highly educated. In 1970, the value of 190 in this figure indicates that Irvine has 190% more highly educated residents, defined as those with at least a Bachelor's degree, compared to an average city (purple line). Since then, Irvine has remained a highly educated city, although its relative advantage has fallen; by 2017, Irvine only has over twice as many highly educated residents as an average city. Nonetheless, we underscore that this is a relative measure, as the percent highly educated residents in Irvine has doubled over this time period (from 34% to 69%). It's just that other cities have increased even more.
- The average income of Irvine residents has consistently remained 50%-80% higher than among residents in the average city (blue line).
- Although average Irvine home values were just 35% higher than the average city in 1970 (red line), they consistently rose until they were 225% higher than the average city in 1990. After falling during the stalled housing market in the early 1990s, values have risen and are now 250% higher than an average city.
- Although income inequality, measured as the Gini coefficient based on household income (aqua line), was lower than the average city (about 20% lower in the 1970s and 1980s), it has risen to near the average city in more recent years, suggesting rising inequality.
- Unemployment (green line) has consistently remained lower in Irvine compared to the average U.S. city. It was 60-90% lower in the 1980s and 1990s, and about 10% lower since 2000.

³ Specifically, we created log transformed versions of the variables of interest. We then computed the average value of a logged measure in a particular decade. We then subtracted this average logged value from the logged value for Irvine. We then exponentiate the absolute value of this logged difference (to place it in a percentage difference). If the logged difference was negative, we maintain this sign for the newly created measure. The interpretation then is the percentage difference between Irvine and the average city for the measure. We highlight that, in fact, we are comparing Irvine to the average city based on this logged measure, rather than the average city based on the non-transformed original measure. This generally makes little difference, although it will matter for very skewed measures such as population. Nonetheless, one could argue that reducing this skew is preferable for the comparisons—and is analogous to using the median, rather than the mean, for such skewed data.

⁴ Given that Irvine was not incorporated as a city in 1970, we used census tract-level data for that decade and aggregated them to the boundaries of the eventual city boundary to compute the measures of interest.

Figure 2.10. Irvine SES based on standardized scores 1970-2019

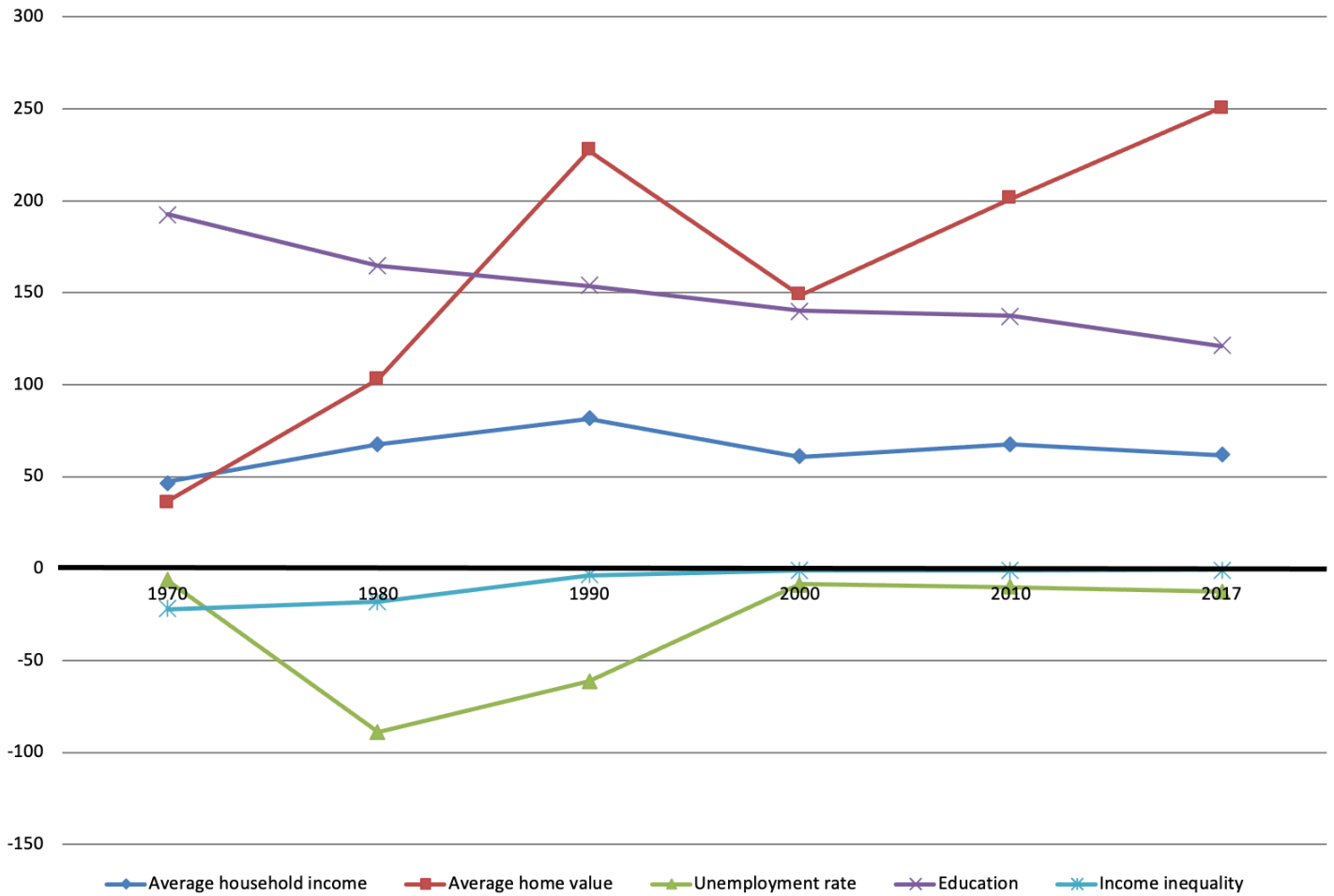


Figure 2.10

In Figure 2.11, we compare Irvine to other cities in the U.S. based on racial and ethnic composition. We see that:

- A notable feature is the strong presence of Asians (green line). Irvine had a 300% larger Asian population in 1980 compared to the average city (note: the Census does not provide data earlier than this), which grew to almost 500% larger in 1990 and over 700% larger since then. The percent Asian has risen from 7.5% in 1980 to 43% in 2017.
- Irvine does not fit the stereotype of the predominantly white suburb. In the first three decades (1970, 1980, 1990) the city had a similar percent white as the average U.S. city (purple line). Since then, the relative presence of whites has consistently fallen and is now 20% less than the average U.S. city. The percent white has fallen from 90% in 1970 to just 40% in 2017.
- Although Irvine had a disproportionately larger share of Latinos in 1970 (about 100% larger than the average city), this figure fell and in more recent years the share of Latino residents in Irvine is less than the average city (red line). Latinos now comprise roughly 10% of Irvine residents.
- There has always been a very small representation of Black residents in Irvine (blue line), a trend which continues today. Irvine has 200% fewer Black residents as an average city.
- Irvine has maintained relatively high racial/ethnic mixing (i.e., racial heterogeneity) over time (orange line). Whereas the city had just a little more heterogeneity compared to the average city in 1970, Irvine's racial heterogeneity increased to become 30% greater than the average U.S. city in 1980, and since then has been 40%-50% greater than the average city.
- Irvine has consistently had a very high immigrant presence (aqua line). In 1970, the city had about 80% more immigrants than an average U.S. city, in 1980 120% more, and since 1990 Irvine has had about 200% more immigrants than an average city.
- Although not shown in this figure, Irvine has experienced inflows of specific immigrant groups:
 - Irvine has a mix of immigrants from Asian countries. Since 2000, 5%-9% of Irvine residents are immigrants from China, about 5% are from Korea, 2.5% are from Vietnam, and about 2% are from Japan.
 - Immigration from India has increased in recent years from 2% in 2000 to 4% now.
 - Irvine was an early destination for immigrants from Iran after the fall of the Shah in 1979. In recent years, 3-4% of the resident population are immigrants from Iran, and about 6% have Iranian ancestry.

Figure 2.11. Irvine race/ethnicity based on standardized scores 1970-2019

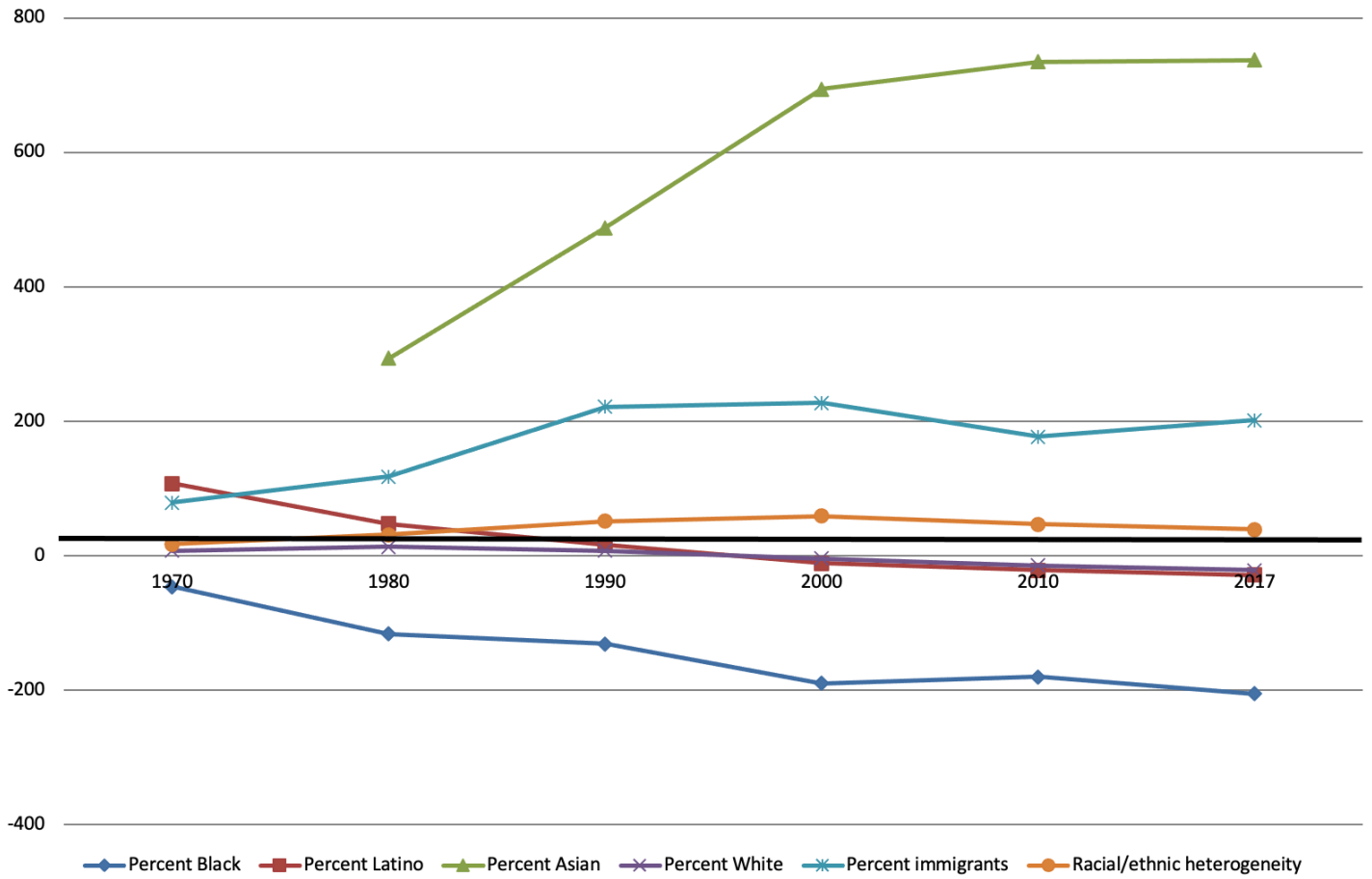


Figure 2.11

In Figure 2.12 we compare Irvine to other cities on the dimensions of housing and residential stability. Key findings include:

- Unsurprisingly, Irvine has had explosive housing development over this time period. The percent new housing during the decade in Irvine was 270% higher than an average city in the 1970s, 350% higher in the 1980s, and 200% higher in the 1990s (green line). In more recent decades this has fallen a bit—though this is because there is now so much built housing that newer housing of necessity constitutes a smaller proportion. Even so, in the three most recent decades Irvine had 120%-150% higher proportion of new housing than the average U.S. city.
- The average age of housing has grown over time, as expected (purple line). Although Irvine housing was 260% younger than the average city in 1980, in recent decades it has been only 50-70% younger than the average city.
- After beginning with a larger concentration of apartments in 1970—about 50% more than the average city—by 1980 Irvine had 65% fewer (orange line). However, there has been a steady growth since then and Irvine now has more than 50% more apartments than an average city.
- Although Irvine had a high percentage of vacant housing units in 1970, it has consistently remained at 5-35% fewer vacant units than the average city since then (aqua line).
- The residential stability of Irvine residents has increased over time. Given the large growth in housing, it is unsurprising that the percent same residents in a unit as five years previously (blue line) was extremely low in 1970 (over 600% less than an average city). However, it has steadily increased and is now on par with the average city. And the average length of residence (red line) has consistently risen from 180% less than the average city in 1970 to 25% less than the average city now.

Figure 2.12. Irvine housing based on standardized scores 1970-2019

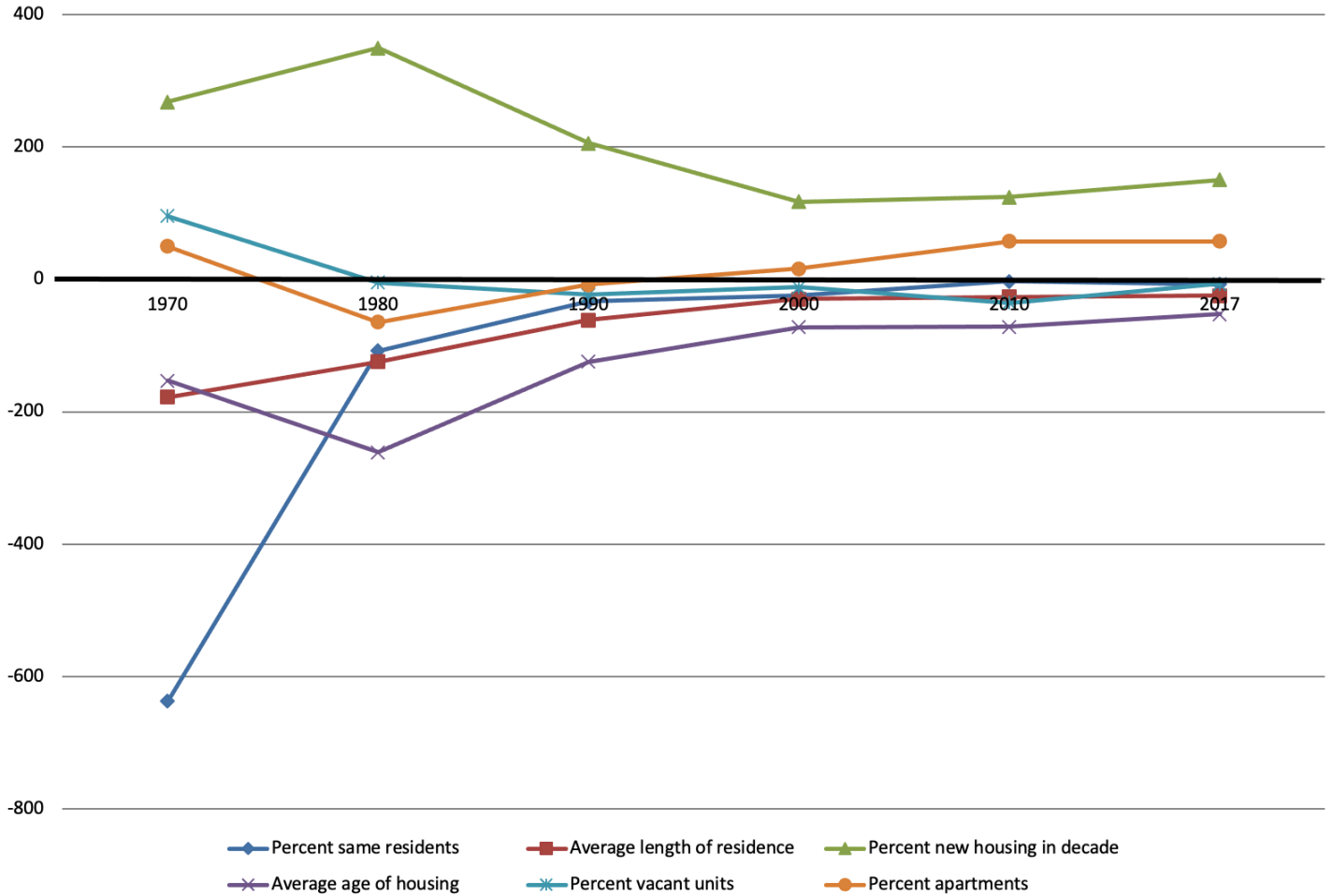


Figure 2.12

Figure 2.13 compares Irvine to other cities based on changes in population, home ownership, and commute times. Some key findings:

- Notably, population size has shown a dramatic rise over this time period (blue line). In 1970, the population of Irvine was about the same size as the average city. This rose to 65% larger in 1980 and by 1990, Irvine was more than 100% larger than the average city. This trend has continued in the last three decades; Irvine is now 270% larger than the average city.
- Despite its suburban nature, the population density of Irvine also has grown over this time period (red line). Whereas the density was 45% less than the average city in 1980, it had risen to same level of population density by 2000. Irvine now has nearly 33% more density than the average city.
- Also belying its suburban roots, Irvine is not predominantly a city of homeowners. From 1970 to 1990 the proportion homeowners in Irvine was 10%-20% larger than the average city (green line). However, in recent years the large number of rental units built has changed that proportion, and in the last two decades Irvine has a smaller owner proportion (about 20% less) than the average city.
- Despite the large growth in housing, the average commute time of residents has actually fallen over time (purple line), a result of the large increase in the number of jobs in the city over this time period. Whereas the average commute time for Irvine residents was 15%-20% longer than the average city in 1980 and 1990, since then it has been the same as the average city.

Figure 2.13. Irvine population based on standardized scores 1970-2019

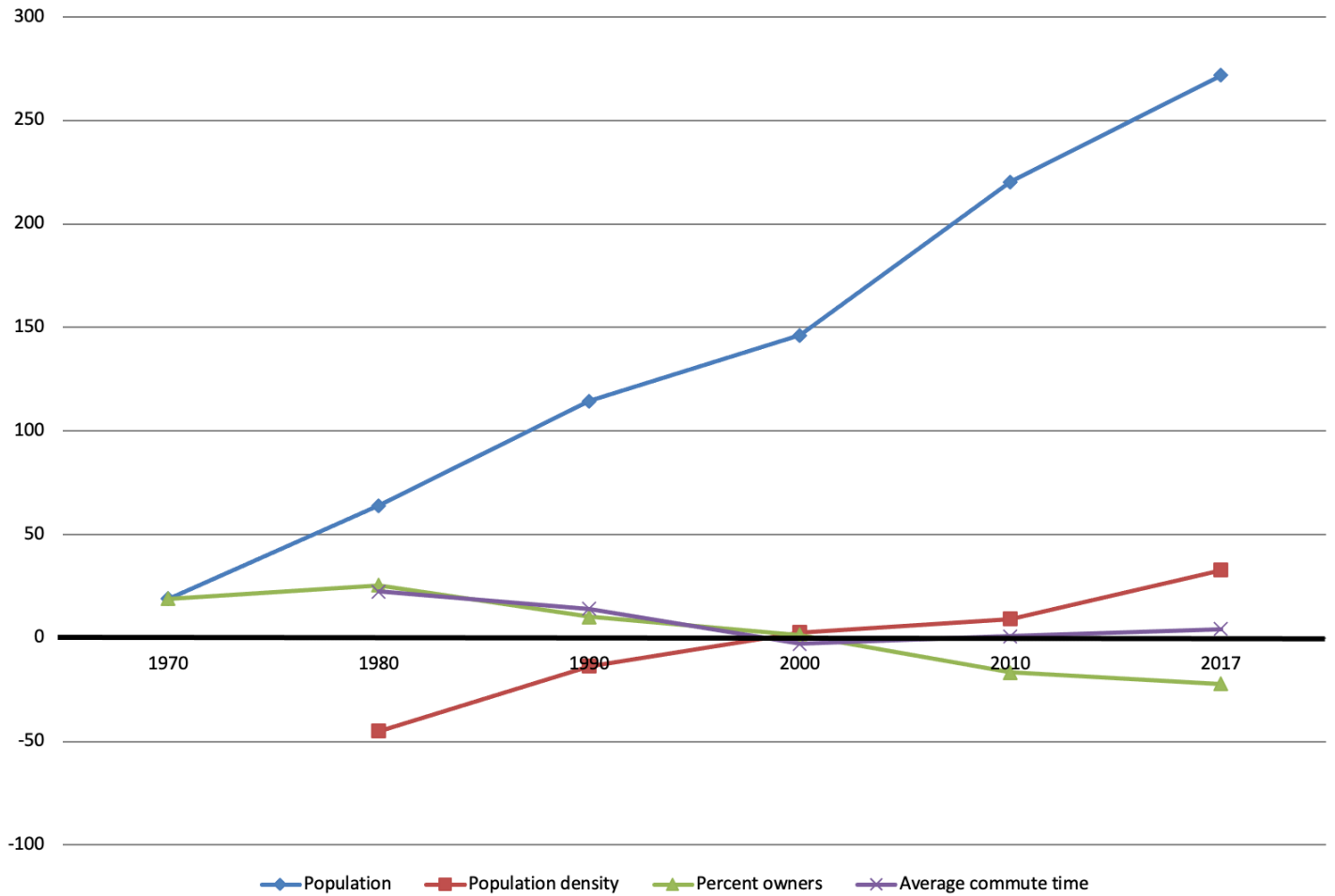


Figure 2.13

Figure 2.14. Irvine age structure based on standardized scores 1970-2019

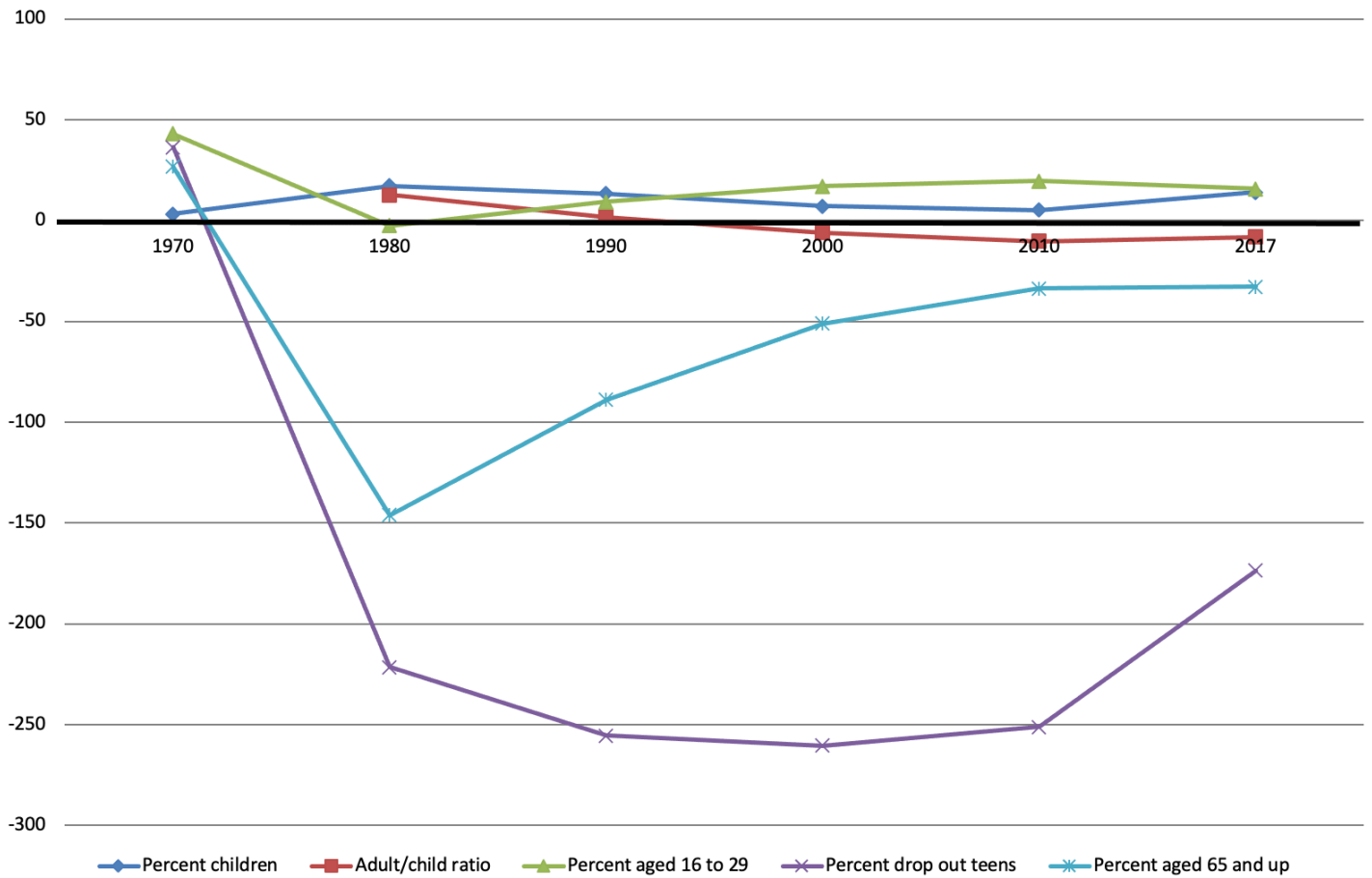


Figure 2.14

We also compared Irvine to other cities based on age structure (Figure 2.14). We see the following:

- Irvine, with its high quality schools and low crime rate, is attractive to families. We see that since 1980 Irvine has had about 5%-20% more children than an average U.S. city (blue line).
- Although the ratio of adults to children was about 10% higher than the average city in 1980, it has fallen below the average city in the three most recent decades (red line).⁵
- Irvine also has had an exceptionally low teenage school dropout rate (purple line) at 175%-250% less than the average city.
- Irvine typically has had a relatively high percentage of those aged 16 to 29 (green line). Although not shown here, in the last three decades Irvine has had about 20% more residents aged 19 to 21, which is likely reflective of the growth of UC Irvine students.
- Irvine has relatively few retirees (aqua line) since 1980. However, the proportion of retirees has been growing, from 150% less than the average city in 1980 to only 35% less than the average city in the two most recent decades.

Given the demographic changes—some quite significant—that Irvine has experienced over this time period, a question we turn to in the following Chapter is: What are the consequences of these demographic changes for levels of crime over time, and how does the city compare in this respect to other cities?

⁵ This is measured as the ratio of 30-64 year olds to 15-29 year olds.

Chapter 3

Comparing Crime in Irvine to Other Cities

Similar cities to Irvine

In the prior Chapter we saw that Irvine has tended to have low crime rates, rates which have fallen even further in recent years. Our goal in this chapter is to identify cities that were similar to Irvine in 1980 and compare how Irvine has performed over time based on crime levels in comparison to these similar cities. To identify similar cities, we adopted a two-step procedure: 1) we computed the most similar cities to Irvine in 1980 based on measures that criminologists typically include in crime models;⁶ and, 2) we excluded cities that did not experience at least a 60% population growth from 1980-2010 (to avoid comparing Irvine to cities with less population change over this time period).

The following Table shows the cities identified as most similar to Irvine based on these criteria. Several of these cities are in Southern California (Mission Viejo, Thousand Oaks, Yorba Linda, Diamond Bar, Camarillo, Rancho Cucamonga, and Carlsbad). There are also two cities each from northern California (Cupertino, Pleasanton), Texas (Carrollton, Plano), Minnesota (Plymouth, Burnsville), and Florida (Coral Springs, Plantation). There is one city from each of the states of Washington (Bellevue), Illinois (Naperville), Maryland (Gaithersburg), Colorado (Aurora), and Oklahoma (Broken Arrow).

⁶ To accomplish this, we first computed z-scores for each variable in the analysis, then computed the difference in these values for Irvine and each other city in the country, and then computed the sum of these values squared. The measures used for this computation are those shown later in Table 3.2.

Cities most similar to Irvine in 1980 based on demographic variables in crime regression models. Constrained to those with population growth greater than 60%

Agency	St	Pop 1980	Pop 2010	Pop chng
1 IRVINE POLICE DEPARTMENT	CA	62,134	213,880	126.6%
2 MISSION VIEJO	CA	50,666	93,699	68.0%
3 THOUSAND OAKS PD	CA	77,072	126,570	60.4%
4 YORBA LINDA PD	CA	28,254	64,699	84.2%
5 CARROLLTON POLICE DEPARTMENT	TX	40,595	120,727	109.4%
6 DIAMOND BAR	CA	28,045	55,810	73.2%
7 PLANO POLICE DEPARTMENT	TX	72,331	263,122	133.8%
8 CUPERTINO PD	CA	34,015	58,409	63.2%
9 BELLEVUE POLICE DEPARTMENT	WA	73,903	122,873	61.2%
10 CAMARILLO PD	CA	37,797	64,944	63.2%
11 PLYMOUTH POLICE DEPARTMENT	MN	31,615	70,895	82.5%
12 BURNSVILLE POLICE DEPARTMENT	MN	35,674	60,676	62.6%
13 RANCHO CUCAMONGA	CA	55,250	165,775	110.4%
14 NAPERVILLE POLICE DEPT	IL	42,330	142,143	123.5%
15 GAITHERSBURG POLICE DEPARTMENT	MD	26,424	60,223	83.8%
16 CORAL SPRINGS POLICE DEPARTMENT	FL	37,349	122,219	120.4%
17 AURORA POLICE DEPARTMENT	CO	158,588	326,249	75.7%
18 BROKEN ARROW POLICE DEPARTMENT	OK	35,761	98,648	101.5%
19 PLEASANTON POLICE DEPARTMENT	CA	35,160	70,329	73.6%
20 CARLSBAD POLICE DEPARTMENT	CA	35,490	105,097	108.9%
21 PLANTATION POLICE DEPARTMENT	FL	48,501	85,853	65.1%

Table 3.1

How do these similar cities perform over time based on crime rates? The next set of figures address this question. We computed the average crime rate for all U.S. cities every five years, and at each time point, we computed the crime rate by combining crime data for the three years surrounding a particular year. Thus, for the crime rate in 1980, we computed crime events in 1979, 1980, and 1981, and divided that by the city population (and also divided by three to get the average crime rate over those three years).

Figure 3.1. Comparing Irvine to similar cities in 1980 for violent crime rates over time

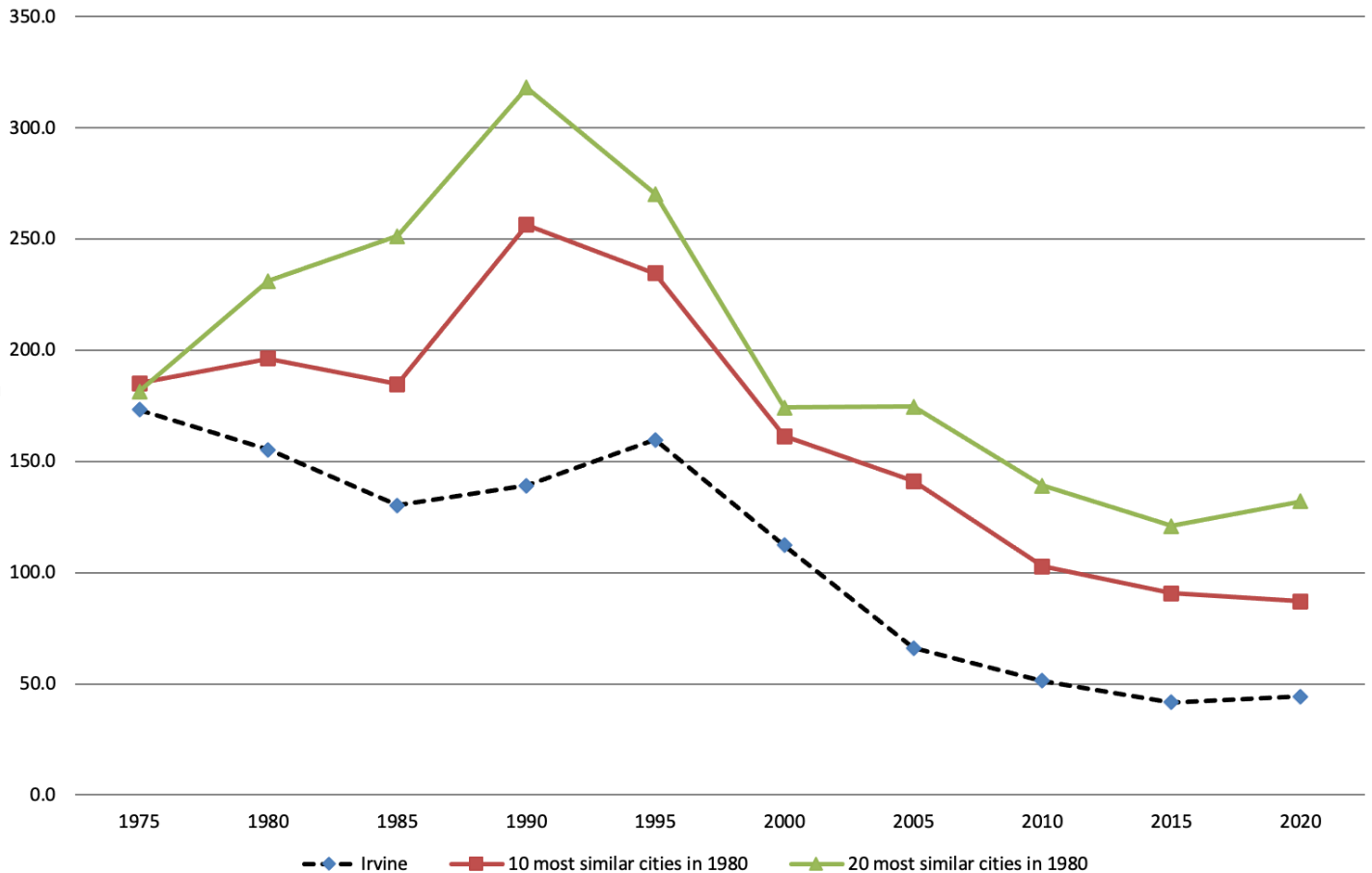


Figure 3.1

In Figure 3.1, we compare Irvine’s violent crime rates over time to the average violent crime rate for these 20 similar cities, and also to the average violent crime rate for a subset of the 10 most similar of these cities to Irvine. Whereas Irvine had the same violent crime rate as these comparison cities in 1975, it consistently has had a much lower violent crime rate compared to these similar cities since 1980. Whereas the composite 20 most similar cities experienced a consistent increase in violent crime from 1975 to 1990—which paralleled the national trend—violent crime in Irvine actually fell slightly during this time period. Although violent crime began falling in these comparison cities since 1990, Irvine’s violent crime rate has remained consistently below these comparison cities.

Figure 3.2. Comparing Irvine to similar cities in 1980 for property crime rates over time

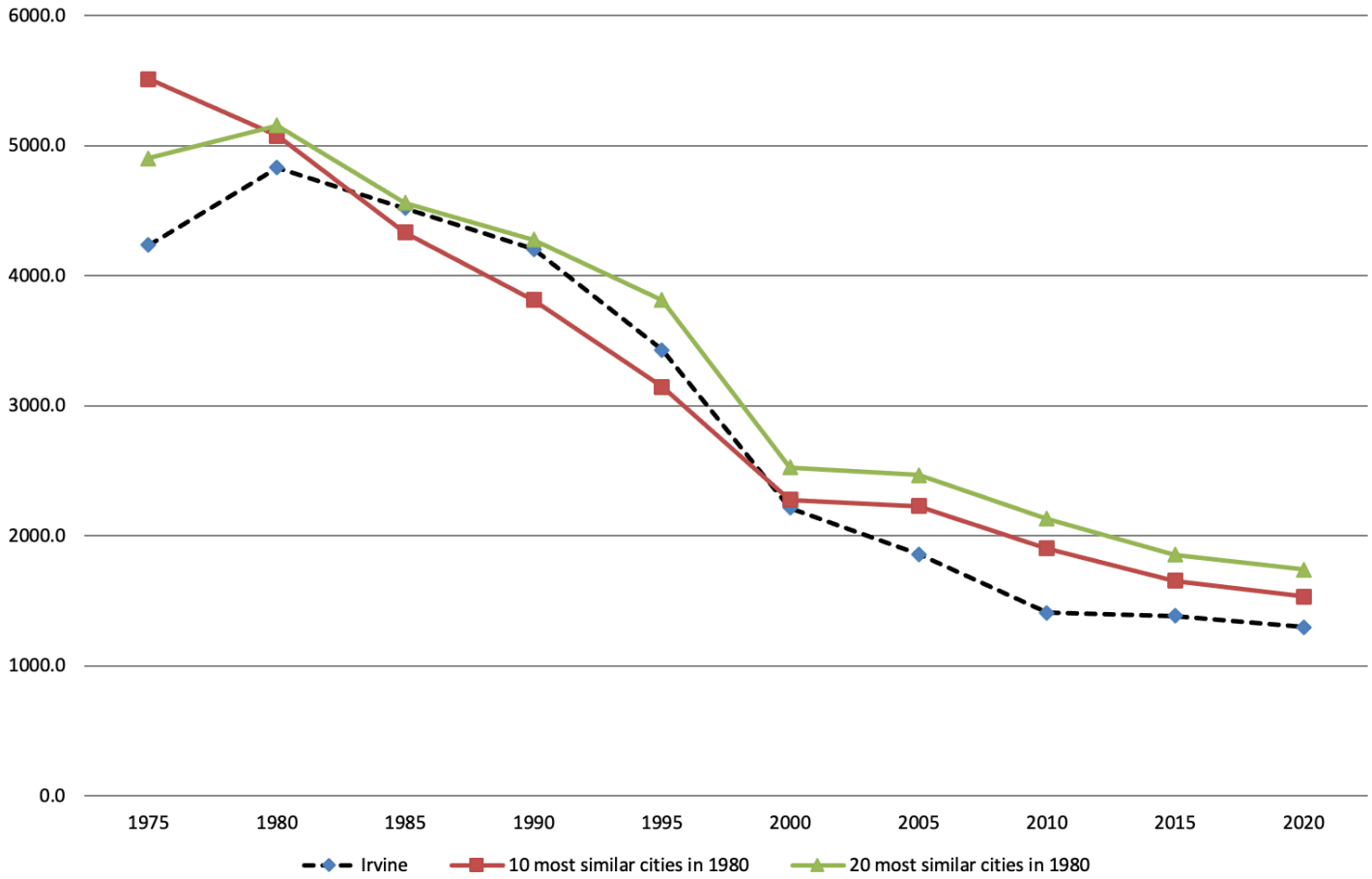


Figure 3.2

Whereas Irvine's violent crime rates have been lower than the comparison cities, the trend for property crime has been similar between Irvine and these cities. As seen in Figure 3.2, property crime in Irvine has closely tracked that of comparison cities. Nonetheless, there is evidence that since 2000, property crime has trended relatively lower in Irvine.

Irvine compared to all U.S. cities

In the previous section we compared Irvine to cities that were most similar to it in 1980 and that also experienced relatively large population growth. We showed that Irvine has lower crime rates than most other cities in the U.S. Why is this the case? To begin to address this question, in this section we compare Irvine to all other cities in the U.S. at each decadal time point (cities with at least 25,000 population in a particular decade) and explore which city characteristics are associated with lower crime levels.⁷ We first discuss possible explanations for why Irvine has lower levels of crime, and then include measures reflecting these explanations in our models.

One possible explanation for why Irvine has lower crime rates is the relative affluence of the city. As we showed in the prior Chapter, Irvine households have higher average income compared to households in many other cities in the U.S. And there is evidence that cities with higher income tend to have lower violent crime rates. Relatedly, Irvine has a small composition of the two racial/ethnic groups that are relatively disadvantaged—African Americans and Latinos—and criminologists have found that neighborhoods with high concentrations of these populations often fail to receive the services that would otherwise allow them to address problems brought on by concentrated disadvantage, including crime.

An important feature for the city of Irvine is the presence of a major research university—the University of California, Irvine. Might this impact crime? There is indeed evidence from prior research that cities with universities have fewer homicides.⁸ In part, this may be because although there are a large number of 18 to 22 year olds in the city—an age profile that is more likely to be involved in crime—these are mostly college students who are engaged in schooling and, therefore, less likely to turn to crime. Indeed, it is the presence of persons in the age group who lack institutional engagement—that is, are either not in the work force or attending university—that results in more crime.⁹ Thus, Irvine likely has fewer teens who have dropped out, which might otherwise increase crime levels.

Universities also bring a large number of highly educated persons to a city, in part because of the need for professors, who typically have advanced degrees. At the same time, research related industries locate near universities—particularly research-focused ones such as UC Irvine—and those businesses employ highly educated individuals. The possibility is that the presence of more highly educated residents in Irvine will be associated with lower crime rates.

Yet another notable feature of Irvine is the large concentration of immigrants. Although some in the media believe that communities with more immigrants will have more crime, a large body of criminological research has not shown this to be the case. Typically, places with more immigrants have no more crime than ones without immigrants, and if anything, will have lower crime levels. One might presume that Irvine immigrants are not “typical immigrants” under the presumption that they are relatively high socio-economic status. However, this is not entirely the case. In 2000, Irvine neighborhoods with more immigrants, in fact, had much higher levels of concentrated disadvantage. This changed by 2010, when they actually had lower than average disadvantage levels, but by 2017 they were near the average. So, these are not poor immigrants in recent years (given the higher SES in the city overall), but they were not nearly as well off as some perceive. Moreover, neighborhoods with high concentrations of immigrants consistently have more residential instability; this is not surprising, given that the influx of recent immigrants will increase the amount of mobility in a neighborhood, but it is notable given evidence from numerous criminological studies that neighborhoods with more residential instability tend to have more crime. So there is mixed evidence regarding the extent to which the concentration of immigrants in Irvine will impact crime levels.

We might expect that the housing construction boom Irvine has experienced over much of its existence is beneficial for crime levels,

⁷ The models combine U.S. Census demographic data from each of the decades (1980, 1990, 2000) and then American Community Survey 5-year estimates data for 2010 (using the 2008-2012 5-year estimates) and 2017 (using the 2015-2019 5-year estimates). The crime data is based on three-year averages centered on the year of the model.

⁸ A study showing this was by Patricia McCall and colleagues (McCall, Land, and Parker 2011).

⁹ This argument was made by Patricia McCall and colleagues (McCall et al. 2013).

in part because this will result in a large concentration of new housing units across each decade of the existence of the city, which may help lower crime levels. And, a consequence of the relative desirability of housing in Irvine is that there has consistently been a low vacancy rate in the city, which would also be expected to lower crime rates, as vacant units can create crime opportunities.

In light of this discussion, we estimated models that included these various measures as well as others that criminologists have shown are typically related to city-level crime rates. We estimated a model at each time point where we regress the violent (or property) crime rate on these variables for all cities with at least 25,000 population. The results of the models for each decade (1980, 1990, 2000, 2010, and 2017 – the most recent time point of data) are shown in Table 3.2.

Negative binomial regression models for cities > 25,000 population

	Violent crime models					Property crime models				
	1980	1990	2000	2010	2017	1980	1990	2000	2010	2017
Average household income			-	-			-	-	-	
Unemployment rate						+				
Education	-	-	-	-	-					
Percent drop out teens		+	+		+	+	+	+		
Income inequality	+	+	+	+	+	+	+	+	+	+
Percent Black	+	+	+	+	+	-			+	+
Percent Latino				+	+	-		-		+
Percent Asian					+	+			+	+
Percent immigrants		+			-			-	-	-
Racial/ethnic heterogeneity	+	+	+	+	+	+	+			
Residential stability	-	-	-	-	-	-	-		-	-
Percent vacant units	+	+	+	+	+	+	+	+	+	+
Percent aged 16 to 29	-	-		-	-	-	-	-	-	-
Adult/child ratio		-		-	-	-	-	-	-	-
Population (logged)	+	+	+	+	+	+	+	+	+	+
Population density				+	+	-	-	-	-	-
Average age of housing	-		+	+	+	-	-	-	-	
Percent new housing in decade	-	-	-	-		-	-	-	-	-
Percent apartments	+				+	+	+		+	+
Number of cities	1144	1268	1364	1656	1672	1144	1268	1364	1656	1672

Table 3.2

In Table 3.2 we do not present the regression coefficient estimates here but simply indicate whether each measure is positively (+) or negatively (-) associated with crime levels.¹⁰ Each column represents the results from a model estimated for a different decade. The first five columns show results for the violent crime models. We see that cities with more violent crime tend to have: residents with lower education levels, more drop-out teens, more income inequality, a greater percent Black, a greater percent Latino (in recent years), more racial/ethnic heterogeneity, more residential instability (measured as average length of residence), more vacant units, fewer persons aged 16 to 29, a lower adult-to-child ratio, a larger population size and population density (in recent years), and older housing and less new housing stock.

The last 5 columns present results for the property crime models over these five decades. According to the results from these models, cities with more property crime tend to have: lower average household income, more drop-out teens, more income inequality, a greater percent Black (in recent years), fewer immigrants (in recent years), more racial/ethnic heterogeneity (in earlier years), more residential instability, more vacant units, more apartment units, fewer percent aged 16 -29, a lower adult-to-child ratio, a larger population size but lower population density, less new housing but fewer older housing units on average (in earlier years).

As we suspected, several features of Irvine are associated with lower crime levels across this set of cities. In particular, Irvine has high average income, many highly educated residents, and many new housing units, all of which the models predict would result in lower crime. Consistent with prior research, cities with more immigrants will have less property crime when accounting for these other features in the model. Irvine also has few drop-out teens, a low percentage of Blacks and Latinos, and few vacant units, which imply that Irvine would have a lower crime rate.

However, other characteristics of Irvine suggest it should actually have higher crime levels. For example, the city has a relatively large population (especially in more recent decades), high racial/ethnic heterogeneity, and a high composition of apartment units. Given these models show that cities at higher levels of these measures are expected to have more violent and property crime, this would imply a higher level of crime for Irvine. Furthermore, Irvine has had a relatively low level of residential stability and a relatively low adult-to-child ratio, both of which imply a higher level of crime for Irvine.

How does Irvine do compared to expectations?

We assessed how Irvine's actual crime levels compare to what this model predicts its crime levels should be. We do this by determining how much crime the model predicts would be observed in Irvine given its socio-demographic composition. For example, if cities with higher racial/ethnic heterogeneity, on average, have more crime, and Irvine has higher levels of racial/ethnic heterogeneity, we would expect this to result in more crime in Irvine (based on the coefficient estimate). We can perform similar computations for all measures in the model. Then we can ask: how do Irvine's actual crime levels compare to what the model would predict?

The results of this analysis are shown in Figure 3.3. We find that in 1980, Irvine actually had 26% more violent crime than the model would have predicted (blue bars). However, in the decades since then Irvine has had much less violent crime than the model would have predicted given the city's demographic profile. In particular, Irvine had 43% less violent crime in 1990 than the model would have predicted, 47% less than predicted in 2000, and 58% and 68% less than predicted in 2010 and 2017, respectively. Thus, Irvine is performing even better over time in terms of violent crime.

¹⁰ These are statistically significant at $p < .05$.

Figure 3.3. Amount of violent and property crime in Irvine compared to expected

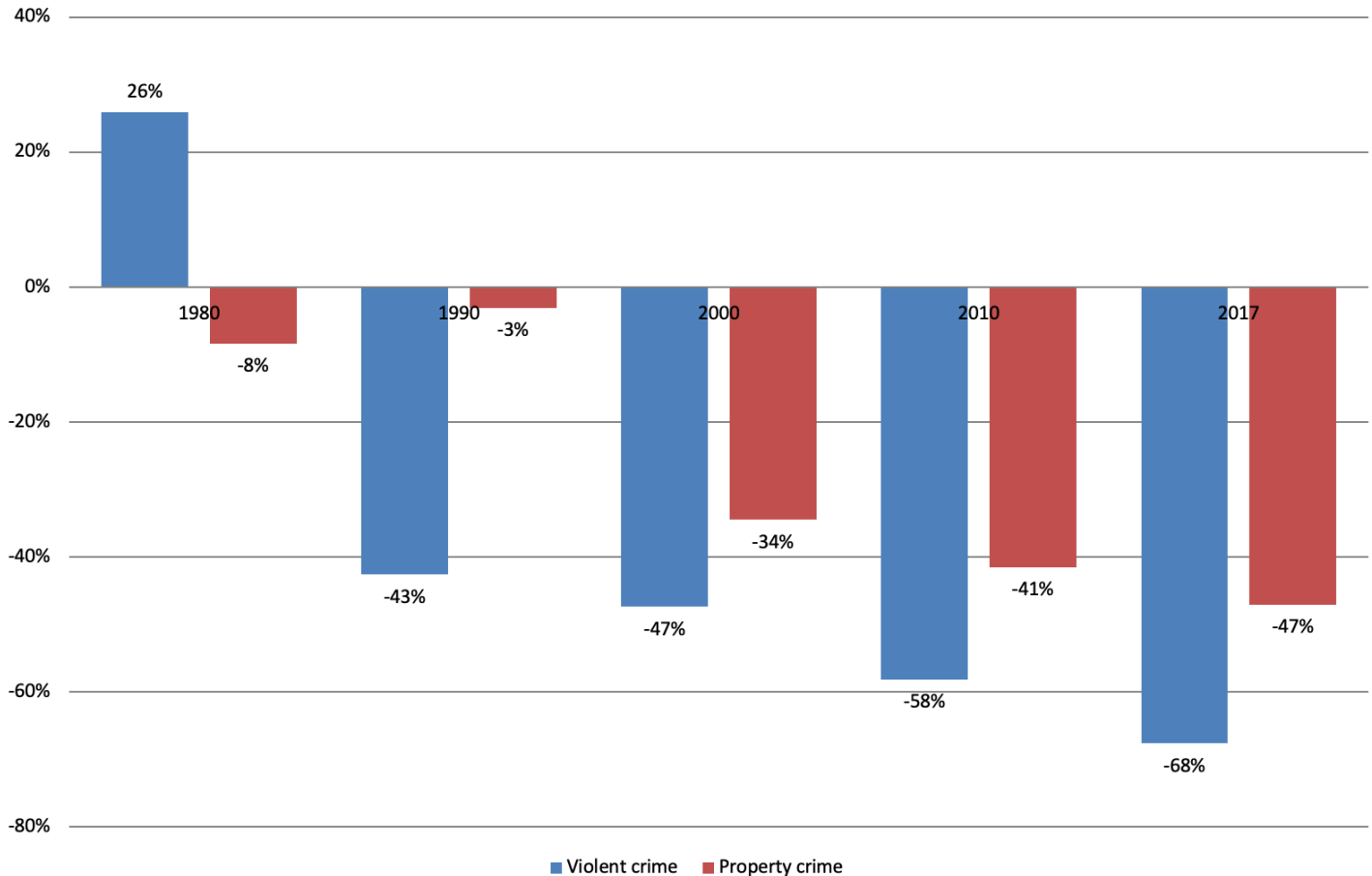


Figure 3.3 Amount of violent and property crime in Irvine compared to expected

Turning to property crime, in all of these decades, Irvine has had less property crime than the model would have predicted (red bars). In 1980 and 1990, property crime in Irvine was a little bit less than predicted (8% and 3% less). But since 2000, Irvine has had much less property crime than predicted. In 2000, the city had 34% less property crime than predicted, and this improved even more to 41% less in 2010 and 47% less than predicted in 2017.

Based on these results, we can ascertain there is something else about Irvine—some other characteristics—that results in the city consistently having less crime than the model would predict. What might these characteristics be? We consider this in the next section.

What other features of Irvine might explain the lower crime levels?

Features of the built environment

One stereotype of Irvine is that the city's street network has a large number of cul-de-sacs, and given evidence from some studies that cities with many cul-de-sacs have less crime, particularly burglary, this may help explain Irvine's lower crime rates.¹¹ But is this stereotype true that Irvine has many cul-de-sacs? We checked, and it is not. We computed features of the street network across Southern California, and found that cul-de-sacs constitute only 27% of the intersections in the city. This is indeed slightly more than the average city in Southern California, which is just under 25% of intersections. But this is hardly a large amount, and Irvine ranks only 181st out of 414 cities and unincorporated places in the region. An alternative physical environment is a street grid, which is characterized by 4-way intersections; Irvine has somewhat more of these than the typical city in the region (about 24% for Irvine compared to 20% for the average city in the region). A related stereotype is that Irvine has long streets, and therefore fewer intersections compared to other cities. In fact, this is not true either. The intersection density in Irvine is 64% greater than the average city in the region.¹² In short, the street network does not account for Irvine's lower than expected crime rate.

Another perception of Irvine is that it has a clear separation of businesses from the residential areas. This is indeed an accurate perception. We assessed this by computing the amount of variability in the number of businesses (or employees) across the blocks of a city. If businesses were spread throughout a city, we would expect this to be a relatively small value (since the number of businesses on each block would be similar). But if businesses were concentrated in certain portions of the city, we would expect this to be a larger value (as blocks in the business district would have many businesses, whereas those in residential areas would have few or none).¹³ We found that Irvine indeed has considerable variability in the number of businesses across the blocks of the city; notably, Irvine has 175% more variability than the average city in the region, and is ranked #18 out of 414 cities in the region.¹⁴ So it is possible that this has something to do with Irvine's lower rate of crime, though how much we cannot say.

Another possibility is that the Irvine village model that encourages walkability and a central gathering place for each community creates more cohesion in the city.¹⁵ We cannot easily assess this, but to the extent that it occurs, criminologists would expect this to be beneficial. That is, greater cohesion in neighborhoods increases the likelihood that residents will look out for one another, and keep an eye on what is occurring in the neighborhood. Research finds that such neighborhoods tend to have less crime, under the expectation that offenders are aware that residents can serve as "guardians" and alert authorities to suspicious behavior. But to assess this, we would need to measure the level of cohesion in Irvine neighborhoods, which is beyond the scope of this Report.

Company Town: Activity by Irvine Company

Irvine, in some ways, is a "company" town in that the Irvine company owns and manages many of the commercial districts in the city, as well as most of the large apartment complexes. While some residents may complain about some of the actions of the Company (Forsyth 2016), it nonetheless is the case that they provide an active Security force. The regular patrols of retail locations, as well as apartment complexes, provides an extra set of eyes in the community, or what criminologists refer to as "guardians." This may help to discourage crime at such locations.

¹¹ One study of a police district in Merseyside, UK showed this (Johnson and Bowers 2009).

¹² We computed this as the number of intersections in a city divided by the total land area.

¹³ We computed this as the standard deviation in the number of businesses (or employees) across blocks in a city.

¹⁴ If we instead look at the amount of clustering by employees rather than establishments—to take into account the size of firms—there is even more clustering within Irvine compared to other cities. Irvine has 300% more variability than the average city in the region based on employees, and ranks #14 in the region.

¹⁵ Interestingly, a Report by the MFI assessed whether Irvine neighborhoods indeed have more retail businesses within 1 mile of them compared to neighborhoods in the rest of the county. The presumption of the village model is that there are indeed more businesses nearby. In fact, that was not the case. There is more park area near Irvine homes, on average, but not more retail businesses, despite this prototypical village model. See the MFI Report for more detail on this finding: *From a Planned Community to a Growing Job Center*. Hipp, John R., Jae Hong Kim, Sugie Lee, Benjamin Forthun, Nene Osutei, and Donghwan Ki. 2021. "Irvine at 50: From a Planned Community to a Growing Job Center." Metropolitan Futures Initiative (MFI), Irvine, CA.

Another feature of the Irvine Company management of these commercial and apartment locations is that it is quite active in providing maintenance. Regular maintenance of problems in the physical environment reduces the possibility of what criminologists refer to as physical disorder. There is some evidence in the criminological literature that locations with more physical disorder also have more crime (Skogan 1990). The argument is that such locations are a “cue” to potential offenders that residents are not invested in the neighborhood, and therefore are less likely to act as “guardians.” The implication, if this is the case, is that offenders expect they are less likely to be apprehended when offending in such locations. This would presumably make a location a more attractive target for offenders. Beyond the regular maintenance that the Irvine Company engages in for these commercial and apartment complexes, the company also engages in regular “refreshening” in which the frontage and signage is re-painted and re-branded.

While the image is that Irvine has well-maintained high quality apartments with a patrolling security force, does this indeed result in less crime near Irvine apartments compared to other cities in southern California? To assess this possibility, we compared neighborhoods in Irvine with apartments to neighborhoods in Irvine without apartments. And we similarly compared neighborhoods in other Southern California cities with apartments to those without.¹⁶ If there is something about how Irvine apartment complexes are maintained that reduces the amount of crime, we would expect the gap between apartment and non-apartment neighborhoods to be smaller in Irvine compared to other cities. But this was not the case. In 2000, for apartment complexes with 50 or more units, Irvine units did no better than those in other cities for violent crime, and actually had slightly more property crime. In 2010, these very large complexes had a larger gap for violent crime in Irvine compared to those in other cities. For apartment units with 20 to 49 units, there was no difference in the gap for Irvine neighborhoods compared to neighborhoods in other cities. There was evidence that there is less crime near smaller apartment units in Irvine compared to other cities. Complexes with 5 to 19 units consistently have more of a reduction compared to other neighborhoods when these units are in Irvine compared to in other cities. And even smaller units (2-4 units) have more of a reduction compared to other neighborhoods when these units are in Irvine compared to in other cities in 2010. But given that the apartment complexes managed by the Irvine Company are typically the larger complexes, this seems to be driven by some other process. Thus, we see little evidence that Irvine’s large apartment complexes have relatively less crime compared to those in other cities.¹⁷

What about the retail areas? We addressed this question in a similar way, and we in fact found that at all three time points—2000, 2010, and 2017—there is a stronger positive relationship between the number of businesses and property crime rates in Irvine neighborhoods compared to neighborhoods in the rest of the region. Thus, Irvine business areas have more crime compared to the rest of the city than do business areas in other cities in the region. However, there is some evidence that there is less violent crime near Irvine business areas compared to the rest of the region, at least in 2010 and 2017. Nonetheless, we do not see evidence that Irvine business areas have relatively less crime compared to those in other cities.¹⁸

In the next Chapter, we drill down to examine neighborhoods to determine if that spatial scale provides additional insights to understand crime levels in the city.

¹⁶ For these analyses, we estimated regression models in which we regressed the logged violent (or property) crime rate on the particular housing type, and indicator variable for neighborhoods in Irvine, and an interaction term for the housing type in Irvine. It is these interaction terms that we interpret here.

¹⁷ We highlight that this is a relative comparison. Thus, Irvine neighborhoods with more apartments may in fact have less crime than neighborhoods in the rest of the region with more apartments. But this would simply say that there is something else about Irvine that results in less crime---not the upkeep of these apartment complexes.

¹⁸ The same caveat applies here as for apartments: Irvine neighborhoods with more businesses may have less crime than neighborhoods with more businesses in the rest of the region. But this again implies that there is something else about the city that results in lower crime levels.

Chapter 4

Crime in Irvine Neighborhoods

In this Chapter, we describe how crime levels have changed across Irvine neighborhoods from 2000 to 2019.¹⁹ We are limited to this time period as we do not have access to neighborhood crime data from earlier years. We define neighborhoods based on census block groups, which are units constructed by the U.S. Census and have populations of about 1,400 residents. There are 118 block groups in Irvine.

Where does crime cluster in Irvine?

The following maps show where crime is clustered in Irvine neighborhoods in 2000, 2010, and 2017 (the most recent data). At each timepoint, we averaged three years of crime data to minimize the possibility of extreme values in a particular year. Thus, the maps compare the average crime rates across these neighborhoods.

There are a few patterns worth noting. First, whereas it appears there are higher violent crime rates towards the more northern sections of the city in 2000, these areas had relatively less development at that timepoint (Figure 4.1). By 2010 and 2017, these areas had been more fully developed with higher end housing, and the violent crime rates fell. Likewise, whereas the Irvine Industrial area in the western portion of the city had high violent crime in 2000, this has diminished in more recent areas. The areas that consistently have the highest violent crime rates in the city—though these are nonetheless relatively low levels compared to the region—are neighborhoods in the center around the curving street pattern of Woodbridge.

¹⁹ We thank the Irvine Police Department for making these data available to us.

Logged Violent Crime by Year, Irvine CA Block Groups

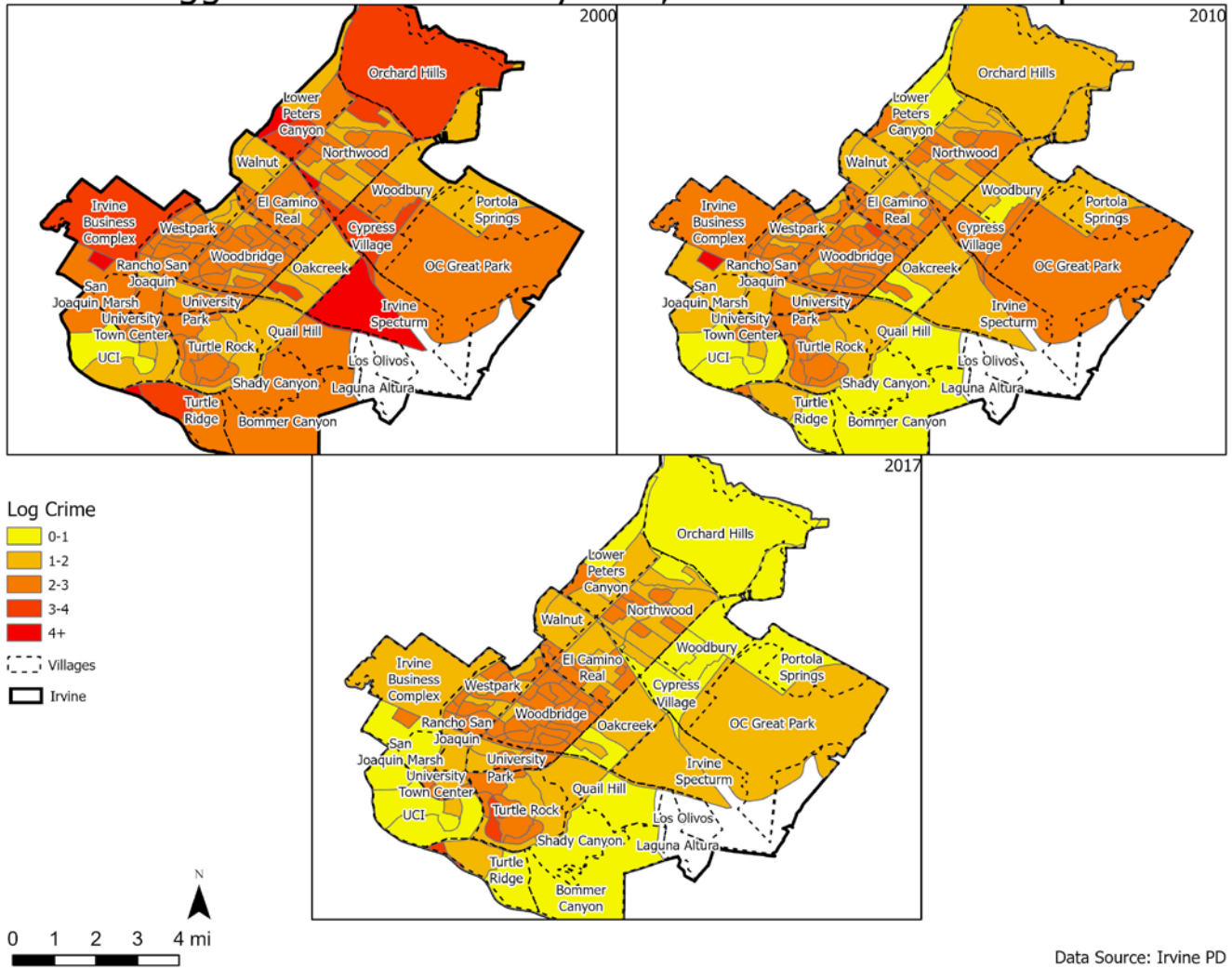


Figure 4.1 Violent crime rates in Irvine block groups for 2000, 2010, and 2017

Logged Property Crime by Year, Irvine CA Block Groups

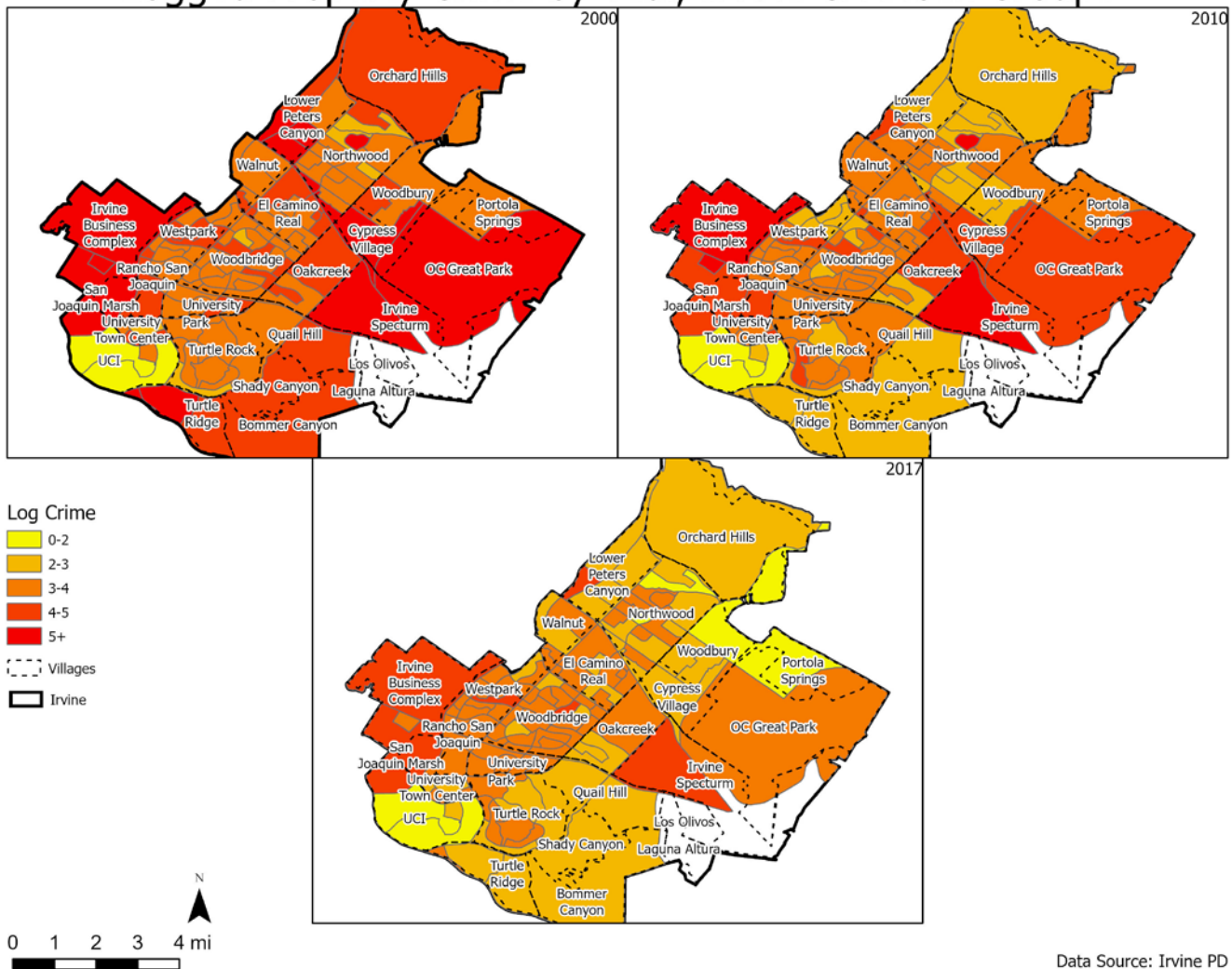


Figure 4.2 Property crime rates in Irvine block groups for 2000, 2010, and 2017

The pattern is somewhat similar for property crime (Figure 4.2). Whereas neighborhoods in the northern section of the city had more property crime in 2000, these levels have been falling in the intervening years. However, the property crime rate has remained high in the Irvine Business Center in the western portion. We also see that the area around UC Irvine has had higher violent and property crime rates in the more recent years. In both maps, we see that violent and property crime rates show a general decline in Irvine over this time period.

Which neighborhoods have the most crime?

What are the characteristics of Irvine neighborhoods that have the highest level of crime at a point in time? There are not enough neighborhoods in Irvine for a full statistical analysis. We therefore computed the correlations between various measures of interest and crime rates in Irvine neighborhoods, the next best approach. As with all correlational analyses, we do not claim evidence of causality.

Figure 4.3. Strongest positive relationships with violent crime in neighborhoods

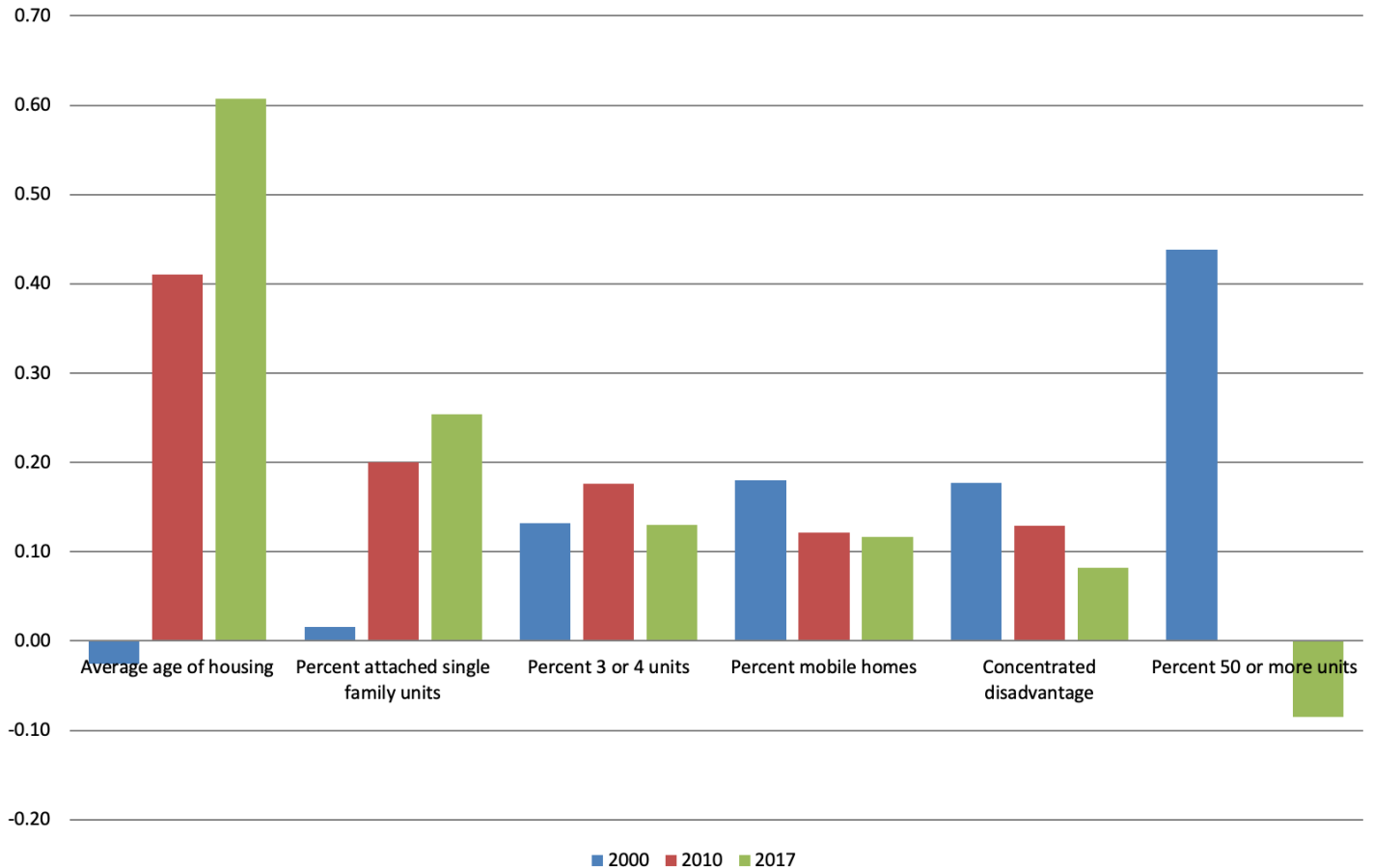


Figure 4.3

Figure 4.3 displays the measures that showed the highest positive correlation with violent crime over the three time points. Neighborhoods with the highest violent crime rates were those with older housing; whereas older housing was not associated with more violent crime in 2000 (left-most blue bar in this figure), these neighborhoods had higher violent crime rates in 2010 (red bar) and 2017 (green bar). We also see that neighborhoods with more attached single family units (e.g., condominiums and town homes), 3-4 unit apartments, and mobile homes have more violent crime. Neighborhoods with more very large apartment complexes (50 or more units) had more violence in 2000, but not in more recent years. And, neighborhoods with more concentrated disadvantage consistently have more violence, consistent with a long line of criminological research.

Figure 4.4. Strongest negative relationships with violent crime in neighborhoods

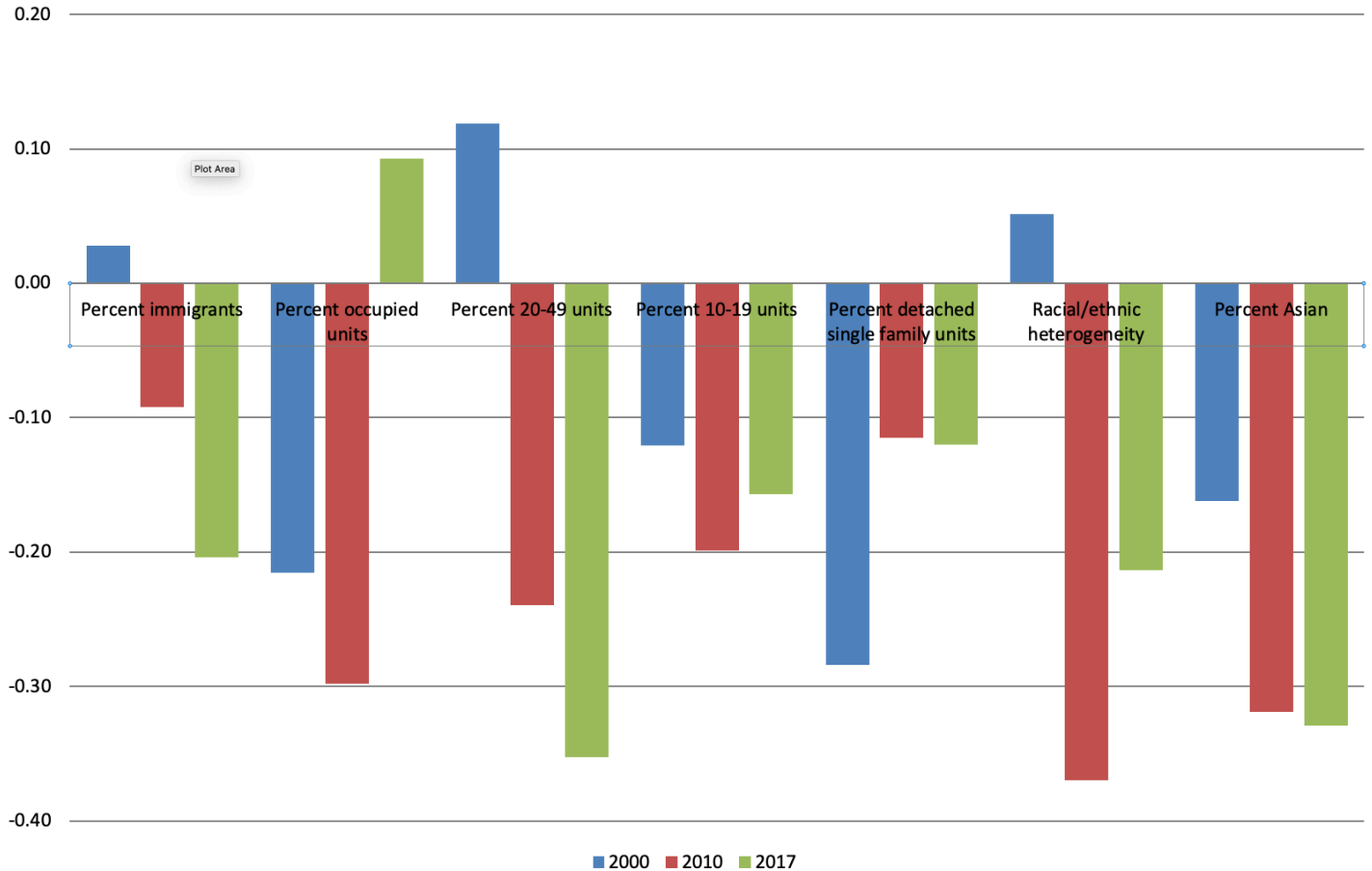


Figure 4.4

Figure 4.4 shows the measures that have the strongest negative relationship with violent crime across the three time points. Neighborhoods with more immigrants have less violence, as do those with a large percent Asian and more racial/ethnic heterogeneity.

Figure 4.5. Strongest positive relationships with property crime in neighborhoods

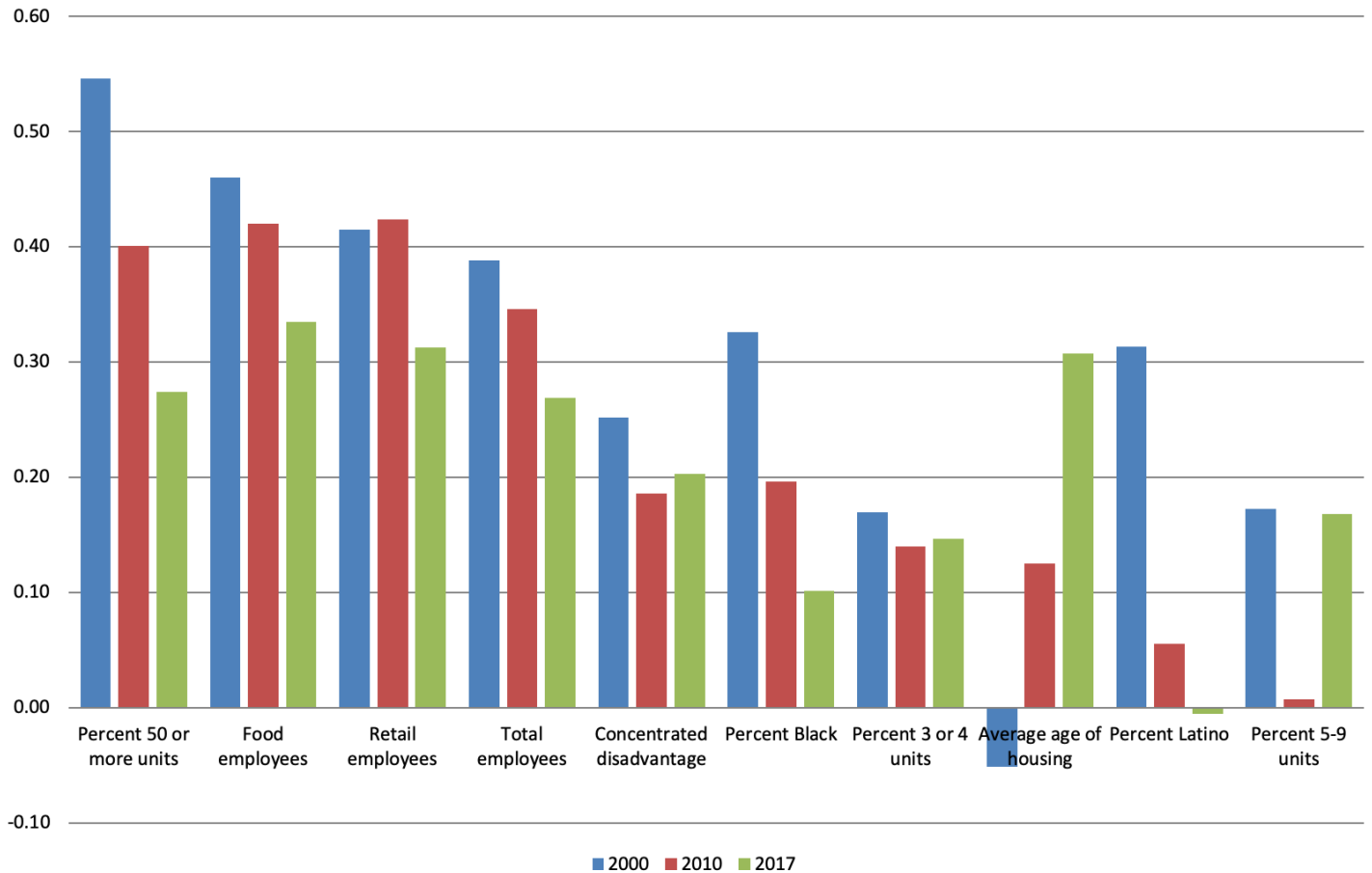


Figure 4.5

Figure 4.5 shows the measures that had the strongest positive relationship with property crime across the three time points. Neighborhoods with very large apartment complexes have more property crime, as do those with more employees of all types.

Figure 4.6. Strongest negative relationships with property crime in neighborhoods

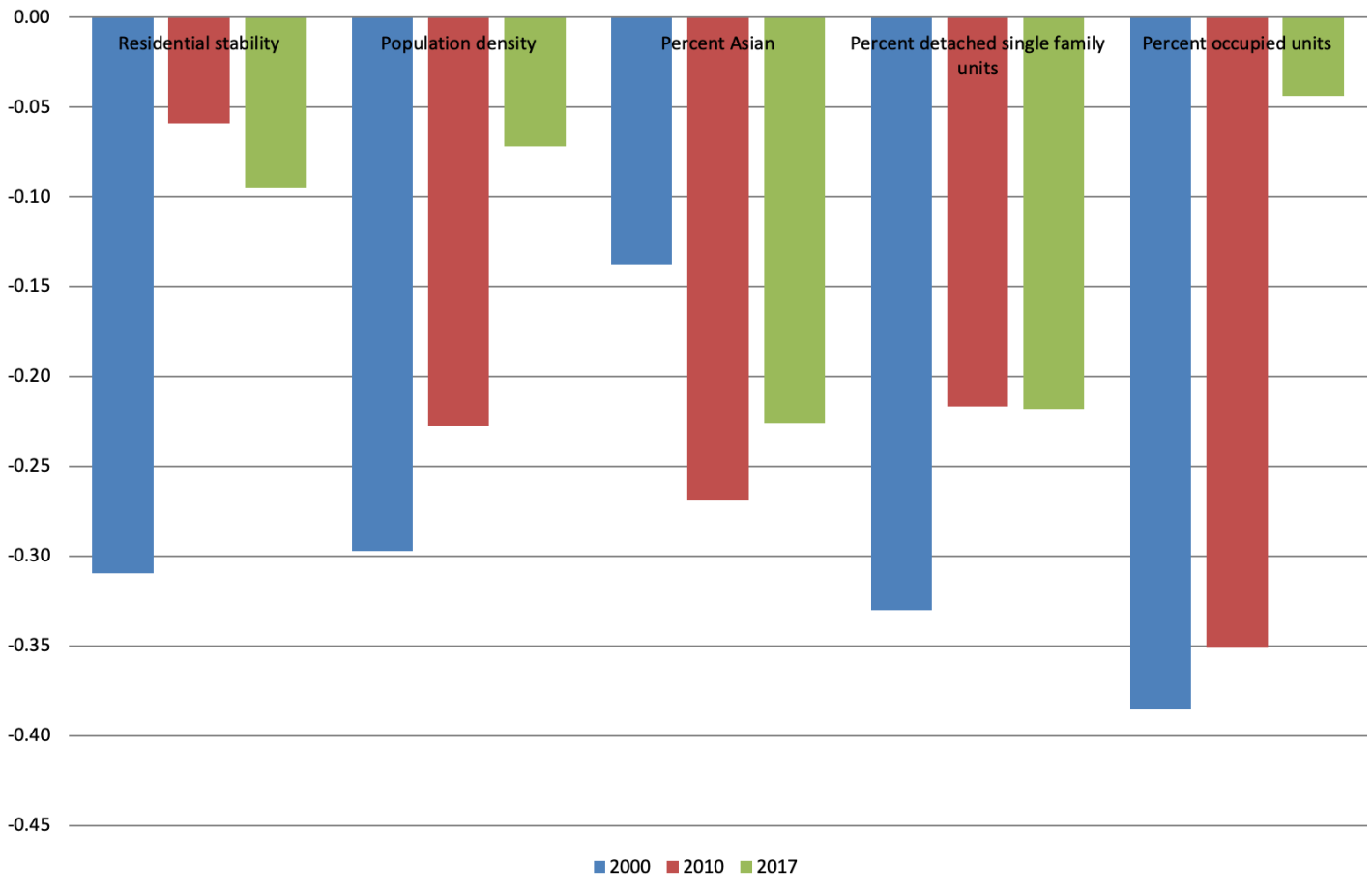


Figure 4.6

Figure 4.6 shows the measures that had the strongest negative relationship with property crime at the three time points. Neighborhoods with more residential stability, detached single family units, occupied units, population density, and percent Asian have less property crime.

Which neighborhoods experienced the largest change in crime levels?

In this section, we show the characteristics of Irvine neighborhoods that experienced the largest change in violent or property crime (from 2000-10 and from 2010-17). This is meant to provide stronger evidence of a relationship between these measures and crime, as it is capturing *change* in neighborhoods rather than just comparing across neighborhoods at one point in time.

Figure 4.7. Strongest positive relationships with change in violent crime in neighborhoods

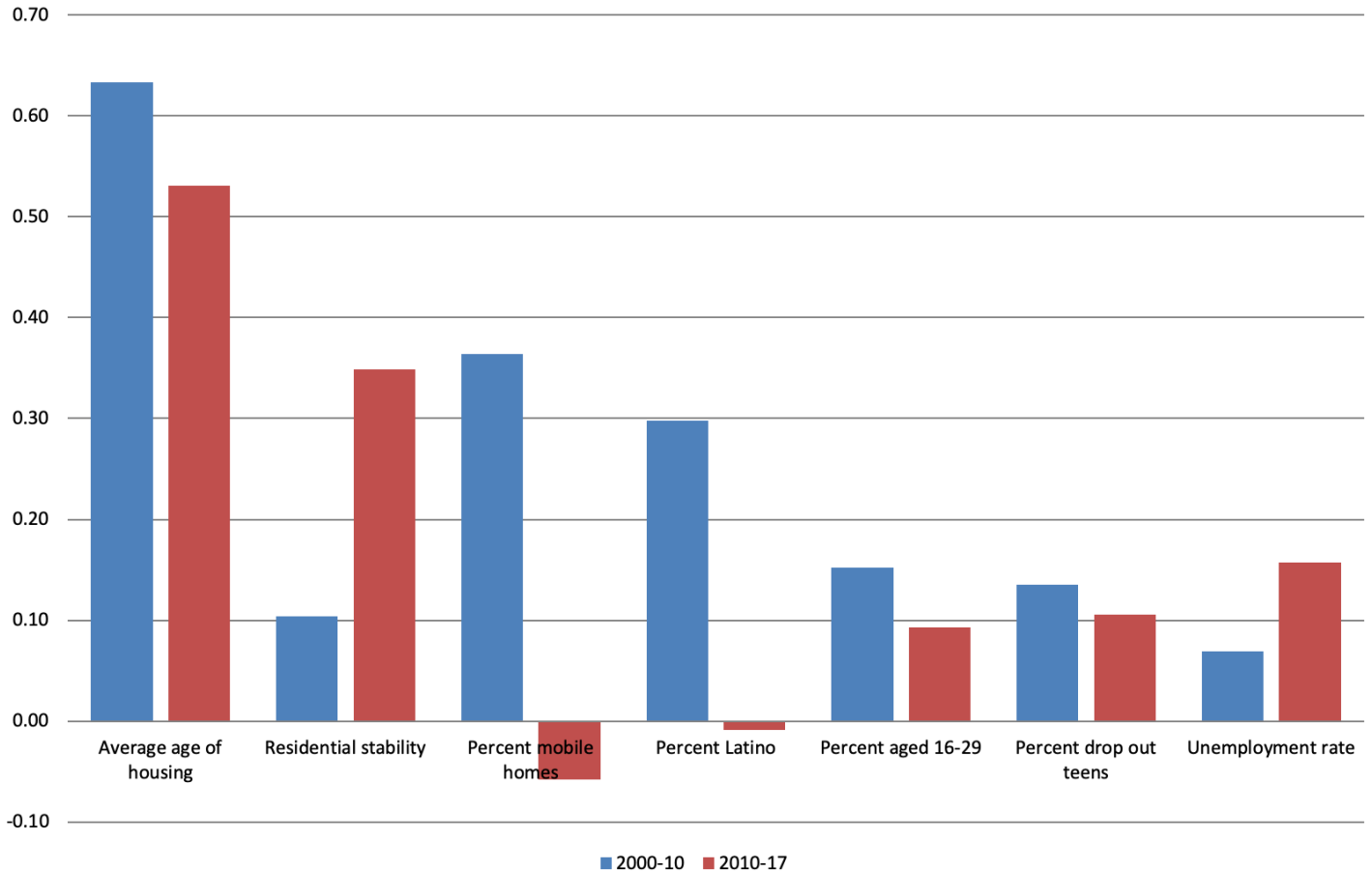


Figure 4.7

Figure 4.7 shows the measures that had the strongest positive relationship with changes in violent crime. Neighborhoods with more aging housing experienced the largest increases in violent crime, whereas increasing residential stability, percent aged 16-29, percent drop out teens, and unemployment rates experience larger increases in violent crime.

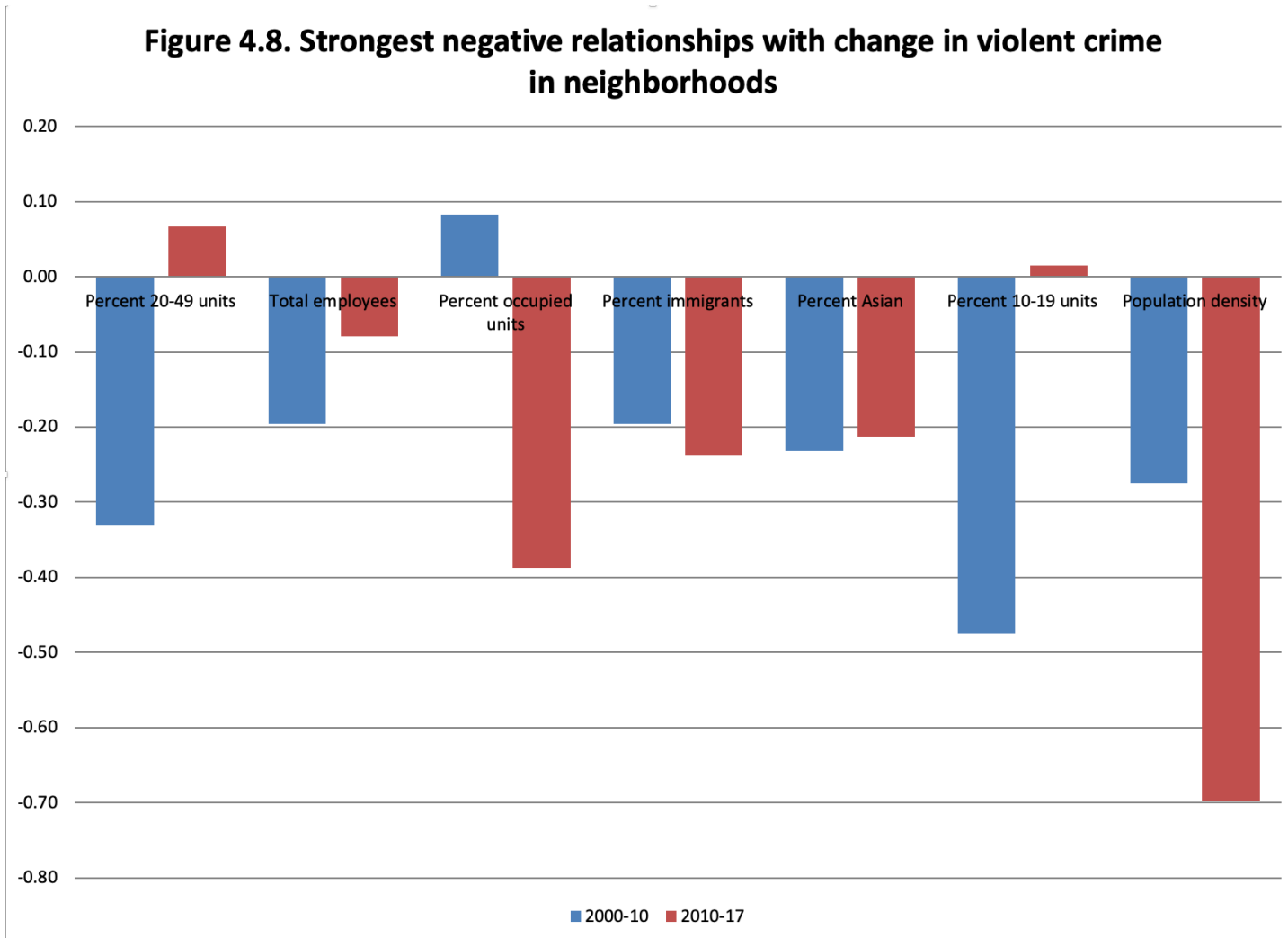


Figure 4.8

Figure 4.8 shows the measures that had the strongest negative relationship with changes in violent crime rates. Neighborhoods with a larger increase in immigrants, percent Asian, population density, and retail employees consistently experience the largest decreases in violent crime.

Figure 4.9. Strongest positive relationships with change in property crime in neighborhoods

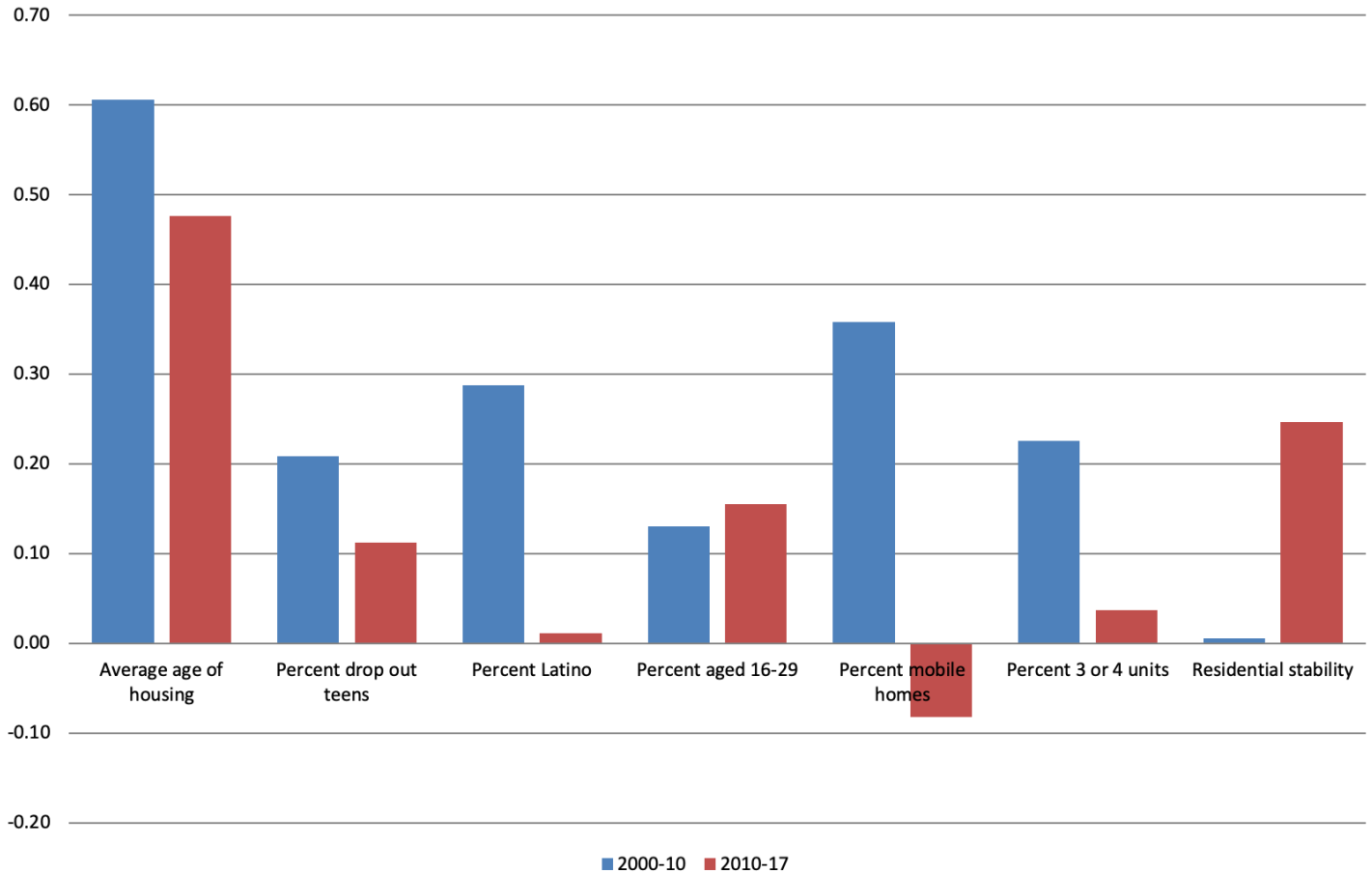


Figure 4.9

In Figure 4.9, we show the measures that had the strongest positive relationship with the change in property crime rates. Neighborhoods with aging housing experienced the largest increases in property crime rates, and neighborhoods with an increasing percentage of drop out teens and percentage aged 16-29 consistently experienced increasing property crime rates.

Figure 4.10. Strongest negative relationships with change in property crime in neighborhoods

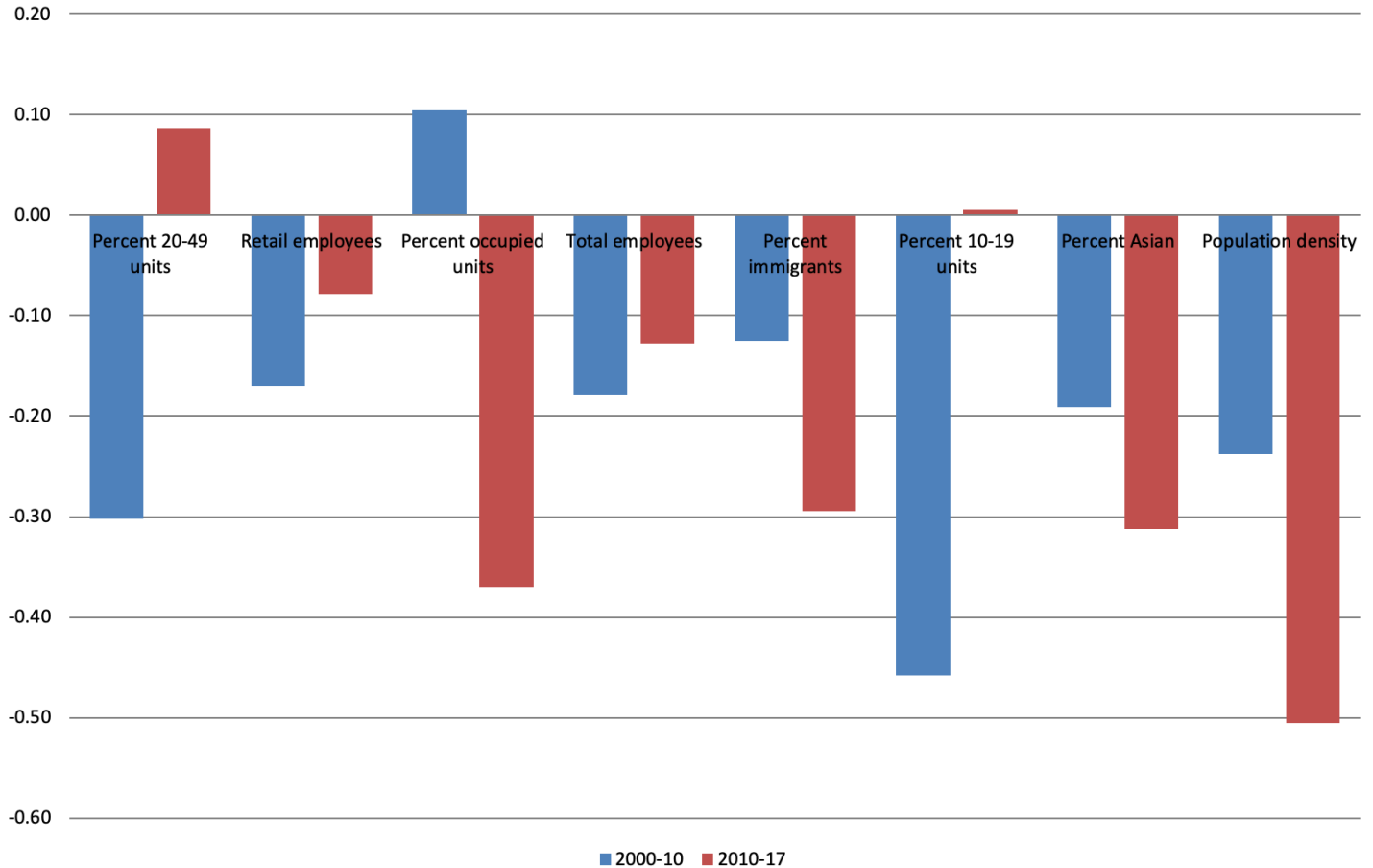


Figure 4.10

Figure 4.10 shows the measures that had the strongest negative relationship with changes in property crime rates. Neighborhoods with larger increases in immigrants, percent Asian, and population density experienced the largest decreases in property crime. Also, neighborhoods with increasing numbers of total employees, as well as retail employees, experienced consistent declines in property crime.

Chapter 5

What Have We Learned? What Does Irvine's Future Look Like?

In this chapter we provide a summary of what we have learned in this Report, and consider what the future might hold for crime levels in Irvine over the next 50 years.

Key points of the Report

One conclusion is that Irvine not only has low levels of crime, but it has even lower levels of crime than would be predicted given its demographic profile. That is, although Irvine has some characteristics that would predict lower crime levels—such as the presence of highly educated residents, higher income levels, and a large concentration of new housing—it is still the case that Irvine's level of crime has been lower than expected even after we accounted for these features. Since 2000, Irvine has about 35-50% less property crime than expected and about 50-70% less violent crime than expected. Although we explored some possible reasons for this, we are not able to definitively say why Irvine's crime rates are so low.



A second conclusion is that Irvine is not achieving low crime levels due to a large police force. In fact, the number of police officers per capita in Irvine has been falling over its history, yet crime levels are not increasing. The lesson is that a large police force is not necessary to achieve a low crime rate. Rather, it may be an issue of quality over quantity, that the police are engaging in more effective strategies, although we were not able to measure that here. Or, there may be other features of the city that explain the low crime levels. Regardless, the explanation for why Irvine's crime rate is so low is not a large police force.

Measuring the quality of policing is difficult, and arguably the police are limited in how much crime they can actually prevent. Nonetheless, the Irvine Police Department has implemented several potentially impactful programs. For example, they are aggressive in messaging to the public the importance of not leaving property of value unattended in vehicles, leaving garage doors open, front doors unlocked, etc., and report evidence of decreases in relevant types of crime after such prevention campaigns. As another example, in response to a rash of construction site burglaries in the early 2000s, the Department not only increased education and outreach to contractors about the problem, but worked with the city to implement an ordinance requiring construction sites to make crime-prevention adjustments such as installing cameras or hiring guards. Again, the result was a drastic decrease in crime following these efforts. Nonetheless, absent formal evaluation, we cannot say the extent to which programs such as these are responsible for Irvine's lower crime level.

A third conclusion is that Irvine has some features that normally would be associated with higher crime levels, and yet that is not the case. For example, Irvine has a relatively high concentration of apartment units. Although cities with more apartments tend to have more crime, especially property crime, Irvine is somehow able to avoid this fate. We assessed whether this might be due to better upkeep and security for these complexes, but did not find evidence in support of this.

As another example, cities with more racial/ethnic mixing tend to have higher levels of crime. And yet Irvine, with its significant racial and ethnic heterogeneity, still has maintained very low crime levels. In fact, in 2010 and 2017, there was a stronger negative relationship between racial/ethnic mixing and crime in Irvine neighborhoods than there was in neighborhoods in the rest of the region.

We thus see little evidence that racial/ethnic mixing increases Irvine's already low crime levels. Why this might be is an open question but one possibility is that Irvine's villages indeed work as hypothesized to create meeting opportunities in parks, recreation and sporting locations, and commercial areas to increase cohesion among residents, even when they are of different backgrounds. Still, we cannot say for certain.

A final conclusion is that city features that some might worry will cause more crime actually appeared to be beneficial in Irvine neighborhoods. For example, we found that neighborhoods with increasing presence of immigrants or Asian residents experienced declining levels of violent and property crime. Likewise, neighborhoods with increasing levels of population density also experienced declining crime levels. Thus, not only are these features not problematic for Irvine, but they appear even beneficial for the city's neighborhoods. We also saw, however, that two features Irvine does well on—teenage dropouts and unemployment rates—are indeed associated with increasing crime rates in Irvine neighborhoods. This highlights the need for the city to continue addressing these issues. Finally, the fact that neighborhoods with aging housing experienced larger increases in crime points to concerns for the future, as we address next.

What does the future hold for Irvine?

What does the future hold for the city of Irvine? Will Irvine remain a low crime city? Or will changes in its demographic profile result in rising levels of crime? In an earlier chapter we considered reasons why Irvine might have lower crime than expected. In this section we consider possible changes that might occur in Irvine over the next 50 years, and the possible consequences of those changes for crime levels.

One question is whether the age structure of the city's population will change. Irvine has been aging over recent decades, although it still has fewer retirees than the average city. While retirees are not typically associated with higher crime rates, a worry might be that the presence of fewer children would cause economic stress for the city's schools due to an unwillingness to support them economically through taxes.²⁰ However, a competing perspective is that the current high-quality schools will help Irvine remain an attractive destination for families with children, helping maintain the high school quality. Nonetheless, a challenge will remain to minimize the crime risk associated with adolescent drop-outs. In part, the Irvine Police Department's program to address at-risk youth that we described earlier may be helpful in this regard. In addition, Irvine residents' high level of education, along with a pro-education culture accompanying those high education levels, may also help minimize school drop-outs.

A second question is whether increasing levels of racial/ethnic mixing and immigration will impact levels of crime. Demographers underscore changes occurring in the overall racial/ethnic composition of the U.S. population with the growth in the percent non-white residents throughout the country (Lichter 2012; Lichter, Parisi, and Taquino 2017). Given evidence in prior studies that greater levels of racial/ethnic mixing is often associated with higher levels of crime, this may be of concern for Irvine. At the same time, the fact that Irvine already has high levels of racial/ethnic mixing and yet still maintains low crime levels argues against this. Furthermore, we saw evidence that Irvine neighborhoods with more racial/ethnic mixing in fact have lower crime levels in recent years compared to other Irvine neighborhoods. The hopeful implication is that Irvine may be a harbinger of the future for other cities throughout the country given its experience with racial/ethnic mixing.

²⁰ Irvine currently self-assesses its residents with an additional Mello-Roos tax to additionally support the local schools.

A related question is whether the increasing mix of residents of different backgrounds will result in more hate crime. In general, measuring hate crimes is challenging for police agencies, as it can be difficult to determine the motivation for a particular crime incident. Nonetheless, there is certainly a concern that this could become an issue for the city, particularly with the heated political divides occurring more frequently around the country. This may require careful oversight by the police and other public officials to counteract any such possibilities.



Another interesting question is whether future changes in the philosophy of constructing the built environment will have consequences for crime. We have described how Irvine was developed based on a principle of villages along with a street structure that results in segregation between housing developments and commercial areas. Walkability in Irvine was largely achieved through greenbelts leading to local commercial areas. In contrast, recent developments in other cities adopt a back-to-the city approach in which streets are smaller scale, and commercial development is incorporated more directly into the physical fabric. In Irvine, the areas near the train station and the Great Park have the potential to be developed along the lines of this model. That is, a vibrant area near the train station with both a commercial area along with higher density housing and easy access to the Great Park is envisioned as a possible form for the area in the future. What impact might this have on the rest of the city, which was developed with different urban principles in mind? We cannot say for certain what the consequences of this would be, but it is certainly something to consider moving forward.

A feature of Irvine that seems continually critical is the high education levels of its residents, an attribute which is associated with lower crime levels both in Irvine and in cities across the U.S. Given Irvine's high quality schools, and the presence of a top-ranked research university, we anticipate that Irvine will be able to maintain its high presence of highly educated residents. Likewise, the desirability of the city's educational institutions may continue to enhance Irvine home values by making it a desirable residence. This will be increasingly important, as the aging of Irvine's housing will require not only upkeep, but, at punctuated points, larger renovations. Whereas some neighborhoods in other cities experience a longer downward trajectory before an influx of owners is willing to invest in renovating units—what is known as gentrification—it will be important that renovations in Irvine occur before any such long decline.

Regardless of what the future holds for Irvine, the first 50 years should clearly be regarded as a success when it comes to maintaining low crime levels, especially when comparing Irvine to comparable cities across the U.S. Importantly, Irvine has much lower levels of crime than one would expect given its demographic composition, a composition that has been changing in significant ways. Despite this, Irvine's crime rate has remained low—a true story of both continuity and change.

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Appendix

A number of data sources were used to compile this Report. The city-level crime data was obtained from the FBI's Uniform Crime Reporting (UCR) program data, which provides crime data for all cities that reported their information to the FBI. We used the Part 1 crimes: violent crime was aggregated from homicides, robberies, and aggravated assaults. Property crime was aggregated from burglaries, motor vehicle thefts, and larcenies. City crime rates were calculated by dividing by the population, and then multiplying by 10,000 to express the rates per 10,000 residents.

- » The police staffing data come from the FBI's Law Enforcement Officers Killed and Assaulted (LEOKA) dataset, which also provides information on police staffing levels.
- » We used city-level demographic data from the U.S. Census (for 1980, 1990, and 2000) and American Community Survey 5-year estimates data for 2010 (using the 2008-2012 5-year estimates) and 2017 (using the 2015-2019 5-year estimates).
- » For 1970 for Irvine, the city was not yet incorporated. Therefore, in that year we used census tract-level data for that decade and aggregated the information in the tracts that were within the boundaries of the eventual city to compute the measures of interest.
- » For the city-level regression models, the crime data is based on three-year averages centered on the year of the model. This smooths year to year fluctuations.
- » For the computations on the number of cul-de-sacs and intersections in Irvine, we constructed a street network for the entire Southern California region. We then computed the values of interest based on the street network within Irvine, and compared this to the values for the entire region.

For the computations of the clustering of businesses and jobs, we used the Reference USA Historical Business dataset. These are proprietary data with information on the locations of all businesses in the region for each year between 1997 and 2014. The businesses were geocoded to a specific location, and then aggregated to the appropriate census block. The data also provide information on the number of employees in each business.



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