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AVIVA INVESTORS REAL ESTATE: AGEING GRACEFULLY? THE IMPACT OF DEMOGRAPHICS ON EUROPEAN REAL ESTATE

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Main responsibilities

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EXECUTIVE SUMMARY

Demographic trends are a key driver of demand for real estate. They strongly influence the type and location of real estate requirements and, as such, an awareness of future demographic trends is an important consideration for long-term real estate investors.

Europe has a well-publicised demographic problem; in coming decades, its population is expected to decline overall and is set to age significantly. These trends will materially affect its economic prospects and real estate demand.

A continued shift from rural to urban living means that in many parts of Europe, the urban population will continue to grow nonetheless. However, not all cities fare equally well in attracting new people, which suggests a wide variation in demographic outlook at a city level. Larger, more dynamic centres in particular look set to perform best. For instance, while the German working-age population is expected to decline by 2050 even in larger cities, Munich is set to be an exception.

Demographics are one factor among many that drive the demand for real estate in cities. A city's economic fundamentals, the size and quality of its labour force, its credentials as a national and international business and education hub, its cultural appeal and quality of life as well as governance and digital infrastructure all contribute to making a location attractive to occupiers. We look at this wide range of measures to derive a nuanced view of a centre's long-run real estate demand prospects.

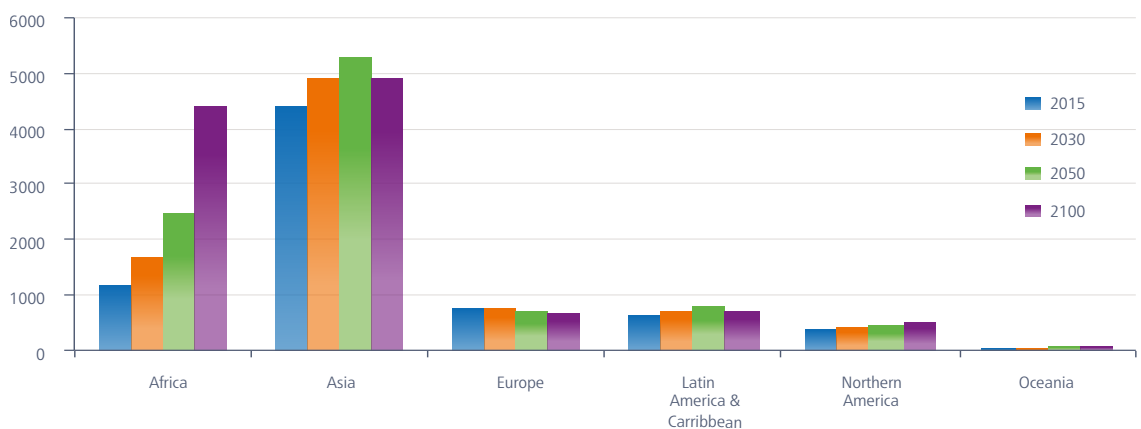


EUROPE'S LOW FERTILITY IMPLIES A REDUCING, AGEING POPULATION

The UN produces regular population forecasts for all countries¹ and aggregates them by continent/region. A stand-out feature of these forecasts is the ***expected decline in population in Europe***² in the immediate future; Europe is the only region that is

expected to see its population fall between here and the middle of the century, though a couple of other regions are expected to see declines in the second half of the century.

Figure 1: Population of the world's major regions



Source: United Nations, Department of Economic and Social Affairs, Population Division, July 2015

A multi-decade history of ***low fertility*** is the major driver of Europe's demographic problem. For Europe as a whole, fertility has been below the estimated replacement rate of approximately 2.1 children per woman since the mid-1970s and is now below

replacement in ***all*** European countries bar Turkey³. Five of the ten lowest-fertility countries in the world are in Europe⁴. Net migration into Europe, though significant, has not been sufficient to offset low fertility.

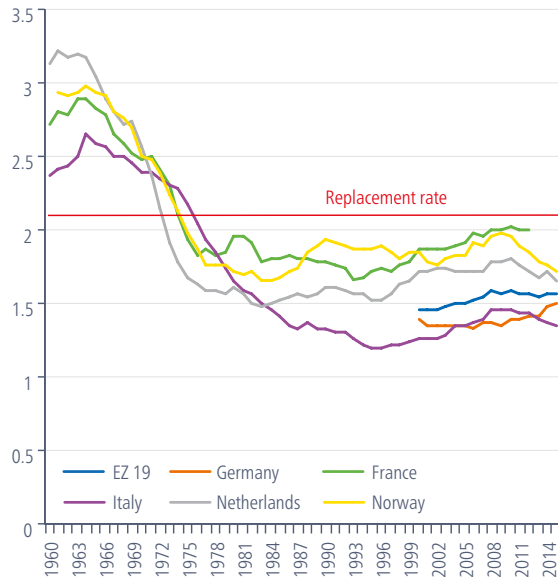
¹ United Nations World Population Prospects: The 2015 Revision

² Includes Russia, does not include Turkey

³ United Nations World Population Prospects: The 2015 Revision

⁴ Moldova, Bosnia & Herzegovina, Portugal, Spain and Hungary

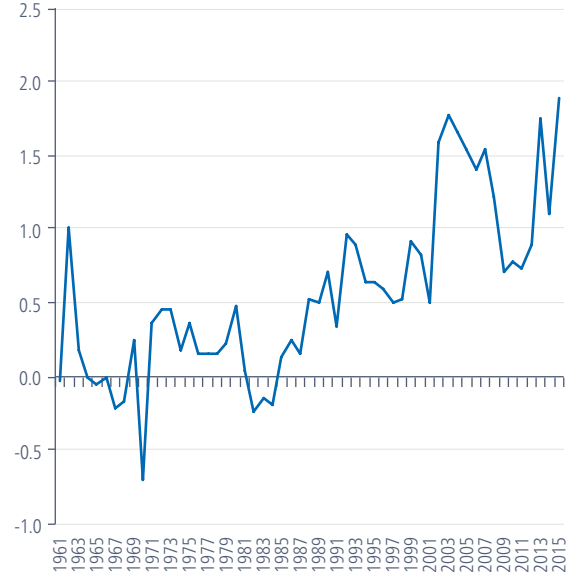
Figure 2: Fertility rate



Source: Eurostat, March 2017

Along with rising life expectancy, Europe's extended period of low fertility has also led to an **ageing population** across the continent. The UN estimates that the median age of Europe's population⁵ rose from 28.9 years in 1950 to 41.7 in 2015.

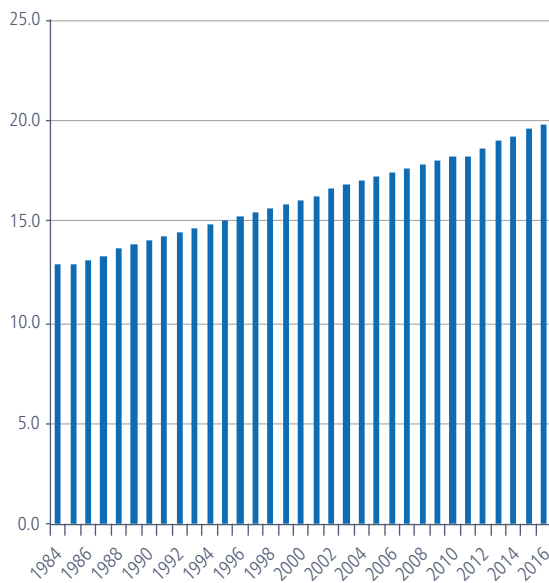
Figure 3: Net migration EU-28 (mn)



Source: Eurostat, April 2017

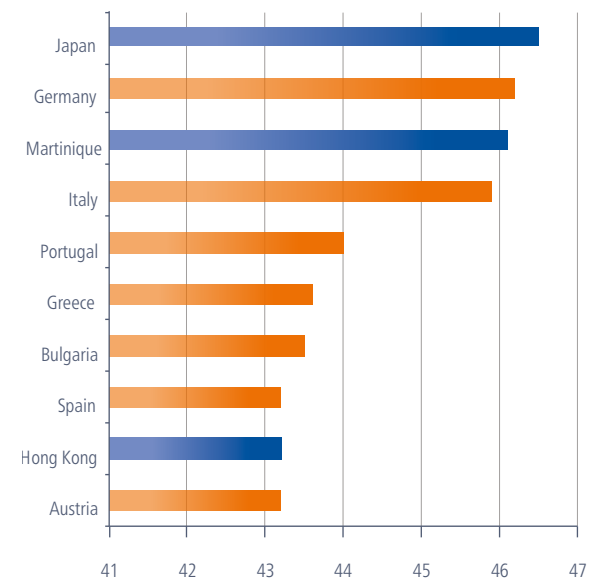
It is expected to rise further in coming decades, to 45.1 by 2030 and to 46.2 by 2050. Seven of the world's ten oldest populations are in European countries.

Figure 4: Population aged 65+ EZ 18 (Per cent)



Source: Eurostat February 2017

Figure 5: Countries with highest median age (2015)



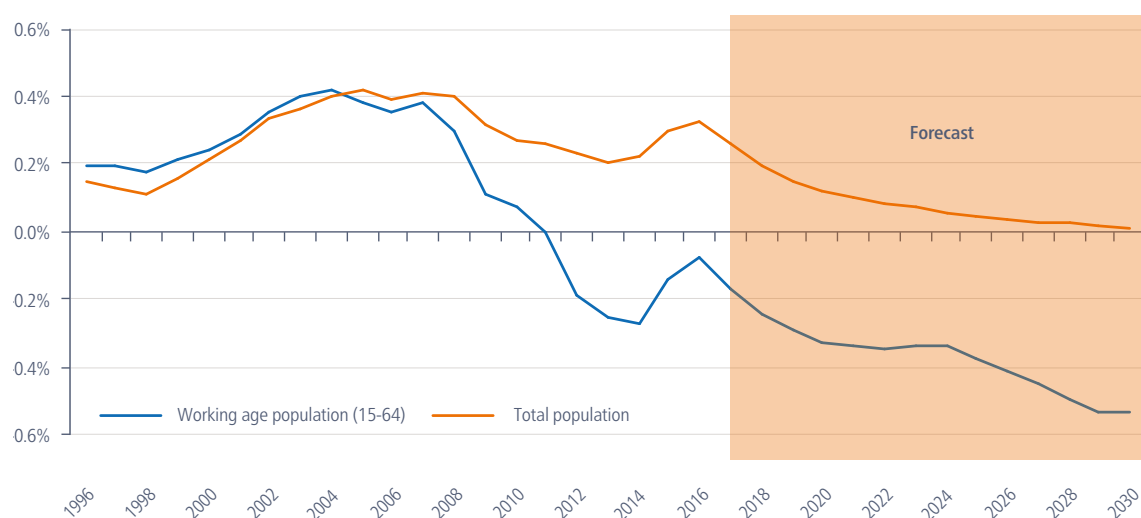
Source: United Nations, Department of Economic and Social Affairs, Population Division, July 2015

⁵ Age that divides the population in two parts of equal size, that is, there are as many persons with ages above the median as there are with ages below the median (UN definition)

As a result of Europe's ageing, its **working-age population** has already begun to decline and is set to fall considerably faster than its overall population in coming decades. Oxford Economics estimates that the proportion of people in the European

Union aged 15-64 fell to 65.1% in 2016 from 66.7% in 2010 and will fall to 61.1% in 2030. Old-age dependency is set to be a major challenge for Europe in coming decades.

Figure 6: EU-28 demographics



Source: Oxford Economics, March 2017

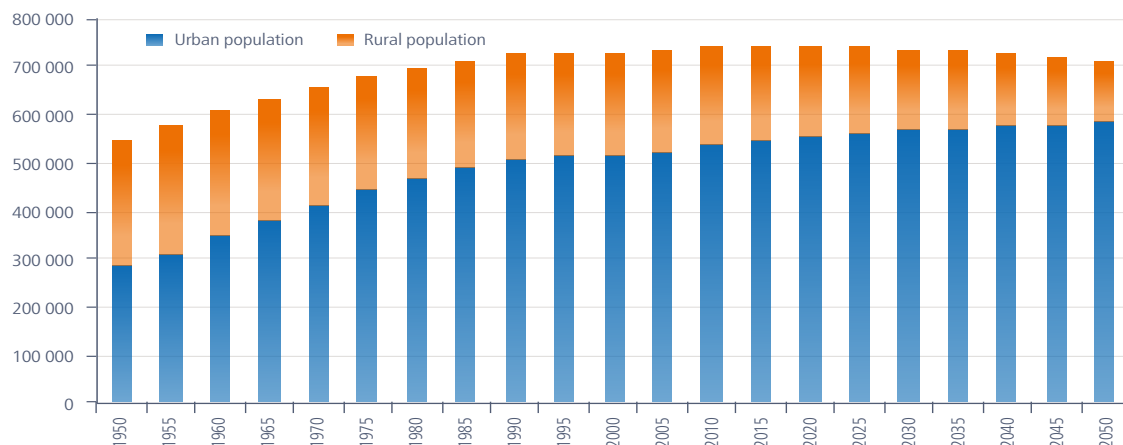
URBAN POPULATION TO RISE IN MOST COUNTRIES HOWEVER

Even though the populations of most countries in Europe have long been predominantly urban, the share of people living in urban settlements continues to rise and is forecast by the UN to rise further in coming decades in **all** countries⁶. It estimated that 73.6% of Europe's population was urban in 2015, and expects this proportion to rise to 77% by 2030 and 82% by 2050. **A shift from rural to urban living** is the principal driver of increased urbanization in recent and in coming decades.

This ongoing shift to urban living means that, even in many countries that are expected to see their overall populations shrink, urban populations will continue to rise. Combining the UN's estimates for total population and the share of people living in urban areas, we get a total European urban population in 2015 of c543m. This should rise to c565m in 2030 and c580m in 2050 on the UN's forecasts.

⁶With the exception of Andorra – United Nations World Urbanization Prospects, 2014 Revision

Figure 7: Europe - urban and rural population

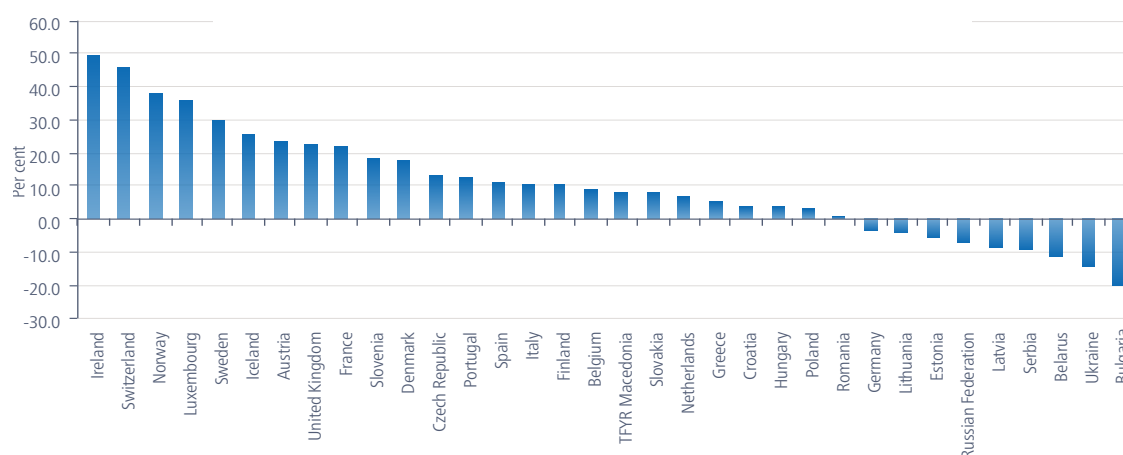


Source: United Nations, Department of Economic and Social Affairs, Population Division, June 2014

Only in **Central and Eastern Europe**, where overall population decline is expected to be most severe (see box), is the urban population expected to fall. In **Southern Europe**, the shift to urban living tends to more than cancel the overall decline in populations

such that the urban population is higher by the middle of the century than now. In **Germany**, the urban population continues to rise to about 2035 before beginning to decline.

Figure 8: Forecast growth in urban population 2015-50



Source: United Nations United Nations, Department of Economic and Social Affairs, Population Division, June 2014

LARGER, MOST DYNAMIC CITIES FARING BEST

The shift in population to cities is not uniform, however, as not all cities are equally attractive to those seeking better economic or other prospects.

Larger cities tend to be more successful at attracting incomers, with European capital cities growing especially strongly. The European Commission⁷ finds that the populations of capital cities have been growing faster than smaller metro areas through a combination of positive net migration and high natural growth. In the EU-15⁸, total population rose by 5% between 2002 and 2012 with capital cities seeing population growth of 8%, other metro regions rising by 5% and non-metro regions seeing population growth of just 3%.

Cities tend to have a higher share of working-age population and a lower share of people over 65, and this is particularly pronounced in larger cities. Migrants from other EU countries and from outside the EU are more likely to live in large cities. For instance, almost all capital cities have the highest share of foreign-born residents in the country, over 20% in cities such as Brussels, London, Paris, Stockholm and Vienna⁹.

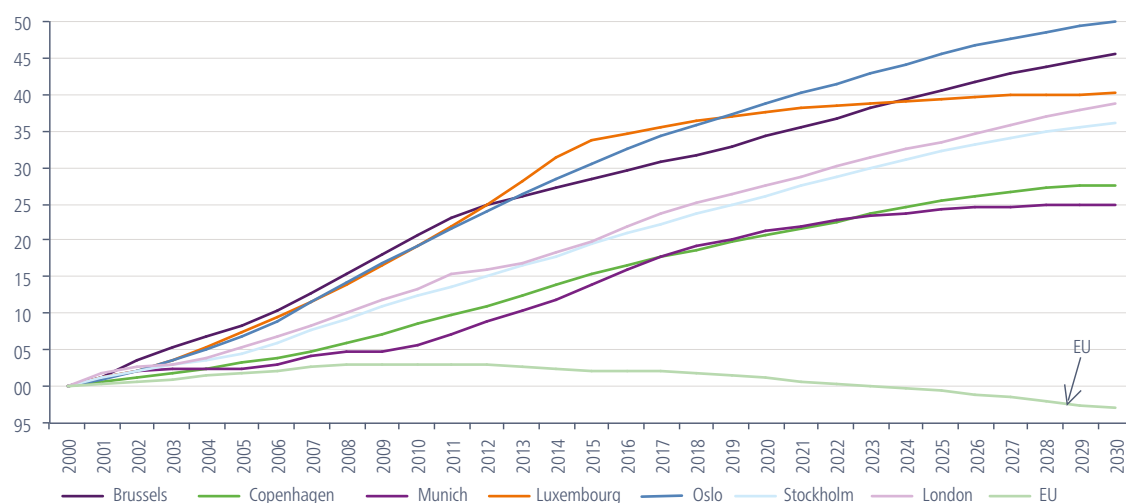
The EU also finds that large cities tend to have

a more highly-educated population, higher employment rates, more innovation and **higher productivity**. Cities¹⁰ account for 68% of EU GDP with just 62% of jobs and 59% of the EU's population.

As a result of these dynamics, the demographic outlook for different cities can vary greatly and a long-run real estate investor ought to look at trends on a city-by-city basis rather than relying on regional or national aggregates. The charts below show forecasts of working-age population growth for a wide range of European cities¹¹. They demonstrate that:

- In general, larger cities are expected to see robust growth in population.
- There can, however, be big discrepancies between cities.
- In Germany, working-age population is expected to decline even in larger cities. There are exceptions, Munich for example.

Figure 9: Working age population (2000 = 100)



Source: Oxford Economics, December 2016

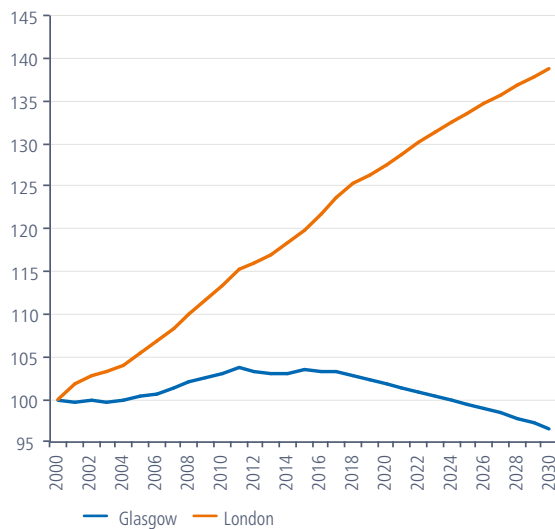
⁷ The State of European Cities 2016, European Commission

⁸ The 15 EU member states prior to the accession of 10 Central & Eastern European states in 2004

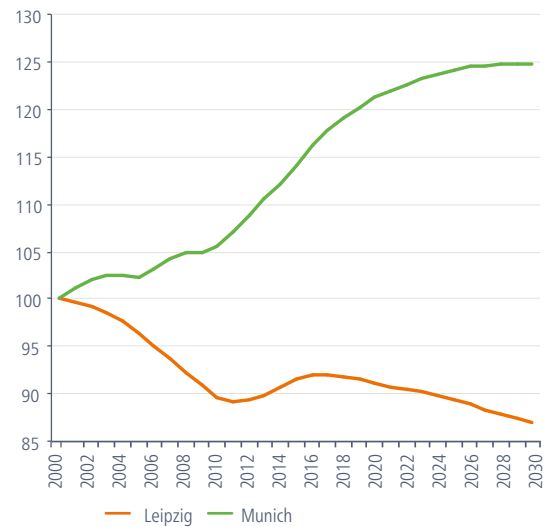
⁹ The State of European Cities 2016, European Commission

¹⁰ The EU defines "cities" here as functional urban areas of more than 250,000 people

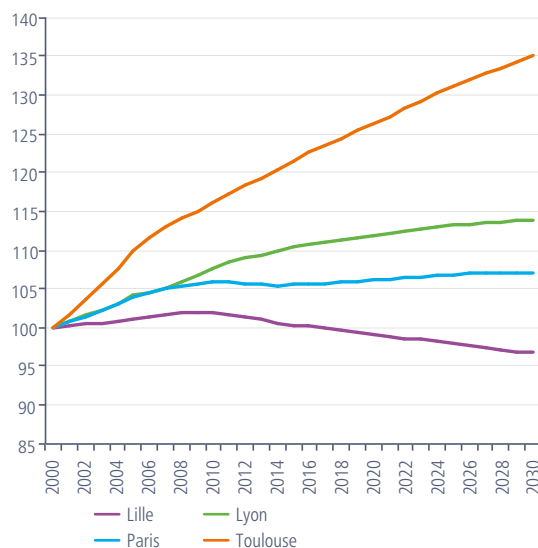
¹¹ Source: Oxford Economic Forecasts



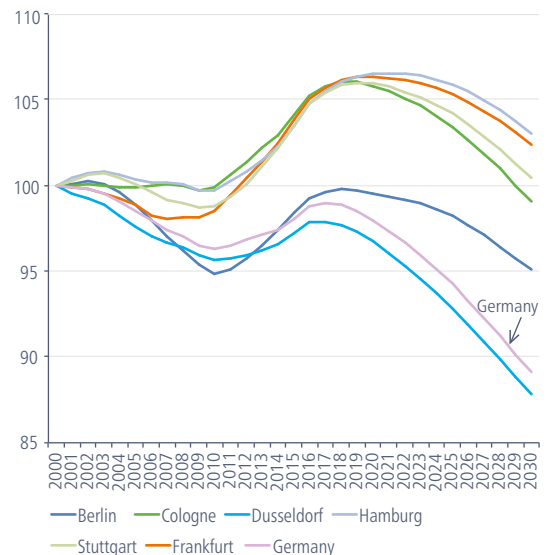
Source: Oxford Economics, December 2016



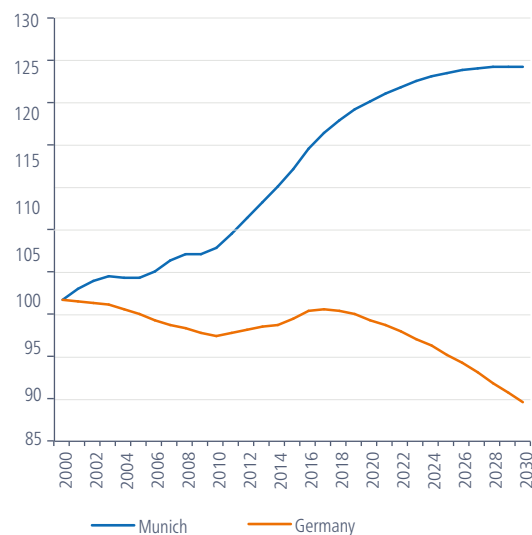
Source: Oxford Economics, December 2016



Source: Oxford Economics, December 2016



Source: Oxford Economics, December 2016



Source: Oxford Economics, December 2016

DEMOGRAPHIC OUTLOOK TO IMPACT REAL ESTATE DEMAND

The different demographic outlook for different markets in Europe will have a significant impact on demand for all types of real estate. Demographic trends are an important driver of overall demand for real estate and strongly influence the type, functionality and location of real estate requirements.

Demand for **residential** real estate is likely to respond to changes in demographics in the most direct way. Total population is an important driver of overall demand and the age profile of a population will have a significant impact on the type of residential property that is sought. A declining younger population implies weakening demand for student housing, for instance, while a growing older population suggests rising demand for retirement housing.

Demand for **retail** space is likely to respond to population changes to an extent even if it may be more heavily affected by the pursuit of greater efficiency due to online shopping and other emerging delivery channels. Generally, as catchment areas shrink or grow, the value of retail centres increase or decrease.

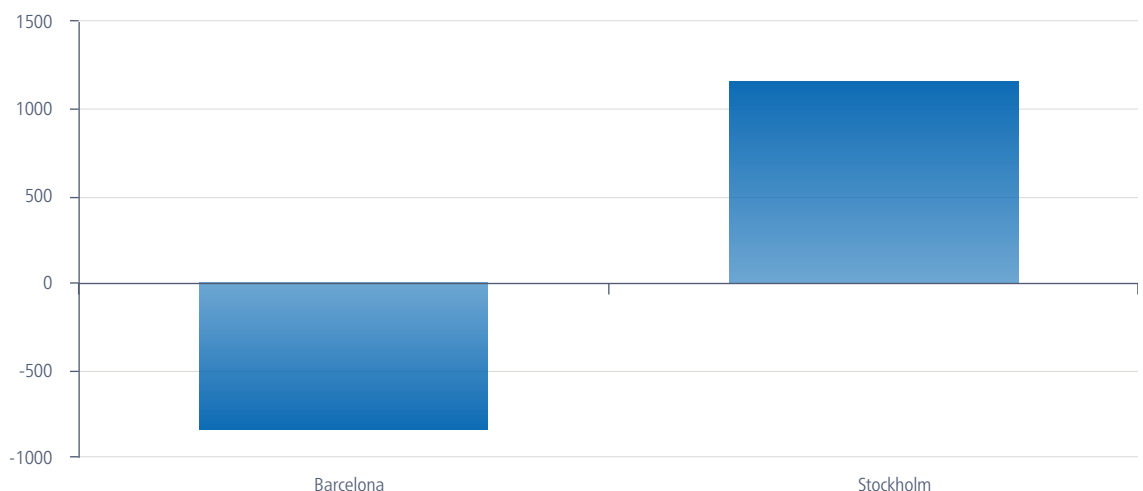
Demand for **logistics** space is likely to benefit from population growth in selected locations. In addition, automation may mean less need to locate warehouses close to pools of cheap labour meaning

that transport links and proximity to markets may rise in importance. This can add to demand for real estate in the most vibrant centres.

Demand for **office** space is likely to increase in line with working-age populations in locations that boast a high share of knowledge-intensive activities. However, automation is likely to weigh on demand for offices in locations that rely on routine, low value-added employment, potentially offsetting any positive demographic changes in those places.

- We analysed how demand for office space might be affected by expected changes in working-age population in different markets. For instance, if we assume that office employment will change in line with changes in working-age population, we can make an estimate of how much more or less occupied space will be needed in a market over time. This analysis disregards the potential for a fall in floorspace per worker due to an increase in flexible working and also disregards the potential for labour market participation rates and retirement ages to rise. The examples of Barcelona and Stockholm are indicative of the importance of demographics alone with the former set to see 838,000 square metres (sqm) less occupied floorspace in 2030 and the latter set for an increase of 1.2m sqm on this analysis.

Figure 10: Estimated change in office occupancy 2016-30 (sqm = 000s)



Source: Aviva Investors, PMA, May 2017

DEMOGRAPHICS JUST ONE FACTOR TO CONSIDER

As well as more favourable demographics, the greater productivity of cities comes from several factors including the size and quality of the labour force, the quality of the business environment, entrepreneurship, quality of governance, market access and the level of innovation. In addition, cities benefit from agglomeration economies, the “matching, sharing and learning” benefits that firms reap from being in close proximity to each other.

Factors such as these, of course, are not evenly spread and feature more prominently in some cities than in others. For a long-run real estate investor, it is useful to estimate in which cities these factors are most prominent as these will be the markets that are best placed to benefit from higher productivity, stronger demographics and consequently more robust real estate demand.

The examples of Brussels and Paris show how this analysis can give a nuanced view of a centre’s long-run prospects:

- **Brussels** has a robust demographic profile, with its population expected to grow by an average of 1% per annum in 2016-30¹². However, its economy is expected to underperform many of its peers, its digital infrastructure is relatively weak and its labour force is not as highly skilled relative to many other cities in the region. Perhaps most importantly, its over-reliance on the public sector is a significant

risk to future demand for commercial real estate space. Furthermore, this market is characterised by low barriers to entry and has therefore suffered from periods of significant oversupply of office space. So despite a robust demographic profile, pan-European investors may be well-advised to build their strategic presence in European cities with better prospects.

- In contrast, the demographic outlook of **Paris** is less impressive with expected average annual population growth of just 0.1% per annum in 2016-30¹³. However, Paris benefits from agglomeration effects due to its very large size. It is an important international business hub with a large financial sector and a high number of international corporate headquarters. It has exceptional levels of human capital on the back of world-class universities and business schools, and high levels of research and development activities. Paris is a city that attracts knowledge-intensive employment - the sort of employment that we consider to be highly resilient to technological disruption, including automation and artificial intelligence. Finally, it is a global city with a wide reach, attracting extremely high numbers of tourists on the back of its cultural appeal, students thanks to its prestigious education institutions and business people thanks to its large and diverse local economy.

^{12, 13} Source: Oxford Economic Forecasts

DEMOGRAPHIC WEAKNESS CONCENTRATED IN EASTERN AND SOUTHERN EUROPE AND GERMANY

Looking at demographic trends at the broad European level masks considerable divergence in performance within Europe's different regions. In particular, it hides the fact that demographic weakness is concentrated in countries in Eastern and Southern Europe, with most countries in Northern and Western Europe expected to fare considerably better. In fact, while population ageing is forecast for all European countries in coming decades, not all are forecast to see population decline. Population declines are expected to be almost exclusively an Eastern and Southern European issue.

For Europe as a whole, the UN expects a fall in total population of 4% between 2015 and 2050. In **Central and Eastern Europe**, the population has been declining since the early 1990s, and a further fall of 14% is expected by 2050. All countries in the region are expected to share in the decline, ranging from 5% in the Czech Republic to 28% in Bulgaria.

In **Southern Europe** (effectively Iberia, Italy and the Balkans), the population has recently peaked and an overall decline of 7% is expected by 2050 with all but a few micro-states seeing falls. For instance, Spain's population is forecast to decline by 3%, Italy's by 5%, Portugal's and Greece's each by 11%.

In **Northern Europe** (UK and Ireland, Nordic countries and the Baltic states), the population continues to grow overall and in all countries except the Baltic states (Latvia, Lithuania & Estonia). And, with the exception of these, population is expected to continue to grow throughout this century.

In **Western Europe** (France, Benelux, Austria, Switzerland and Germany), populations have been rising in all countries in recent years and, with the exception of Germany, populations in 2050 are forecast to be higher than in 2015. In the second half of the century, mild population decline is expected in a few other countries in this grouping, notably Austria and the Netherlands.

Germany is the major exception to the trend of rising population in Western and Northern Europe. It has long had among the lowest fertility rates in Europe, much lower than large peers such as France and the UK for instance. In 2015, the UN estimates its fertility rate at 1.39 children per woman compared to 2 in France and 1.8 in the UK. Its total population is peaking around now and a decline of around 12%¹⁴ is forecast by the middle of the century. The proportion of its population that is of working age is forecast to decline by more than 10 percentage points by mid-century, from 65.9% in 2015 to 55.2% in 2050¹⁵.

¹⁴ United Nations World Urbanization Prospects, 2014 Revision

¹⁵ United Nations World Population Prospects: The 2015 Revision

SUMMARY & CONCLUSIONS

- The different demographic outlook for different markets in Europe will have a significant impact on demand for all types of real estate. Demographic trends are an important driver of overall demand for real estate and strongly influence the type, functionality and location of real estate requirements.
- Europe has a demographic problem; its overall population looks set to decline in coming decades with a more pronounced decline expected in its working-age population.
- An ongoing shift from rural to urban living means that urban populations will continue to rise in most countries and in Europe overall. The major exceptions are to be found in Eastern Europe.
 - As such, long-run real estate investors can benefit from studying the demographic outlook at a city level. Doing so gives a few broad conclusions:
 - In general, larger cities are expected to see more robust growth in population.
 - There can, however, be big discrepancies between cities.
 - In Germany, working-age population is expected to decline even in larger cities. There are exceptions, however, Munich for example.
- Demographics are one factor among many that drive the demand for real estate of cities. A city's economic prospects, the size and quality of the labour force, its credentials as a national and international outreach and development business hub, its cultural appeal and quality of life as well as the quality of governance all contribute to making a location attractive to occupiers and consequently – real estate investors. In determining the attractiveness of a location, we look at this wide range of measures to derive a nuanced view of a centre's long-run prospects.

Important Information

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