

The Research on Demographic Change Patterns, Increase Causes and Issues in the Major Cities of the UK after the WWII

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Abstract

Urban population change has always been an important reference data for the study of urban sustainable development. This paper refers to the data on the population change of British cities after WWII and focuses on the population change and urban development of seven cities, namely London, Manchester, Liverpool, Birmingham, Edinburgh, Bristol, and Coventry, through the research method of data analysis. Finally, the paper concludes that, through data analysis, the essay broadly classifies the seven UK cities studied into three categories of cities based on the reasons for population increase in the late 20th century. The first category is those cities where population change is mainly due to economic reasons such as urban expansion; the main representative cities are London and Manchester. The second category is for cities where the population change is mainly due to the reform and development of urban culture. The third category is cities where the main reason for population change is mobility and migration. Typical examples are the “North-South Drift” represented by Birmingham and the “Urban-Rural Shift” represented by Bristol.

Keywords

WWII, Demographic Change, Urban Expansion, Cultural Reform, Population Ageing

1. Introduction

Changes in UK towns and cities are continuous, and the expansion and contraction of towns and cities are more difficult to illustrate with data. This paper focuses on the period after World War II (WWII), between approximately 1950

and 2020. The purpose of this paper is to summarize the patterns and causes of population growth in the UK in recent years by looking at post-war population changes in the major UK cities, with particular reference to the great population growth of the late 20th century. The focus is on seven of the larger UK cities, namely London, Manchester, Liverpool, Birmingham, Edinburgh, Bristol and Coventry. Firstly, the paper analyzes the country's demographic changes from a macro perspective. The paper then evaluates the data to compare the population change, causes and the development of the cities in the seven cities to summarize the patterns of population change. In addition, the cities are broadly grouped into three categories based on the reasons for the growth in the population of the different cities at the end of the 20th century. At the same time, the paper explains the demographic problems that UK cities are currently facing in terms of demographic change, such as ageing populations and natural population decline. Finally, the essay concludes.

2. Background

The British population underwent a significant shift during WWII. Even though Britain was not directly involved in the war, it paid a high price for victory, with 384,000 soldiers killed in action and 70,000 civilians killed. This was primarily due to German bombing during the Blitz (UK Parliament, 2010). For example, on 29 December 1940, 130 German bombers dropped 300 bombs on London, and a third of the old town was bombed by air (Editors, 2010). However, during WWII, the British Army began recruiting civilians to increase its combat capability, with the army peaking at 4 million in 1918 (IWM, 2022) and 2.9 million in 1945, with the form of conscription subsequently becoming known as the National Service. The frenzied bombing and conscription caused the population of Britain to plummet and the growth of towns and cities to stagnate. In London, for example, about a third of the offices and the vast majority of warehouses in the city's old quarter were destroyed.

After WWII, Britain's cities and population underwent a period of greater recovery as the cities rose from the ashes of the bombing. Major cities such as London, Manchester, Birmingham, and others began to redevelop their cities' populations. Honoured soldiers returned home and tens of thousands of immigrants who had previously been forced to flee the cities returned to find destroyed homes and infrastructure waiting for them. After WWII, the major cities experienced several different periods of population growth, with relatively slow growth from the 1950s to the 1980s. This article will illustrate this in the context of national population and population change data for each major city. As a turning point in population growth change, 1980 was a noteworthy turning point in the UK in the 20th century. After this time, the population of Britain's major cities largely began to experience sustained and efficient growth.

3. Data Analysis

3.1. National Population Change

In urban geography studies, demographic analysis is often combined with the development of towns and cities. In the UK, population numbers are one of the main data used in the study of population and urban planning. The size of a town's population takes into account the regional economic base of urban development, its geographical location and building conditions, as well as its current characteristics (Cohen, 2006), and is closely related to the actual level of welfare. The population of the UK, one of the world's leading economies, has undergone a rather tortuous process of ups and downs since WWII. After 1950, according to **Figure 1**, the total population of the UK was about 50.05 million, rising to about 56.32 million by 1980 (World Population Review, 2021a). According to **Figure 2**, the annual rate of population changes also fell from a high of 0.58% in 1960 to a low of 0.11% in 1980. Overall, population growth was slow during this period. This was first because the country's economy and infrastructure were still recovering and the country's economy, construction and consumption showed a false boom. Secondly, there was a slow recovery in foreign immigration. The shift in normal immigration flows to the UK due to the economic depression slowed population growth during this period, which began to decline in the late 1960s. Between 1951 and 1980, the total immigrant population increased by less than two million (The Migration Observatory, 2016). Thirdly, as a direct result of the decline in fertility in the UK, particularly in recent decades, the increased cost of living faced by young couples and career pressures on women has led to an increase in late marriage and late childbearing (UK census, 2021). At the same time, the post-war decline in agriculture has indirectly

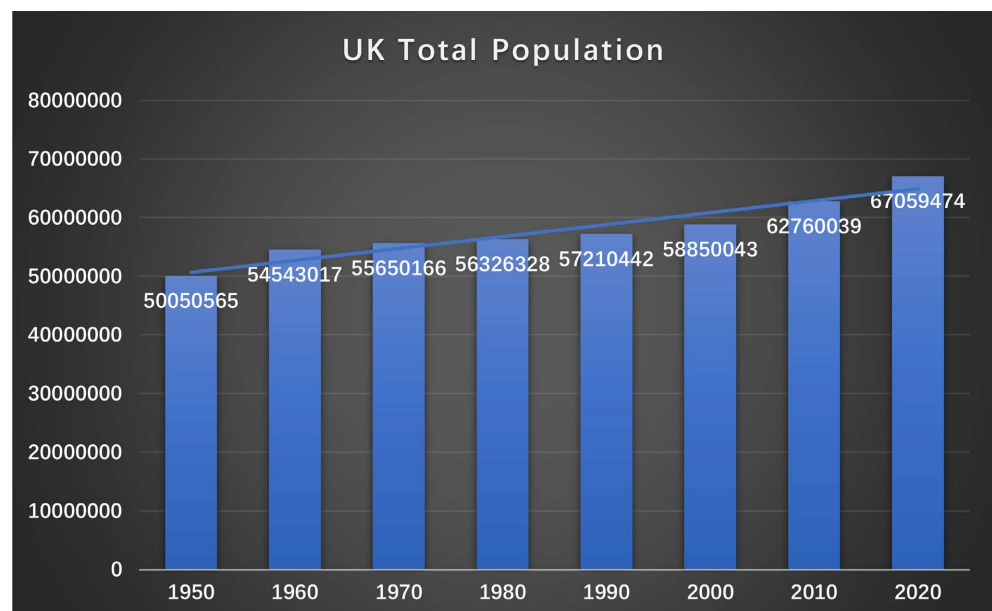


Figure 1. 1950-2020 UK population comparison.

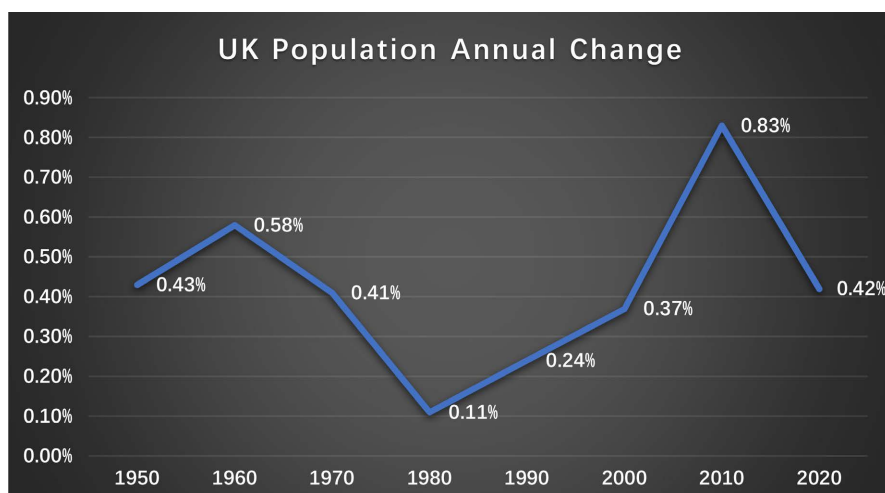


Figure 2. 1950-2020 UK Population annual change rate.

contributed to the decline in population. Agriculture was integral in determining a country's fertility levels, with relatively large family sizes on farms and the smallest in cities. In post-war Britain, the urban-rural divide gradually narrowed, with only 20 per cent of the population of England and Wales being rural and only 6.4 per cent working in agriculture, so rural areas became largely suburban, and the population gradually declined (Charles, 1946).

The turning point at which the population began to grow steadily occurred in the 1980s. Since the late 1980s, the UK population has steadily increased, with the latest count in 2020 being an increase of around 10.73 million (ONS, 2015). Moreover, the average annual rate of population change has increased from a low of 0.11% to 0.83% in 2010. This is primarily due to the increase in government management of the urban environment and the welfare of citizens. For example, increased urban regeneration and governance led to a 20% increase in London's population between 2001 and 2011. By comparison, for example, in the mid-1970s London was a dormant city of slums and chimneys (Harris, 2019). Secondly, economically, population growth was inextricably linked to national economic reforms led by Margaret Thatcher, John Major, and Tony Blair, which aimed to dramatically increase the efficiency of labour and product markets, while limiting government and institutional involvement in economic decision-making (Card & Freeman, 1980). The high degree of market liberalisation brought about a rapid economic recovery and a leap forward. The economic recovery also led to a series of sustained and counter-intuitive increases in employment and birth rates in the UK towards the end of the century. At the same time, foreign immigration has grown at an unprecedented rate and scale. Since last year, the foreign-born population in England and Wales has more than doubled (Green, 2014), and the total fertility rate has been declined from nearly 3% at 1960s to around 1.5% at 1980s (Figure 3). Statistics also shows that between 1991 and 2011, the immigrant population increased by almost 4 million over this period and now accounts for around 13.4% of the total population

(Green, 2014). Compared to the 1950-1980 period, the immigrant population has almost doubled.

3.2. Population Change in the Seven Cities

An in-depth analysis of urban population changes begins with an analysis of the annual rate changes for each city. This paper takes 10 years as an interval and collects a large number of annual rate change data from 7 cities after WWII (Figure 4). Through in-depth analysis of Figures and comparisons, this paper finds that the population of seven cities including London showed a trend of growth from sluggishness to positive growth after the war. All of these cities began to decline in the 1960s and then experienced a huge population adjustment around the 1980s or 1990s when the annual rate change started to increase. Before that, the population showed an unfavourable trend of continued decline.

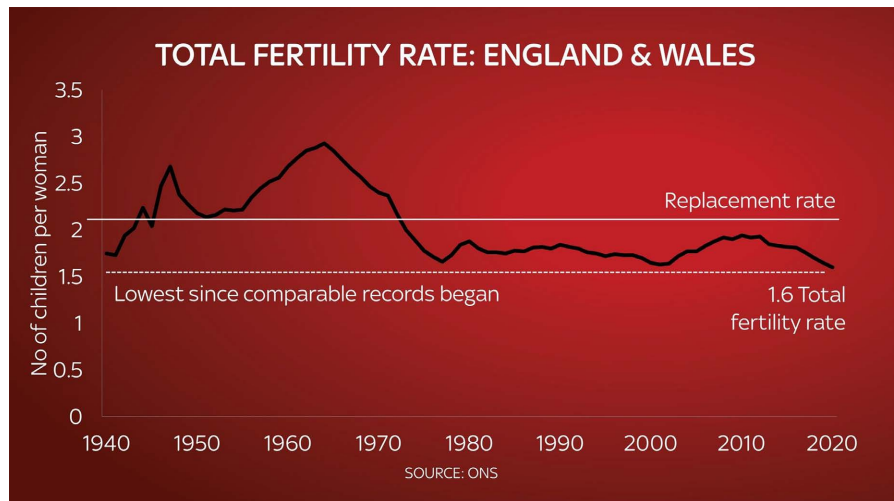


Figure 3. 1940-2020 England and Wales Total Fertility Rate (UK census, 2021).

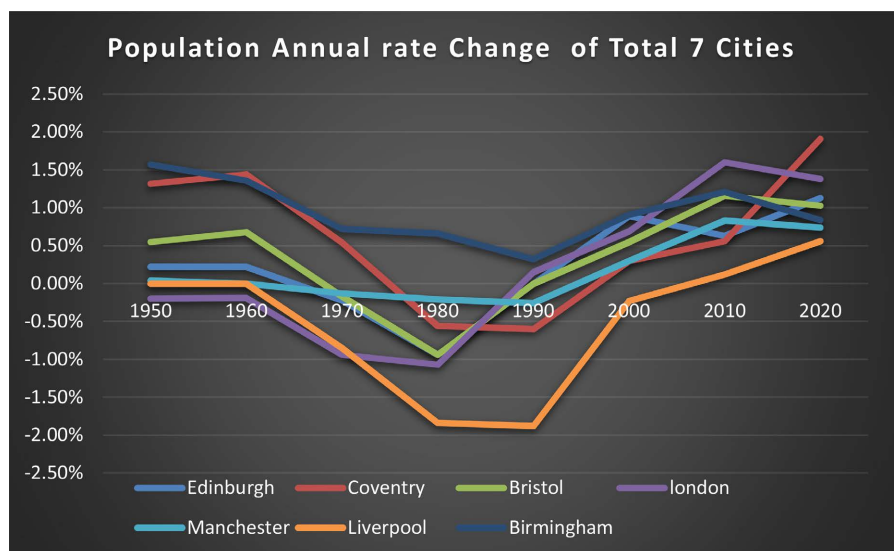


Figure 4. 1950-2020 7 Cities’ population annual change rate.

After this period, however, the population grew in the opposite direction and continued. Therefore, this article compares cities that began to change in the 1980s in **Figure 5** (London, Edinburgh, Coventry, Bristol). At the same time, the cities that started to change in the 1990s are compared in **Figure 6** (Manchester, Liverpool, Birmingham) to make this pattern clearer.

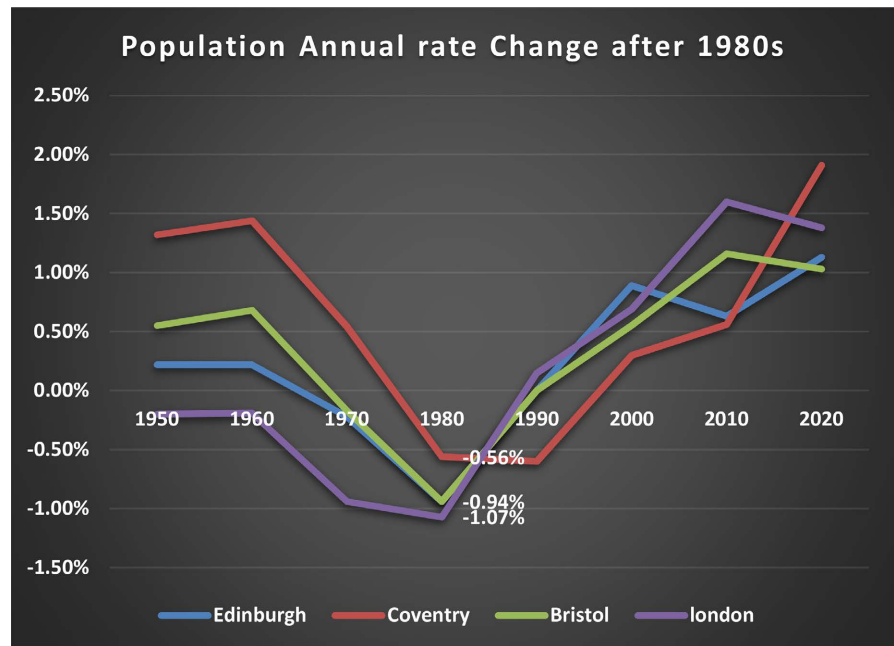


Figure 5. 1950-2020 London, Edinburgh, Coventry and Bristol population annual change rate.

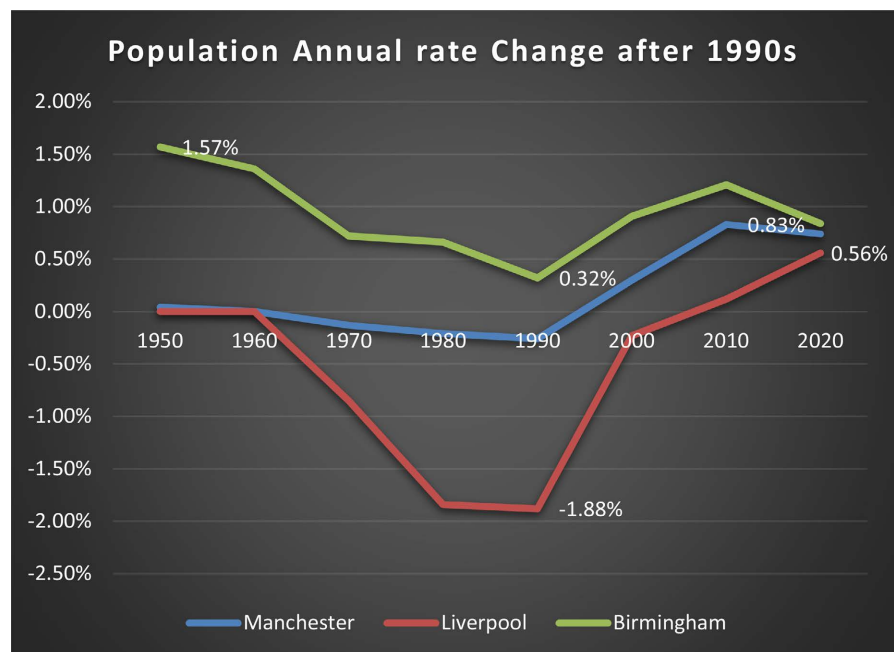


Figure 6. 1950-2020 Manchester, Liverpool and Birmingham Population Annual Change Rate.

Focus on the cities that changed their populations in the 1980s, and the reasons for their growth were varied. First, referring to the annual rate change curve of the capital city of London, the negative change is that the population gradually declined from 1960 to 1980, and the annual rate growth rate during this period hovered between 0.00% and -1.00%. This is mainly due to the slow and difficult recovery process of the post-war city. It wasn't until the 1980s that the population and annual rate growth rates started to rise significantly, and it wasn't until 2005 that the population began to grow rapidly. The main reason for the population growth in the City of London is urban expansion, industrial upgrading, and especially the prosperity of the city's financial industry. Second, compare the annual rate change in Edinburgh, which peaked in 1961 after a post-WWII growth hiatus. The annual rate change experienced a brief, but significant population increase and then a decline. Until it resumed growth in the period 1980-1990, the main reason for its population growth was the development of urban culture. This is the same reason that Coventry's population is changing, especially in the 21st century, when Coventry's population continues to grow. Likewise, Bristol's apparent population growth began in the 1980s. Population growth in Bristol after this period was largely due to migration from the big cities, especially between 1990 and 2000, when the population grew by 10.8%.

Population growth in the other three cities came later. First, Manchester experienced population growth after the 1990s, relying on its relatively strong industrial base. This is mainly due to the city's expansion projects (large apartment plans). In particular, the annual rate change continued to rise after 1990, reaching a peak of 0.83% in 2010. A second similar city is Birmingham, which has seen an increase in its urban migrant population as the city continues to recover its liveability. Population change remained largely above 0% in 1950, as the post-war recovery partially affected the increase in an annual rate change. The nadir was around 0.32% in 1990. The annual rate change after this showed an increase. This is a classic case. A city's liveability and economic factors combine to influence population growth. Especially in recent years, the population has grown very rapidly. But repeated recessions can also cause some populations to be lost. The last one is Liverpool, the main reason for its population growth after the 90s is the development of urban culture. The annual rate growth rate remained below 0% shortly after the war, especially reaching a trough of -1.88% in 1990. The city's annual rate change peaked in the 1960 census and has been declining ever since. The city's industrial base is relatively weak, and the continued decline in the population is directly related to the underemployment caused by the decline in trade. Liverpool's population has continued to grow since 1990, mainly because changes to the city's culture have come into effect. Annual rate change begins to be positive until peaking at 0.56% post-war in 2020.

Therefore, the annual rate change patterns of these seven cities are similar. The population of the seven cities began to decline around 1960, reached the

lowest point around 1980 or 1990, and the annual rate of change continued to rise after 2000. The paper also finds that the gap in annual rate growth across seven UK cities gradually narrowed between 2000 and 2020. Demographic changes in London after WWII were most pronounced in growth in the 2000s and have grown strongly since then. However, due to the city's strong industrial base, demographic changes have seen little ups and downs. The reasons for the population growth of 7 cities will be discussed and summarized in detail below in the article.

The next article will discuss in detail the reasons for the increase in urban population after the 1980s or 1990s, taking into account the different data on population change (1950-2020) for the seven cities. Firstly, London and Manchester, two of the most heavily bombed cities during WWII, saw their populations gradually decline from 1960 onwards. Although these two cities increased in the population at different points in time, the reasons for the increase in population at the end of the 20th century are the same for both cities. As can be seen visually in **Figure 7** and **Figure 8**, London and Manchester's populations began to bottom out in 1980 and 1990 respectively and have been growing strongly ever since (*World Population Review, 2020*) until 2020, when their populations began to grow rapidly. Whereas both cities were depressed due to the subsequent negative effects of the war, the population growth was due to urban construction and expansion. For London, on the one hand, the boom of the City of London in the 1980s led to an economic upturn for the city as a whole (*Hill, 2015*) and the population began to rise. On the other hand, this was due to the urban expansion and urbanisation of London's suburbs during this period, as well as the influx of foreign immigrants, which made the city more culturally and ethnically diverse. However, this exacerbated the city's housing supply and demand problems, with prices in the inner city skyrocketing and posing a serious challenge to London's housing affordability. As a result, urban issues such

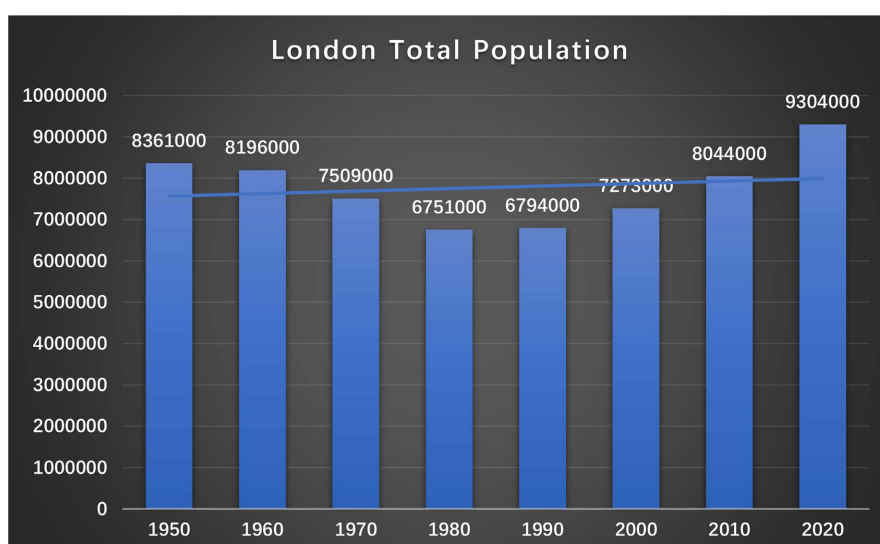


Figure 7. 1950-2020 London population comparison.

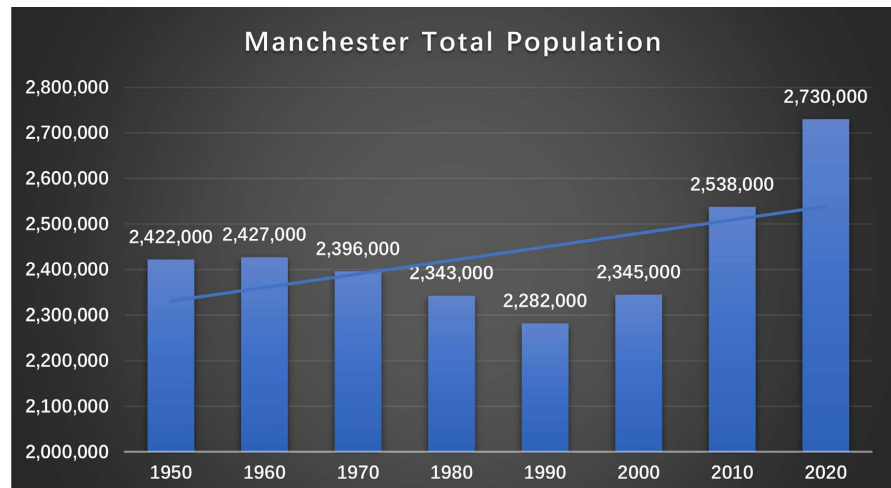


Figure 8. 1950-2020 Manchester population comparison.

as housing shortages have given rise to new urban development issues such as an ageing population, counter-urbanisation and urban sprawl.

At the same time, it is easy to see that Manchester's population also declined slightly from the post-war period to its lowest value in 1990, with few ups and downs, and there is no doubt that the flat decline in population was largely due to the effects of various post-war economic recoveries, population replenishment and urban regeneration. However, from 1990 onwards there was a dramatic increase in the city's population, which some experts attribute to the post-1990 urban expansion plans, such as large flat schemes and similar construction projects, which led to a surge in population and subsequent continued growth in these areas of Manchester city centre. According to Manchester City Council's annual State of the City reports in recent years, more and more people have moved to Manchester as a result of construction projects in the city, with the city's two most central wards gaining over 19,000 people since 2000, more jobs have been created and more businesses have moved to the city. This positive population growth has put the city in a positive position, which explains the positive annual average change in Manchester's population since 2000, as shown in **Figure 8** below.

As the capital of Scotland, Edinburgh, which also began its population growth in the 1980s, the trajectory of population change has been most similar to that of England's capital, London, with population change declining in the post-war period until population growth became apparent and sustained after 1980. For a city with a long and ancient history, its population reached a small peak in 1960, just over 464,000 after a hiatus in growth after WWII. It then entered a 30-year period of decline, which largely coincided with a sustained era of housing modernisation, slum clearance and new town development. But these planning initiatives led to a steady exodus from the city so that in 1989 local businesses, represented by the Scottish Housing Corporation, increased the stock of private housing (Healey, 1994) and reduced the role of the state sector and the local

planning direction authorities. As a result, many developers introduced the vernacular style of English brick and half-timber construction into Scotland. Edinburgh has placed increasing emphasis on the preservation of Scotland's built heritage and urban regeneration schemes, and after 2000 the city's resident population grew by leaps and bounds as can be seen in **Figure 9**, it grew from 451,000 in 2000 to 537,000, an increase of 19%. As a result, Edinburgh's commitment to cultural and historical preservation has revitalised the city.

Coventry and Liverpool are also cities that have seen their populations increase because of cultural transformation. Coventry's population has continued to grow in the 21st century as a result of urban expansion and investment in development. According to the Office for National Statistics (ONS), the city's population has grown the fastest of any city outside of Greater London in the new century. More importantly, Coventry has positioned itself as the UK's City of Culture, attracting millions of pounds of investment in new industries such as technology, which has contributed to economic growth and population growth. Especially, the population has been significantly increased after 2000s. According to **Figure 10**, Coventry's population has soared from 338,000 in 2000 all the way to 426,000 in 2020. At the same time, redevelopment work and infrastructure

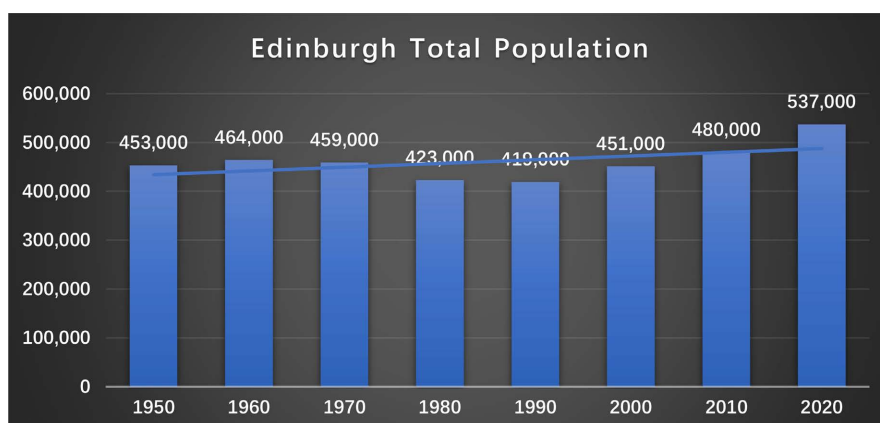


Figure 9. 1950-2020 Edinburgh population comparison.

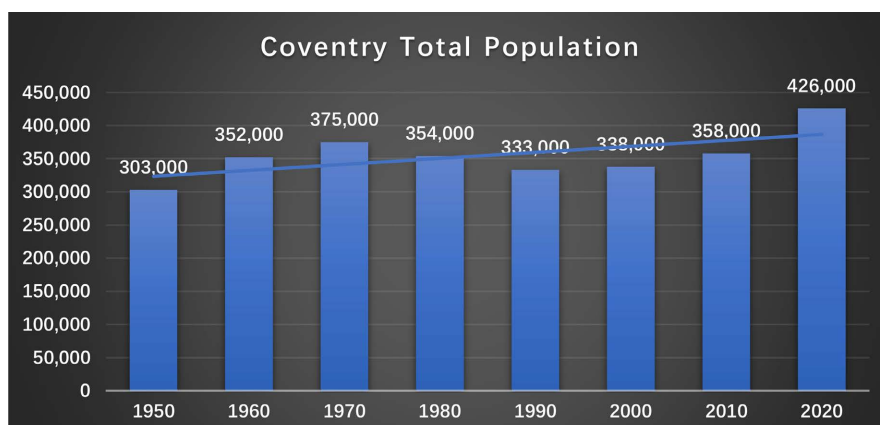


Figure 10. 1950-2020 Coventry population comparison.

improvements in and around the city centre have given the city, which has been relatively low profile, an optimistic growth outlook. What's more, as one of the UK's fastest-growing educational institutions, Coventry University's transformation of higher education has been another driver of population growth. Around one in seven higher education students in the West Midlands region of England attend the University.

Similarly, Liverpool, a city with a very strong tradition of cultural activity, went through a long period of significant population decline after 1950, largely due to the post-war economic recovery and the decline in trade. Referring to the data in **Figure 11**, Liverpool's population peak was recorded at only 1,384,000 in the 1960 census, with subsequent lows ranging from 885,000 in 1990 to 853,000 in 2000, a decline of 36.9% from the peak population of 1960. Unlike other cities, Liverpool's economy is based on port and ship-related trade and commerce. Due to the city's dependence on trade and lack of a strong industrial base, most of the city's jobs were emptied as the port declined. The result was a gradual migration of people from the city and the north to the rural areas of the south and East Anglia. This decline continued until 1990. Thereafter, there was a reversal in population growth and a positive change in the annual average of population change. This was largely due to the city's industrial reforms and cultural transformation (Rink et al., 2012) such as the reopening of the docks in the 1980s and using them to attract and develop urban tourism. Based on this, Liverpool has retained some of its outflow population by re-establishing arts and culture at the heart of the city's development strategy.

Population changes in all the above cities largely followed a downward trend between 1950 and the end of the 20th century, before population growth ceased to be subdued and began to grow consistently after 1980-1990. The difference is that Birmingham's population change is anomalous. For Birmingham, the oldest industrial city in the UK, the city's employment and liveability have continued to generate steady population growth. According to **Figure 12**, Birmingham's post-WWII population was around 447,000 in 1950, growing to 606,000 by 1980

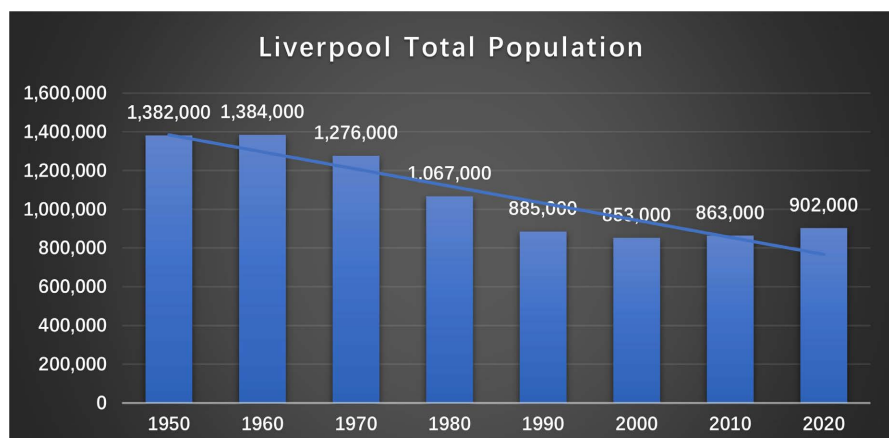


Figure 11. 1950-2020 Liverpool population comparison.

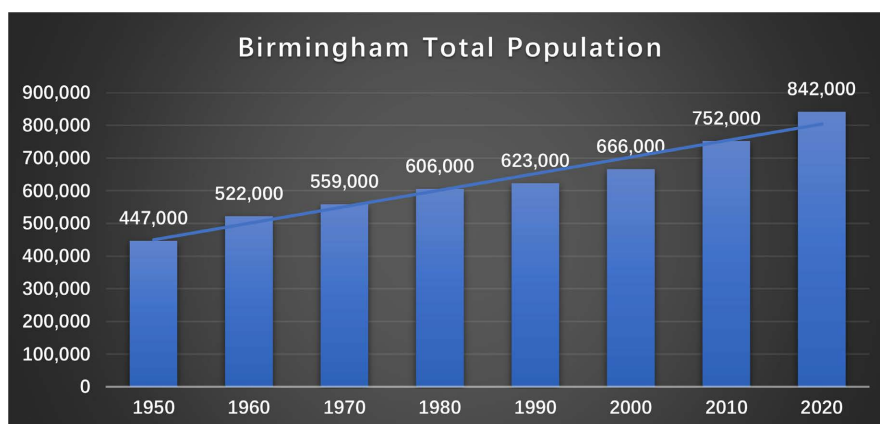


Figure 12. 1950-2020 Birmingham Population Comparison.

and a large city with a population of 842,000 by 2020. In contrast to the previous city, Liverpool's employment and decline have brought a steady decline in population to the city. For Birmingham, therefore, the main cause of population growth was increased migration to the city. Between 1951 and 1961, Birmingham was second only to London in terms of intra-city population and employment growth. This was due to Birmingham retaining many metals manufacturing jobs after the war and having the largest share of the national automotive industry (Swinney & Thomas, 2015). Furthermore, as a large pre-war industrial city, Birmingham was relatively unaffected by the effects of the war (e.g., bombing) compared to London. As a result, the city retained a large base of people who chose to remain in the city after the war. However, employment in metal, car and aircraft manufacturing affected the growth of knowledge-intensive service sector jobs in Birmingham, which by the mid-20th century accounted for less than 3% of jobs (Swinney & Thomas, 2015). As a result, the city also saw a gradual shift in urban employment towards knowledge-intensive services, financial services, and high-value jobs such as digital areas at the forefront of the transformation of British towns and cities in the following decades, particularly after 1980 (Smith, 1974). On the other hand, Birmingham has also replaced jobs in declining industries with lower-skilled, more traditional employment, such as swapping factories for call centres and shipyards for distribution sheds. As a result, it was declared the fastest-improving city in the UK for employment in the 2017 City Well Index, with improvements in employment and the local economy leading to more and more people moving to live in Birmingham, a multifaceted measure of work-life balance, transport, income, and health. Worryingly, the pressures of living in high-burden cities such as London are leading to a brain drain from the south of the UK to the north and midlands. According to incomplete statistics, over half a million people have left London for other parts of the UK in the last decade alone, with many moving to Birmingham, the Midlands, and the North-west, driving Birmingham's population growth in the 21st century. This, coupled with the city's ongoing industrial upgrading and transformation, has led to an

increasing number of graduates choosing to start their careers and lives in Birmingham.

For Bristol, with its ancient trading culture, the post-1980 population growth was also due to migration from the larger cities, particularly London, especially between 1990 and 2000 (Stead, 2002) when the population grew by 10.8%. However, unlike the previous city, Birmingham's population increase was due to the migration of the UK population from the north to the south, whereas Bristol's population increase was due to the shift of the urban population to rural areas. Bristol, one of the best destinations for people away from the capital, is the second most popular destination outside of the southeast London suburbs and dormitory towns. At the same time, Bristol's population has maintained the same growth rate over the last decade, significantly higher than the national average (7%) (World Population Review, 2021b) and one of the most significant population growth rates in the Southwest. According to Figure 5 above, the average annual change in Bristol's population has continued to show growth in recent years, even reaching a high growth level of approximately 1.23% at one point in 2005. According to Figure 13, the city's population was 549,000 in 2000 and has grown to 686,000 in 2020. And according to incomplete statistics, the flow of migrants within the UK is approximately five times greater in Bristol than the flow of international migrants to and from Bristol. In the 12 months to mid-2020, around 33,100 people moved into Bristol from other parts of the UK (Bristol City Council, 2021), mainly from London. Meanwhile, in the first half of 2020, for example, the average number of people moving from London to Bristol per week (5200) is greater than the average number of people moving from Bristol to London (4400), resulting in an average net increase of around 700 people per week in the first half of the year. Bristol's post-21st century population growth could therefore trigger its affordable housing crisis.

3.3. Summary of the Causes of Demographic Increase

This paper finds a pattern of population change in the UK from the post-WWII

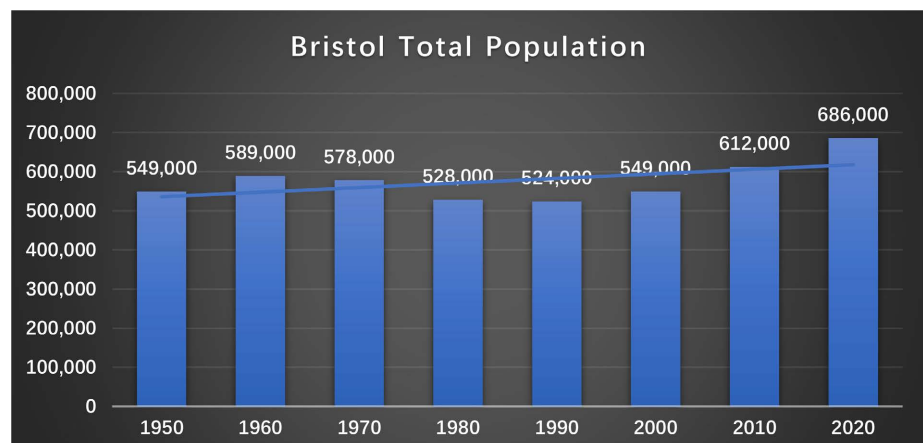


Figure 13. 1950-2020 Bristol population comparison.

period to the end of the 20th century (the 1980s and 1990s) when urban populations generally declined. However, after this period, different cities experienced successive and sustained population increases for different reasons. This article then summarizes all the above analyses of UK urban population data, dividing the population changes in seven major UK cities into three categories according to the main reasons for the increase in population at the end of the 20th century. The first category includes cities whose population changes are primarily due to urban expansion, industrial upgrading, land investment, and other economic factors; the most prominent examples are London and Manchester. London has always drawn attention from around the world as the UK's economic centre, and population growth after WWII was primarily due to the City of London's boom and the development of the surrounding suburbs. With an influx of foreign immigrants and a convergence of domestic talent, this initiative undoubtedly brought a demographic dividend to the city of London. Looking at **Figure 14** for 2016, the average number of long-term immigrants has remained high throughout the year. Simultaneously, the distinction between long-term migration, emigration, and net migration does not change significantly throughout the year. This means that London has maintained a high level of immigration throughout 2016.

As a result, to alleviate the housing problems of the inner-city population, the London government has developed a large number of surrounding suburbs into residential sites. Canary Wharf, for example, which is about 40 minutes from the city centre by tube, has played a significant role in relieving the pressure on London's housing stock. The Canary Wharf suburb has also been developed to provide a large amount of high-specification office space, and the development has been accompanied by diversification and upgrading of the area's industries

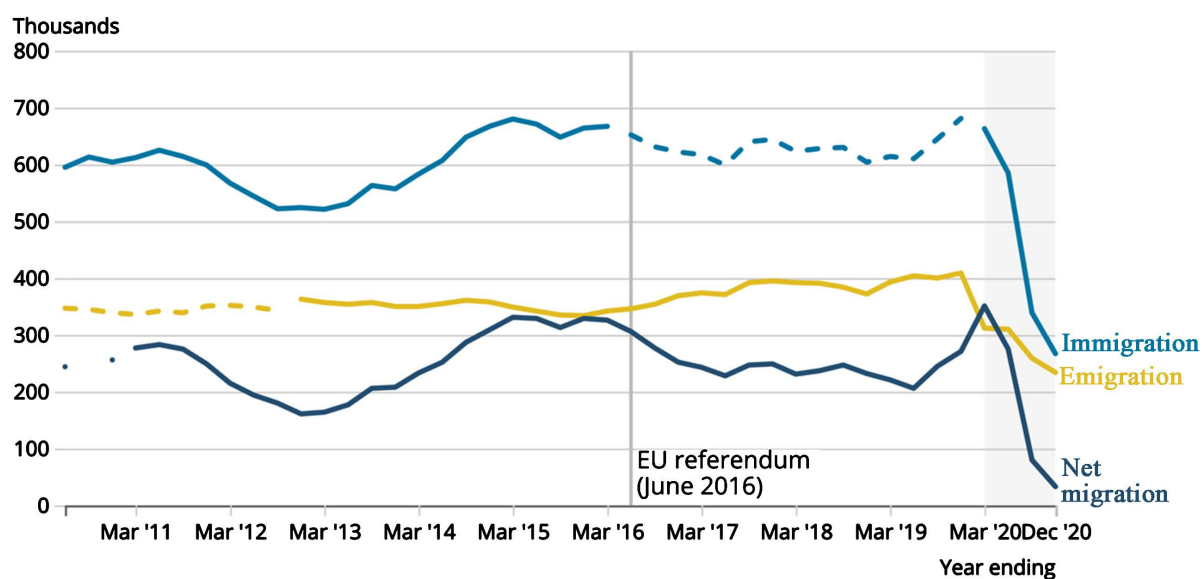


Figure 14. Long-term international migration, UK, year ending June 2010 to year ending December 2020 (Gilbert-Johns, 2022).

(Daniels & Bobe, 1993). Similar suburban developments have not only secured the development of the city's financial positioning but most crucially have provided significant residential amenities for population growth alongside urban change, with a striking interdependence emerging between a new London financial system and the economic and demographic restructuring taking place at a local scale. Manchester, an old industrial city in England, has also seen a major demographic change due to the urban expansion of Large-scale Apartment Schemes. These projects are more concerned with the redistribution of public housing provisions. They effectively address the additional population that Manchester's large-scale housing assistance is intended to help accommodate and help address the growing problem of housing affordability, focusing more on the lasting impact that projects may have on the urban fabric for generations to come (Buckley, Kallergis, & Wainer, 2016). Then there is the project at Ancoats, which includes 118 flats in two buildings, where 30% of the homes are provided directly at Manchester Government Living Rent, which significantly reduces residential pressure on residents.

The second category is one in which the main reason for the population change is the reform and development of the city's culture. Liverpool, Edinburgh, and Coventry are the main representative cities. The city of Liverpool explicitly states that arts and culture are critical to the city's development strategy. Culture has been identified as a means for the city to grow its population and advance its post-industrial renaissance (Rink et al., 2012). Each year, culture attracts over 260,000 visitors to Liverpool, as well as a variety of music groups and arts companies from around the world. Edinburgh has prioritized the preservation of Scotland's architectural heritage and urban regeneration projects, which has resulted in a gradual return of the resident population. At the same time, cultural events such as the Edinburgh International Festival of the Arts take place, providing visitors with a sense of well-being in this city. Edinburgh, a clean city with a compact design and a cultured environment, is frequently voted the "Most Desired European City" to live in. In the context of town change, Coventry has also defined itself as the UK's City of Culture, and how the town's population has been boosted by changes in higher education is exceptional. The value of the educational migration brought to the city by Coventry University in particular is incalculable.

The last category is more unusual in that the main cause of its population change is the movement and migration of people between large cities. The most representative cities are Birmingham and Bristol. In recent years, the largest population shift phenomena in the UK have been the "North-South Drift" (people moving from the north to the south of the UK) represented by Birmingham and the "Urban-Rural Shift" (people moving from inner cities to suburban and rural areas) represented by Bristol respectively (Champion, 2005). The "North-South Drift" was initially caused by the uneven development of jobs, knowledge clusters and economic development between the North and the South. According to

incomplete statistics, back in the early 20th century, for every job created in the North, approximately 2.3 were created in the South (Swinney & Thomas, 2015). And, along with the shift of population from the northern to the southern regions, the gap between the cities of the north and the south grew. Birmingham's post-war population movements with the South were evident, particularly after 1950. During this "North-South Drift", the movement of groups represented by young people was of greater concern. At the same time, Birmingham also provided living and residential facilities for young people moving from other cities, for example by planning the impact of Birmingham's Interstate Highway programme combined with the impact of the city's urban renewal programme. But this programme also had a detrimental effect on the city's black community on the other hand (Connerly, 2002), resulting in a disproportionate number of them losing between a third and two-thirds of their 1960 population and being forced to relocate to other communities, while perpetuating the segregation of neighbourhoods.

The majority of post-WWII in-town migration to Bristol comes from the large cities represented by London. According to preliminary estimates, the UK's urban population will be around 56.39 million in 2020, while the rural population will be around 10.82 million. Since 1960, the urban population of the United Kingdom has increased by 15.3 million, while the rural population has decreased by approximately 480,000. However, Bristol's population has increased rather than decreased, and this trend has continued, no doubt as a natural result of the wave of migration from the big cities. The "Urban-Rural Shift" is a very important component of demographic change for towns and cities in the UK, as represented by Bristol, because it changes the total number of residents in each area and may change the composition of the population (Stead, 2002). People moving into an area may have very different characteristics than those moving out. Every year, for example, there is a net outflow of older people from London to other parts of Bristol to spend their golden years away from the stresses of big city life. On the other hand, this may cause issues in rural areas due to an ageing population. In terms of health care, for example, because rural areas have an older age structure than urban areas, a higher proportion of their residents require more expensive hospital treatment (for example, longer hospital stays) and more time-consuming GP consultations, particularly due to age-related visits to patients' homes or nursing homes (Gordon et al., 2003).

Migration as a result of population growth has emerged as one of the issues that must be focused on in the study of urban population change in the United Kingdom. Meanwhile, this phenomenon represents counter-urbanization, which is a classic phenomenon that cannot be avoided during the urban change in the UK. Counter-urbanization is the phenomenon in which citizens in the UK's urban centres begin to spread to the suburbs, resulting in a significant decrease in population density in the urban centre. However, it is precisely due to counter-urbanization that urbanization in the United Kingdom will proceed more

naturally. To begin with, during the counter-urbanisation process, a large number of industrial enterprises and citizens began to relocate to other cities, bringing with them a large amount of development capital and job opportunities, resulting in the rapid transformation of many of Britain's towns and cities into satellite towns, such as the one mentioned above. People moved from London to Birmingham and Bristol, for example, as a result of the counter-urbanisation process, which resulted in significant population growth in these two cities. Second, the mass exodus of people from urban areas meant that the UK and London did not have to worry about urban overstretch and population carrying capacity as a result of urbanization at the time. However, for towns with relatively homogeneous urban industries and low economic dynamics, counter-urbanization may result in significant intra-city population loss and a shortage of urban labour, as seen in the post-WWII demographic change and development of Liverpool.

4. Demographic Issues Arising from the Development of British Towns and Cities

In the following sections of this paper, the data from the major UK cities mentioned above, as well as a summary of the population increase in UK cities, will be used to fully explain the more prominent demographic problems that UK cities are currently facing in terms of demographic changes, such as population ageing and population naturalization decline.

4.1. Ageing Populations

According to the ONS's 2008 national population projections, which were developed in collaboration with local governments, the UK population will grow from 61.4 million in 2008 to 65.6 million in 2018 and 71.6 million by 2033. Longer term, these projections indicate that the UK population will continue to grow beyond 2033 for the duration of the projection period. Despite the upcoming change in the state pension age, the working-age population to state pension-age population ratio will fall from 3.23 in 2008 to 2.78 by 2033 (Elledge, 2015). And the population's median age is expected to rise from 39.3 years in 2008 to 42.2 years by 2033 (Wright, 2010). As a result, ageing populations have become a demographic issue that must be addressed in the development of Britain's towns and cities.

There are two main reasons for the emergence of this problem as Britain's towns and cities change. On the one hand, it is the result of poorly planned urban demographics. By 2020, there will be 1.7 million people aged 85+ in the UK, and by 2045 this figure will have almost doubled to 3.1 million, an unreasonable 4.3% of the population. At the same time, data show that between 1990 and 2016 the number of people in their 70s in the UK increased from 4 million to 5 million (ONS, 2018). This is due to the irrational post-WWII "baby boom" which caused a dramatic increase in the number of older people during this period.

Moreover, the demographic mismatch was more evident in smaller cities and rural areas of the UK, such as Bristol and Coventry, where there was a large net migration of older people and their children, but a large loss of rural young adults, who largely chose to move to larger cities, such as London. As a result of this influx of labour, however, many more older people in London are facing huge housing pressures and are having to move to smaller cities or rural areas, creating a vicious cycle of demographic mismatch. In rural Britain, including in recent years, the net loss of migrants aged 16 - 24 is around 10%, which equates to 3 out of 5 deaths in this population if repeated over 9 years in this age group (using compound rates) (Champion & Shepherd, 2006).

On the other hand, the rise in human life expectancy has exacerbated the problem in unexpected ways. The average life expectancy for boys born in the UK in 1980 was 84.7 years, according to the ONS report. This is 91.0 years for a boy born today (2015), and it is expected to be 94.3 years by 2037 based on current assumptions. Similarly, a girl born in 1980 has an average life expectancy of 88.8 years. Based on current assumptions, this is 94.3 years for girls born today (2015) and 97.3 years by 2037. The UK population will age as life expectancy rises. This will affect several policy areas including pensions and health services, not least because healthy life expectancy is not increasing as fast (ONS, 2015).

The primary manifestation of this issue is first seen in the UK's old age dependency ratio (the ratio of the older population to the working-age population). This is expected to rise from 28.0% in 2020 to 29.8% in 2030, then to 34.1% by 2045. The total dependency ratio (the ratio of the total non-working age population to the total working age population) is currently less than 58% and is expected to rise to more than 60% by the early 2140s. Senior economist Ben Zaranko of the Institute for Fiscal Studies (IFS) believes that the latest demographic projections reveal that one of the major challenges facing the UK government in the future is how to deal with the ageing population. According to the most recent population projections, one of the major challenges confronting the UK government is determining how to maintain previous levels of social welfare in an era of declining population and ageing populations. The Conservative government led by Prime Minister Thatcher paid close attention to this demographic issue by creating financial incentives for workers to choose private pensions, and by reducing the number of unemployed workers and increasing benefits for the elderly in retirement while retaining the National Health Insurance and other features of the welfare state. But the uncertainty of governing forced the discontinuation of many welfare programmes that dealt with ageing populations (Card & Freeman, 1980). The United Kingdom was one of the first Western countries to establish a social welfare system, which included free universal healthcare, which is now known as the National Health Service (NHS). Increasing ageing populations also may pose a new challenge to the robust welfare system that has existed since WWII in 1948, and the ONS data suggests that the UK may be forced to increase its share of old age benefits as a per-

centage of GDP by 2045 because of increasing ageing populations, thus comparing the Organization for Economic Cooperation and Development (OECD) social welfare protection, the UK is likely to fall below the world average for developed countries after the 2040s (ONS, 2018).

4.2. Natural Population Decline

The issue of natural population decline has also become an urgent issue in the development of UK towns and cities in recent years. According to the findings of the CEIC, the mortality rate in the UK averaged around 9.10 per 1000 population and the birth rate around 11.80 per 1000 population during the period 1960-2017 (CEIC, 2017), so the gap between births and deaths in the UK has remained approximately a relatively stable state. In the future, however, the natural population of the UK may start to decline in 2033, and ONS predicts that over the 10 years from mid-2018 to mid-2028, 7.2 million people will be born and 6.4 million will die across the UK, and 5.4 million people will migrate to the UK on a long-term basis and 3.3 million will migrate out of the UK on a long-term basis. Thus, of the 3 million increases in the total population, only 800,000 (27%) are expected to come from more births than deaths, with around 2.2 million (73%) coming directly from net international migration. Hence, population decline is predicted to come almost 20 years early, suggesting that the UK may face more serious demographic problems in the future than thought. The ONS also predicts that in 2033 the UK is expected to have 700,000 births and 704,000 deaths when the natural population growth rate will fall into negative territory and the gap between births and deaths is likely to widen further in the following decade (Nash, 2018).

The ONS population projections do not take into account the demographic impact of the Cov-19 pandemic and Brexit. Based on the information available so far, the impact of these two events on the UK population is also negative. On the one hand, the Cov-19 pandemic will lead to an increase in mortality and a decrease in birth rates, with the number of deaths exceeding the number of births in the UK for the first time since 1976. On the other hand, Brexit will further reduce net international migration, with net migration from the EU to the UK in 2020 falling to a negative level for the first time in 30 years (Green, 2014). For one certainty of population projections, they will not prove to be accurate forecasts of future demographic events or demographics due to the inherent unpredictability of demographic behaviour. However, ONS prepares different projections based on alternative assumptions about future fertility, mortality, and migration in the UK. Since the 2000 projections, it has been proven that this methodology produces accurate and extensive variant projections for the “full” projections. The UK population is projected to grow to 72.4 million by 2043 according to the ONS prediction (Nash, 2018). By that time, the decline in the UK’s ageing population and natural population will be exacerbated by an increase in the population base and unjustified structural change. As a result, UK

towns and cities are expected to face a severe natural population decline by the middle of the 21st century, and the number of births may be lower than the number of deaths per year for the whole country (Wright, 2010).

5. Conclusion

In conclusion, the UK, as an important country involved in the war, suffered a significant loss of population in WWII, and the highly industrialized British cities experienced a long period of recovery after WWII. The pattern of population change in Britain after WWII has therefore been a relatively tortuous process of decline followed by a sustained rise. Firstly, from around 1950 to the end of the 20th century (the 1980s or 1990s), the populations of the major cities showed a relatively slow process of decline, except for Birmingham. After this, however, the urban population began to show a sustained increase.

Looking deeper into the data on population change in each city, combined with the main causes of population increase at the end of the 20th century, this essay broadly classifies the seven UK cities studied into three categories of cities. The first category is cities where population change is mainly due to urban expansion, industrial upgrading, investment in land and for other economic reasons, the main representative cities are London and Manchester. London's population change after WWII was mainly due to the boom in the City of London and the development of the surrounding suburbs. Manchester's population change is also due to urban expansion and various housing redevelopment schemes. The second group cities whose population change is mainly due to the transformation and development of urban culture are Liverpool, Edinburgh, and Coventry. Liverpool and Coventry both identified culture as central to their urban development strategies after WWII. The development of culture was identified as a direction for the cities to increase their population and advance urban regeneration in the post-industrial era. At the same time, Edinburgh's preservation of traditional Scottish culture, and old buildings, has led to the city regaining its development and population. The third category is that of cities where the main cause of population change is mobility and migration. Typical examples are the "North-South Drift", represented by Birmingham, and the "Urban-Rural Shift", represented by Bristol. Furthermore, this essay argues that ageing populations and natural population decline are demographic issues that need to be urgently addressed in the future development of UK cities. The government, society, enterprises, and other stakeholders should combine their efforts to stabilize population growth, optimize the demographic structure and prevent cities from experiencing a decline in the working population, especially a shortage of people of the right age. This will prevent a decline in the urban workforce, particularly in the age group, which could lead to an imbalance in the UK's regional development.

When studying the growth and change of towns and cities in the United Kingdom, population change is an essential reference perspective. In some cases, and essays, comparisons with the urban population are made. The process of

comparing the actual population of a town with the urban population is closely related to the population's actual level of well-being (Cohen, 2006). This paper focuses only on population change. The population is also commonly used in the study of urban geography and urban planning, where the population change of a town is examined to account for the regional economic base, geographical location, construction conditions, and current characteristics of the city's development. At the same time, understanding the size and characteristics of the population of the area is essential in towns and cities' planning and providing services such as education, transport, and health care (ONS, 2015).

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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