MOODY'S ANALYTICS

July 22, 2014

European Regional Forecasts: Comparative Advantage, Opportunities and Risks

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European Regional Forecasts: Comparative Advantage, Opportunities and Risks

BY STEVEN COCHRANE & PETR ZEMCIK

This paper outlines the prospects for Europe's economic recovery in the near term. It sketches the opportunities for growth and the risks that could derail recovery. This serves as context for the analysis of metropolitan area economies across Europe. The analysis proper focuses on the prospects for growth in the coming three years for Europe's subnational regions. This paper examines the metro areas across three dimensions: by space, as defined by metropolitan areas; by size, as defined by population; and by industrial structure, as defined by the concentration and growth trends of industries that drive the metro areas and demand for commercial real estate.

Fragile recovery in Europe

European Union economies outside of the euro area will outperform countries within the euro zone. The U.K. economy will accelerate and be one of the best performing economies in Western Europe this year (see Chart 1). Countries in the currency union, meanwhile, are at different stages of their business cycles. While output grew 0.8% in the first quarter of 2014 in Germany, it contracted 0.1% in Italy and remained flat in France. Actual output is below potential in many countries and the gap is narrowing slowly.

Despite the U.K.'s strong outlook, the economy is a laggard with regards to productivity (see Chart 2). Since the 2008 financial crisis and recession, U.K. labor productivity has been exceptionally and persistently weak, not only in historical terms but also when looking at cross-country comparisons. While Germany and Italy had productivity declines in 2009 roughly similar to that of the U.K., the recovery in U.K. productivity has trailed that of all other major European economies.

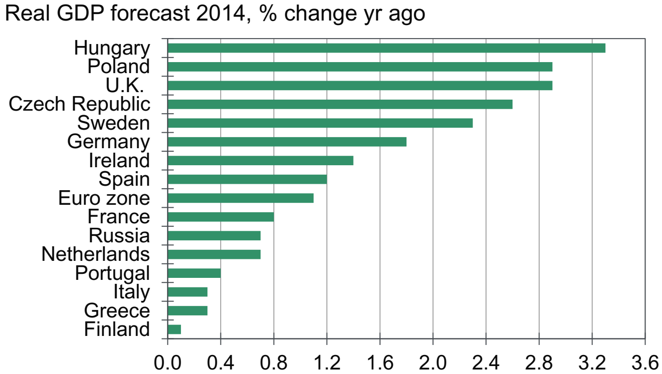
A large fall in output in the year leading to early 2009, followed by strong employment gains from autumn 2011 to a record high in early 2014 goes some way toward explaining the weakness in U.K. productivity per hour worked. By contrast, productivity in Spain, where the unemployment rate is 25.9%, has been boosted by aggressive shedding of labor and increased competition in construction.

The unemployment rate in the euro zone is still high at 11.6% and above the nonaccelerating inflation rate of unemployment (NAIRU) in many countries (see Chart 3). The labor markets in Spain and Greece have not yet recovered despite a downward correction in wages and salaries. While regional unemployment typically follows a national pattern, there are local differences. For example, the unemployment rate in Southern Italy is much higher than in Northern Italy (see Chart 4).

Deflation is the main risk for countries with high levels of public or private debt. Consumer prices across the euro zone grew just 0.5% year-on-year in May, compared with 0.7% in the previous month (see Chart 5). Inflation slowed in Italy, Spain,

Chart 1: U.K. a Leader in Western Europe

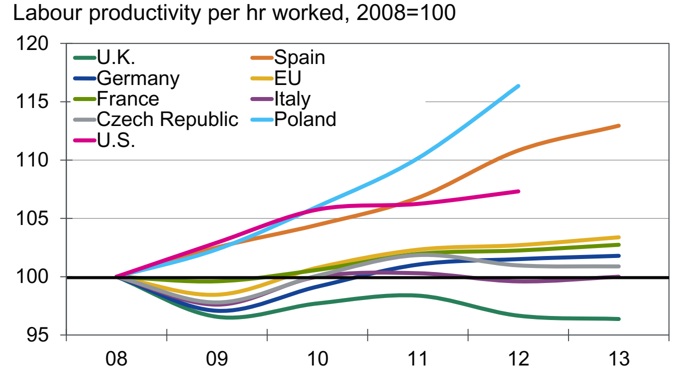
Real GDP forecast 2014, % change yr ago



Sources: National statistical offices, Moody's Analytics

Chart 2: U.K. Productivity Weaker Than Europe's

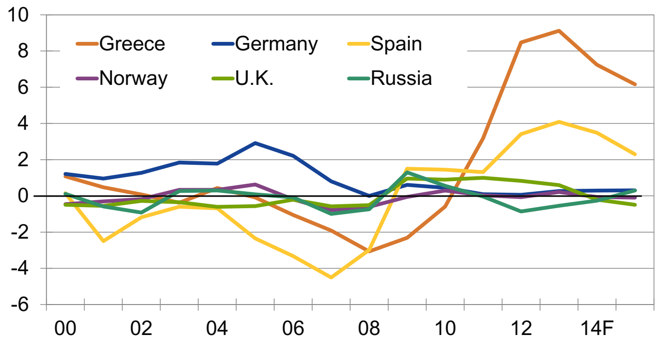
Labour productivity per hr worked, 2008=100



Sources: OECD, Moody's Analytics

Chart 3: Unemployment Rate Is Declining Slowly

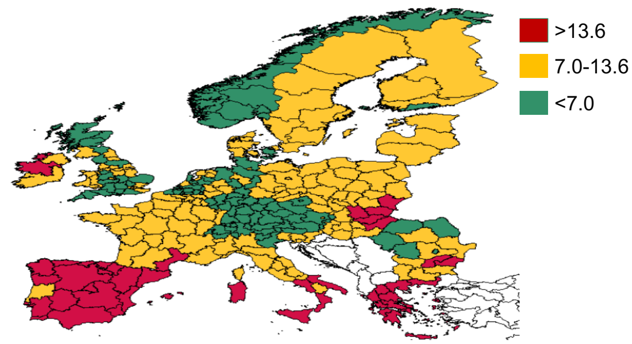
Actual unemployment rate minus NAIRU, %



Sources: National statistical offices, OECD, Moody's Analytics

Chart 4: Unemployment High in Weak Countries

Unemployment rate, %, 2013Q4, NUTS2 regions



Sources: Eurostat, Moody's Analytics

and even in Germany. One- and two-year inflation expectations also fell for the euro zone. Declining consumer prices prompt consumers to postpone purchases of durable goods, reducing aggregate demand and deepening an economy's recession. Because nominal wage growth tends to follow consumer prices, reduced income aggravates the problem.

In an economy growing close to its potential growth rate, there is a trade-off between raising interest rates to fight inflation and lowering them to address unemployment. This trade-off has not existed in the euro zone for some time. In June, the ECB lowered the headline rate on refinancing operations by 10 basis points to 0.15% (see Chart 6). The ECB also cut the interest rate on overnight lending, introduced negative deposit rates, and revamped its Long-Term Refinancing Operations program to boost lending. The Bank of England and the Federal Reserve, on the other hand, are considering increases in interest rates as the U.K. and U.S. economies accelerate.

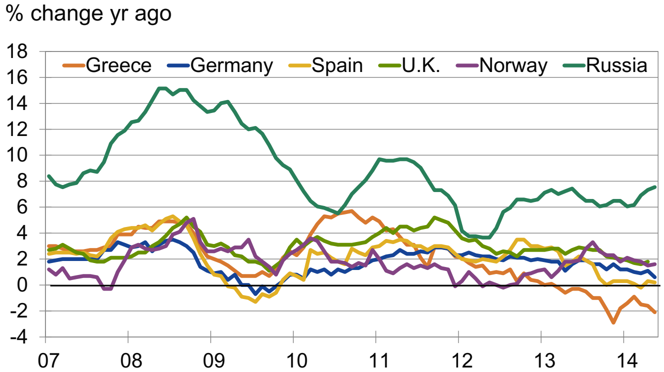
Although the ECB aims to boost lending, the banking sector is still weak, with high levels of nonperforming loans in countries such as Ireland, Greece and Spain. Many of these loans stem from burst housing bubbles (see Chart 7). Property price-to-income ratios and other housing demand determinants indicate that real estate is undervalued in these countries. This is reflected in employment in the construction industry, which has been steadily declining since 2008 (see Chart 8). In growing economies such as Norway and Switzerland, by contrast, property appears overvalued.[Chart: Property Price-To-Income Diverges in Europe]

While output growth in the euro area is still weak, there are signs of revival in some industries, notably in the demand for cars (Chart 9). During the sovereign debt crisis, carmakers relied on demand from emerging markets and the U.S. to make up for the weaker demand in Europe. Recently however, emerging markets are experiencing a slowdown while demand from Europe is gradually strengthening. Although Western Europe still dominates European auto production, the auto manufacturing industry is shifting toward metro areas in Central Europe, which today produce not only small and inexpensive cars but also premium and upper-end brands.

Central European countries benefit from their links to Germany, whose exports help to drive the region's economic performance (Chart 10). Exports to Germamu from the Czech Republic, Hungary and Poland are closely correlated with German exports and hence are less sensitive to exchange rate fluctuations. The rising demand for cars is therefore likely to boost output in these countries.

Chart 5: Deflation Is a Risk Across Euro Zone

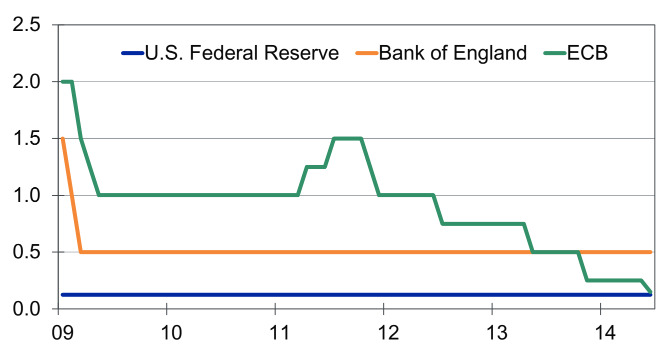
% change yr ago



Sources: Eurostat, Moody's Analytics

Chart 6: ECB Cut Rates to a New Low in June

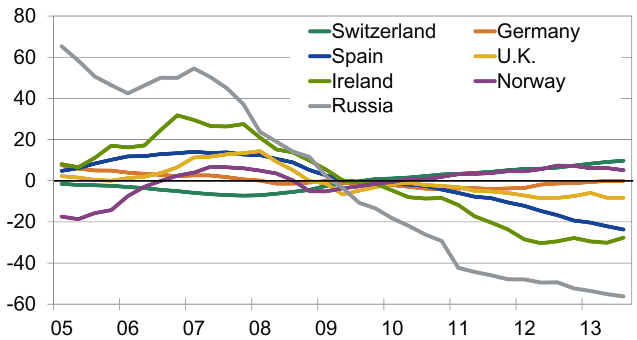
Key monetary policy rate, %



Sources: ECB, BoE, Federal Reserve, BoJ, Moody's Analytics

Chart 7: Property Price-to-Income Diverges

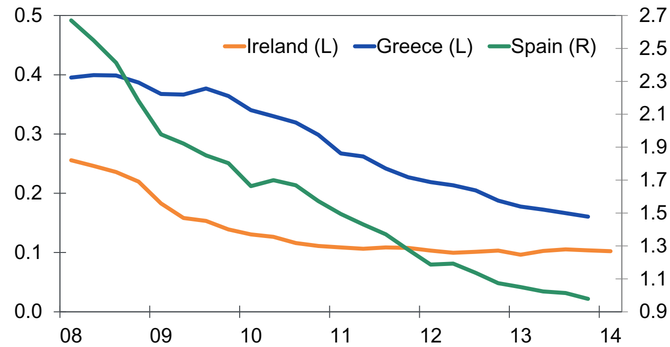
Error between actual value and long-term avg, %, Europe



Sources: National statistical offices, BulwienGesa AG, Moody's Analytics

Chart 8: Construction Employment Contracts

of employed persons in construction, mil, NSA



Sources: National statistical offices, Moody's Analytics

The recovery in Europe is fragile and not all countries are on a steady growth path, especially in the euro zone. The proactive monetary policy by the ECB is a necessary but insufficient condition for sustained growth. Demand for loans has to increase for investment to pick up. This requires a stable environment, at a time when the political landscape in the European Union is becoming less certain. In recent elections, a large portion of the vote went to extremist parties favoring less integration and even separation from the EU. This makes it difficult for countries to implement structural reforms recommended by the European Commission. Additional risks include weakened emerging markets and a continuing crisis in Ukraine.

Regional outlook: recent performance

Since the financial crisis of 2008, the regional pattern of employment growth, as defined by job growth across the NUTS 2 regions of Europe, has generally followed national trends, although not completely. London and the broader southeast region of England have consistently led the rest of the U.K. (see Chart 11). Similarly, western Germany has outpaced its eastern states, as it has since reunification. This core strength in Germany also extends into the Rhône-Alpes region of east-central France as well as into Austria, the Czech Republic and portions of other Central European countries. Indeed, the greatest regional differentiation within countries is seen in Poland, Romania and Bulgaria, where emerging commercial and industrial centers clearly outpace the remaining regions. Labor markets in Greece and Spain are the most homogeneous, with all regions within both countries suffering significant downturns since the financial crisis. The most uniform labor market strength is found in Norway and Sweden.

Longer-term trends

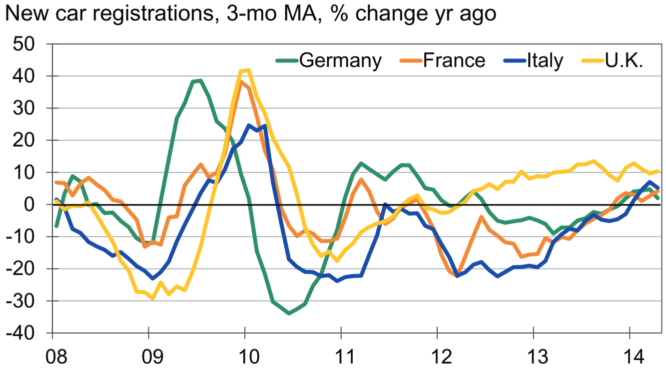
This paper takes a long-term view of regional economic performance so as to look through the volatility created by the 2008 financial crisis and identify long-term potential for growth, particularly as it relates to real estate markets. It seeks to differentiate regional potential across three dimensions. The first is by space. For this paper, space is determined by metropolitan areas as defined by Eurostat, which are generally composed of one or more NUTS 2 regions with some adjacent NUTS 3 regions that are closely linked by commuting patterns.

The second dimension is by size. The metro areas are grouped into five class tiers based on population size in 2012 (see Chart 12). The population size tiers are:

- Tier 1: greater than 2.5 million
- Tier 2: 1.25 million to 2.5 million
- Tier 3: 750,000 to 1.25 million
- Tier 4: 500,000 to 750,000
- Tier 5: less than 500,000

Chart 9: Auto Sales Pick Up

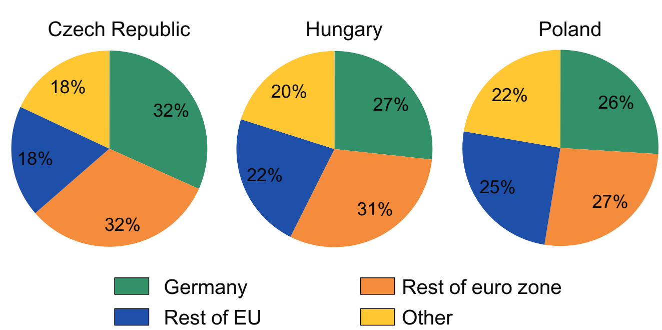
New car registrations, 3-mo MA, % change yr ago



Sources: ECB, Moody's Analytics

Chart 10: Similar Export Concentration in CEE

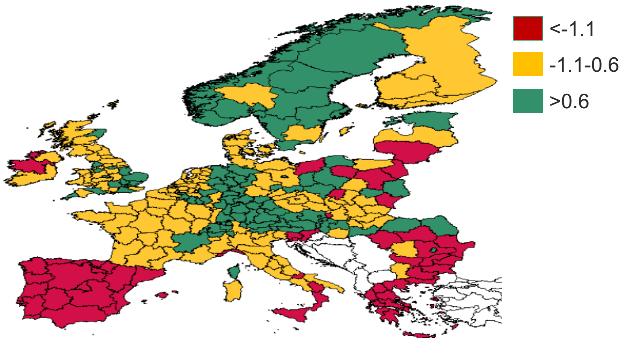
Share of total exports in 2013, %



Sources: IMF, National statistical offices, Moody's Analytics

Chart 11: Job Growth Strongest in the Center

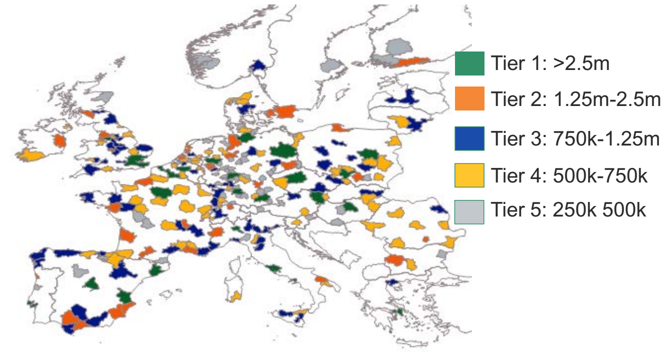
Employment growth, %, avg 2009 to 2013, NUTS2 regions



Sources: Eurostat, Moody's Analytics

Chart 12: Large Metro Areas Distributed Broadly

Population, 2012, Eurostat-defined metropolitan areas



Sources: Eurostat, Moody's Analytics

Because of their small size, Tiers 4 and 5 will not be reviewed in this paper. Tiers 1 and 2 will be the focus of the following section, with some attention paid to Tier 3 where appropriate.

The third dimension is by industrial structure. Leading industrial sectors that can drive demand for commercial real estate are defined for each metro area to help identify common historical trends and future potential for growth.

Population patterns by size tier

Long-term differences across the metropolitan areas by size tier are most evident in population growth (see Chart 13). Since 2000 the Tier 1 and Tier 2 aggregates of metro areas have consistently led with the strongest rates of population growth. Between the two there is very little difference, although the Tier 2 metro areas led the way much of this time and the Tier 1 group showed more volatility during the financial crisis. Still, the Tier 3 metro areas were not far behind, with growth rates generally lagging by just 0.1 percentage point the larger metro areas. This difference of course compounds over time, but it does raise the question whether real estate investors or other regional analysts should be paying attention to a larger group of metropolitan areas than is often the case. The smaller Tier 4 and 5 metro areas have consistently lagged the larger areas. Their growth is generally around 0.2% per year, although they have exhibited less volatility than the larger areas since 2000. But it is clear that the larger metro areas that constitute the first three tiers are the most dynamic in their underlying demographics.

Since 2000 the labor market trends across the five metro area tiers have been more synchronized and pro-cyclical (see Chart 14). As with population, the smallest Tier 5 group has been relatively less volatile, taking longer to accelerate leading up to the financial crisis and not falling by quite as much in 2009-2010. The Tier 2 and Tier 3 aggregates have shown greater volatility. The largest metro areas have seldom been the fastest growing areas, and they have only recently begun to accelerate after a period of relative stability since 2011.

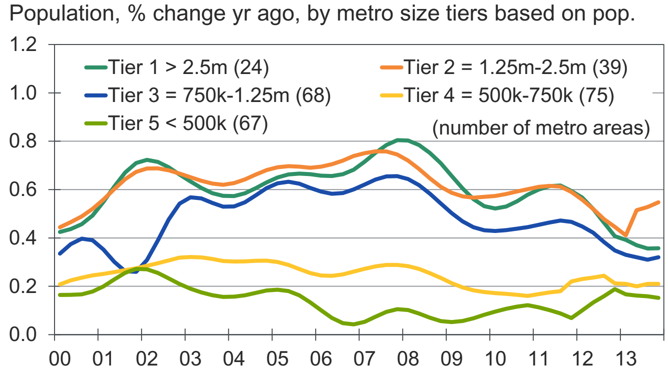
The synchronized pattern of job growth adds to the observation that analysts should be paying attention to the Tier 2 metro areas as well as to Tier 1, and that even the Tier 3 areas deserve some attention despite their smaller size.

Industrial structure

The industrial structure of the metro area economies is used to identify leading real estate industries that both lead the economy and create demand for commercial real estate. The employment

Chart 13: Larger Metro Areas Grow Faster

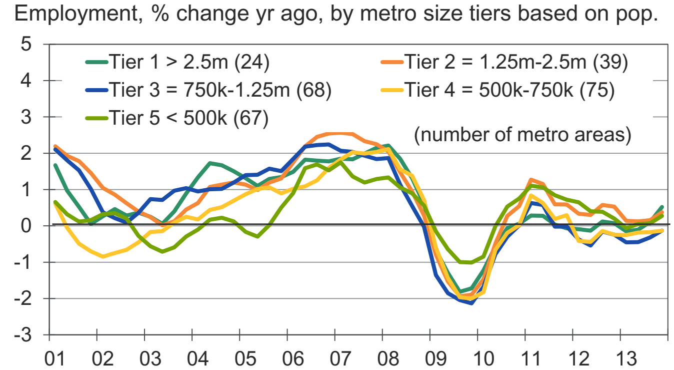
Population, % change yr ago, by metro size tiers based on pop.



Sources: National statistical offices, Moody's Analytics

Chart 14: Job Trends More Synchronized

Employment, % change yr ago, by metro size tiers based on pop.



Sources: National statistical offices, Moody's Analytics

Chart 15: Industries Lead Real Estate Demand

Five industry categories selected for study:

1. Office-using employment composed of:
   - Finance
   - Professional, scientific & technical
   - Real estate
   - Administration & support
   - Information & communication
2. Healthcare
3. Education
4. Industrial producers (manufacturing, transportation, storage)
5. Financial services alone

Based on NACE Rev. 2.0 industrial classifications

Chart 16: LQ: A Measure of Concentration

Location quotient: A tool for identifying regional industry drivers

For industry i, region j

$$LQ_{ij} = (X_{ij}/X_j) / (X_{i,EU}/X_{EU})$$

X can be employment, income, gross product, etc.

We use employment for this exercise.

Source: Moody's Analytics

by industry data uses the NACE Rev. 2.0 classification system. Five different industry categories are used in this study (see Chart 15). Two are aggregates of multiple two-digit classifications—office-using employment and industrial producers. The others are healthcare, education and financial services (separate from the office-using employment aggregate).

Government is not included on the premise that much government employment is housed in government-owned buildings. Retail trade also is not included, asthe method of analysis used in this paper tends to identify areas that are primarily tourist destinations. These are obvious places for retail trade and so does not help the analyst locate other metro areas with potential for growth in retail trade. More traditional approaches such as analysis of income, wealth and demographics would be more suitable.

Exposure to each industry is calculated through the use of a location quotient (LQ), which calculates the relative concentration of an industry in a metro area versus its concentration across the European Union (see Chart 16). Regional economic theory tells us that industries that are highly concentrated in a metro area are those that sell their goods and services externally, and thus bring income and investment to the local metro area. These are the industries that may be driving the local economy and local real estate demand. For the purposes of this study, an industry with an LQ of greater than 1.2 is deemed a "basic" industry that has the potential to lead the economy and to lead real estate demand.

But concentration alone is not enough. There must be evidence that the industry is truly leading the economy over the long term. Thus three other criteria are used to identify leading industries (see Chart 17). First, the location quotient must have been stable or rising over the past 10 years. In other words, the industry has maintained or increased its concentration in the local economy during this period. Second, employment in the industry has outpaced the median growth rate of the same industry in metro areas within the same Tier, with an industry LQ of at least 1.2 for the past 10 years. Or third, among the industries in the same metro areas, the industry's projected employment growth rate exceeds the median growth rate.

From these results, metro areas in the three largest size tiers are selected as potential real-estate driven areas if one or more of the five leading real-estate driving industries match the above criteria. Further, the Tier 1 and Tier 2 metro areas are divided into those that are more complex, with two or more real-estate leading industries, and those with just one. Because of the small size of the Tier 3 metro areas, only those with multiple driving industries are considered.

This classification identifies a total of 50 metro areas in Europe that have long-term potential for growth driven by industries that create demand for commercial real estate. Nineteen of them are larger metro areas that are considered gateways for the European economy or are large national capital cities, many with numerous sources of economic growth. The 19 make up a large share of the 24 Tier 1 metro areas in Europe. But another 19 are among the Tier 2 metro areas, accounting for nearly half of the 39 Tier 2 metro areas. Another 12 metro areas are included from the Tier 3 group, representing a small share of the 68 metro areas that constitute Tier 3, but they each have multiple industry drivers. Industrial demand drivers are also most evident in the Tier 3 metro areas.

Chart 17: Identifying RE Demand Potential

By metro area, by industry structure, and by size tier

A "Real Estate Leading Industry" for a metro area must meet Criterion 1, as well as two of the other three criteria:

1. LQ > 1.2 (higher than avg concentration)
2. LQ has been stable or rising for 10 yrs
3. Above-avg historical industry growth for 10 yrs
4. Above-avg projected industry growth for 5 yrs

Source: Moody's Analytics

Chart 18: Largest, Most Complex Metro Areas

Tier 1 metro areas with multiple leading RE industries

Metro Area	Healthcare	Finance	Education	Office	Industrial
London	x	x	x	x	
Brussels	x		x	x	
Warsaw		x	x	x	
Budapest	x			x	
Lisbon	x		x		
Madrid	x			x	
Paris	x	x			
Vienna	x			x	

Source: Moody's Analytics

Chart 19: Largest but Less Complex

Tier 1 metro areas with single leading RE industries

Metro Area	Healthcare	Finance	Education	Office	Industrial
Athens		x			
Berlin	x				
Frankfurt	x				
Hamburg	x				
Katowice					x
Lille			x		
Manchester			x		
Milan	x				
Munich	x				
Rome		x			
Stuttgart					x

Source: Moody's Analytics

Tier 1 metro areas

The 8 Tier 1 metro areas with multiple leading real-estate drivers have several characteristics in common (see Chart 18). Aside from being among the largest—London, Paris, Madrid—they share a high exposure to office-space using employment and healthcare, with other concentrations in education. Education is an important driver in half of them and financial services alone is significant in London, Paris and Warsaw. This group includes metro areas that weathered the financial crisis relatively well such as London and Brussels and some that did not like Madrid and Lisbon.

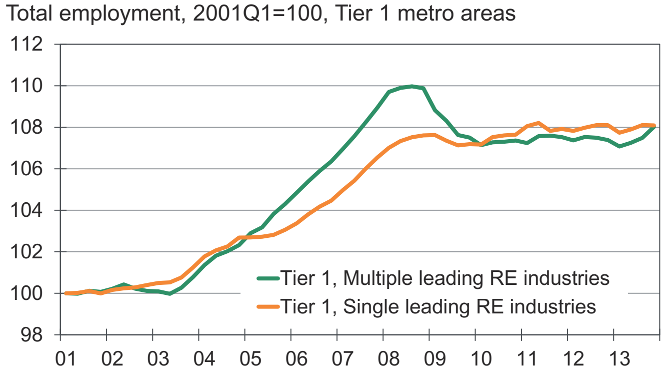
Among the 11 Tier 1 metro areas with a single leading real-estate industry, five are in Germany—Berlin, Frankfurt, Hamburg, Munich and Stuttgart (see Chart 19). This partly reflects the regional economic structure. Unlike the more spatially centralized economies like the U.K. and France, which are dominated by a single large metro area, Germany consists of many metro areas of similar size, each with a bit more economic specialization. Indeed all but Stuttgart are centers of healthcare. Further, this analysis does not paint a complete picture for Frankfurt, whose financial sector, dominated by the European Central Bank, is accounted for in the public sector rather than in financial services. Stuttgart, with its large automobile industry, is the largest metro area in Europe driven by a high concentration of industrial production. Others may have large industrial economies but their concentration is not high enough to be a leading real estate industry. Poland's Katowice metro area is also driven by industrial producers and points to the growing role of e Central Europe as an emerging manufacturing hub.

We would expect metro areas with multiple drivers to be less volatile than areas with a less diversified industrial structure. But in the aggregate, the high exposure to office-space using employment, and financial services in particular, caused greater labor market volatility within the diversified Tier 1 metro areas as they soared leading up to 2008 and then faltered during the financial crisis. Since 2010 there has been little growth in either subset of the Tier 1 metro areas. Interestingly, both subsets have had similar long-term growth rates since 2001, ending up about 8% higher in 2013. Looking through the financial crisis over this 13-year period, there is little difference in the final outcome (see Chart 20).

Of course the path through this period differed for individual metro areas. London and Budapest, for example, experienced much less volatility than did Madrid or Warsaw. But despite Madrid's painful recession following 2008, its total employment in 2013 relative to where it started in 2001 is about the same as in London (see Chart 21). Warsaw's labor

Chart 20: Office Leading RE Adds Volatility

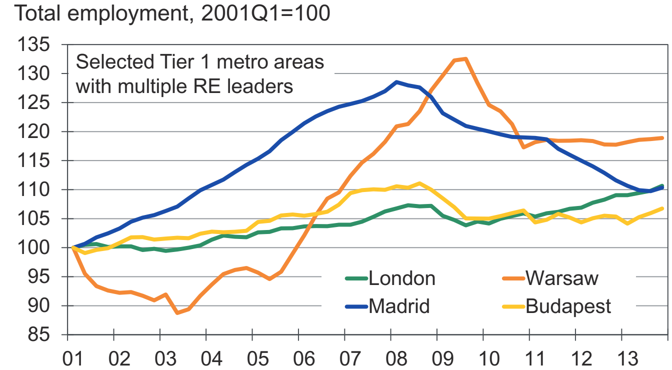
Total employment, 2001Q1=100, Tier 1 metro areas



Sources: National statistical offices, Moody's Analytics

Chart 21: Different Paths to Similar Destinations

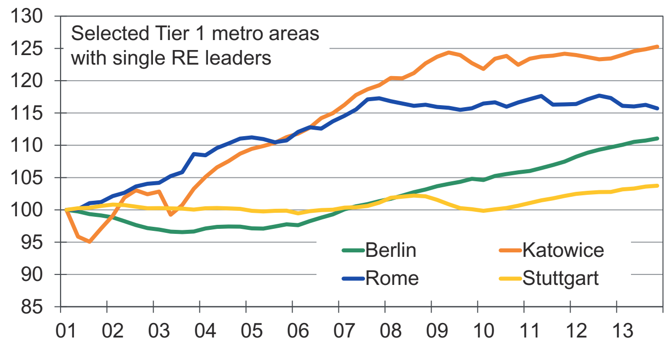
Total employment, 2001Q1=100



Sources: National statistical offices, Moody's Analytics

Chart 22: More Stability With Long-Term Growth

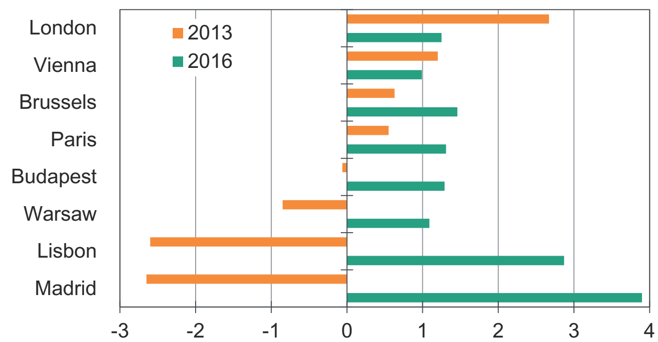
Total employment, 2001Q1=100



Sources: National statistical offices, Moody's Analytics

Chart 23: Tier 1 Outlook, Multiple RE Leaders

Total employment, 3-yr annualized growth rate, metro areas



Sources: National statistical offices, Moody's Analytics

market suffered even more volatility over this period but employment today stands nearly 20% higher than in 2001; a long-term growth rate nearly twice that of London or Madrid and even better as compared with Budapest.

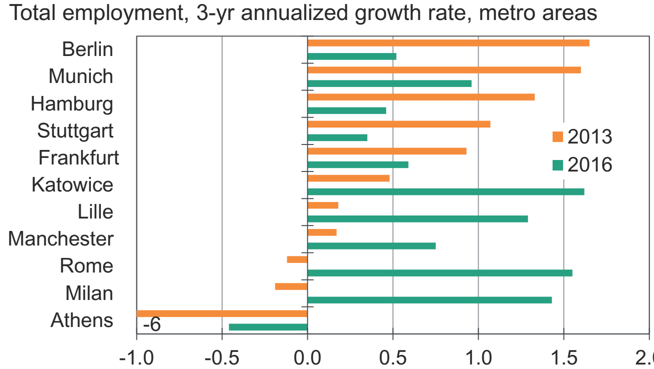
The limited volatility of the Tier 1 metro areas with only one leading industry is evident in Katowice and Rome. They were not immune to the effects of the financial crisis and subsequent recession, as their rapid growth quickly came to a halt. But their smaller exposure to the office-space using industries that were so volatile helped them maintain some stability, even if, as has been the case in Rome, there has been little job growth since 2008. Katowice has picked up recently as demand for durable goods has improved, and Berlin has enjoyed fairly constant job growth as it role as the seat of government expands. Of these four examples from this group of industries, Stuttgart was the most pro-cyclical as its auto production followed the ebbs and flows of the global business cycle (see Chart 22).

The three-year outlook is positive for all of the Tier 1 metro areas with the exception of Athens (see Charts 23 and 24). The pace of decline in its employment will slow, but its economic and structural problems are so deep that measurable economic and labor market growth will not likely occur until later this decade. But other Tier 1 metro areas in peripheral countries, such as Madrid and Lisbon, are finally beginning to see some labor market recovery. Since Spain and Portugal cannot devalue their currencies versus the rest of the euro area, a painful but significant devaluation has occurred in wage rates. Combined with other structural changes, their labor markets are now quite competitive and should enjoy strong job growth in coming years as the economy improves. More modest but still positive growth is expected in the other Tier 1 areas, both in Central and Western Europe. In London and the large German metro areas, growth will slow in 2015 and 2016 as they edge back from the recovery years toward longer-term potential rates of growth, with some potential for constraints from tightening labor markets.

The structure of the leading real estate industries in the Tier 2 metro areas is similar to Tier 1. Nine of them have more than one leading industry and only Copenhagen does not have an overly high exposure to office-space using employment (see Chart 25). Healthcare is also an important driver, while financial services is an important driver for Dublin, Stockholm, Copenhagen, Helsinki and Zurich. As in the Tier 1 metro areas, manufacturing and related transport and storage industries do not appear to have a high and stable concentration—even in

Chart 24: Tier 1 Outlook, Single RE Leaders

Total employment, 3-yr annualized growth rate, metro areas



Sources: National statistical offices, Moody's Analytics

Chart 25: Tier 2, Complex Industrial Structure...

Tier 2 metro areas with multiple leading RE industries

Metro Area	Healthcare	Finance	Education	Office	Industrial
Dublin	x	x		x	
Stockholm		x	x	x	
Copenhagen		x	x		
Düsseldorf	x			x	
Helsinki		x		x	
Lyon	x			x	
Nantes	x			x	
Toulouse	x			x	
Zürich	x	x			

Source: Moody's Analytics

Chart 26: ...And Many Less Complex

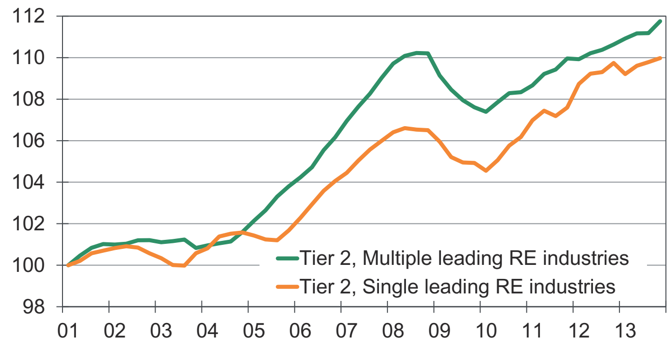
Tier 2 metro areas with single leading RE industries

Metro Area	Healthcare	Finance	Education	Office	Industrial
Amsterdam	x				
Bielefeld					x
Birmingham			x		
Brescia					x
Bucharest	x				
Gdansk		x			
Göteborg			x		
Köln				x	
Malmö			x		
Nürnberg	x				
Torino	x				

Source: Moody's Analytics

Chart 27: Volatilty Differences Less Pronounced

Total employment, 2001Q1=100, Tier 2 metro areas



Sources: National statistical offices, Moody's Analytics

Toulouse, which is home to the headquarters and final assembly facilities for Airbus Group. This is a testament to the diversity of the Toulouse economy.

Again as in Tier 1, the Tier 2 metro areas with a single real estate leading industry tend to be more specialized in healthcare and education than in the broader office-space using industries (see Chart 26). Finance does appear to be a significant real estate leading industry for Gdansk but manufacturing related industries do not. This is indicative of its shift from labor intensive industries such as shipbuilding toward more capital intensive industries such as electronics, telecommunications and information technology. Goods-producing industries drive the Bielefeld metro area in northwestern Germany and Brescia in northern Italy.

The long-term performance of the Tier 2 metro areas is considerably different from the Tier 1 metro areas. First, the difference in volatility between the areas with multiple leading real estate industries and those with just one are smaller (see Chart 27). More important, the long-term growth rate of employment since 2001 in the Tier 2 aggregate is stronger, with employment today between 10% and 12% above that in 2001, versus 8% for the Tier 1 aggregate.

There are differences within the Tier 2 group, exemplified by the high volatility of labor market performance in Dublin (see Chart 28). Yet even in Dublin the level of employment today is more than 10% higher than where it was in 2001. Lyon and Stockholm took more direct paths to get to a similar place, and Zurich has been one of the better performing metro areas over the long term.

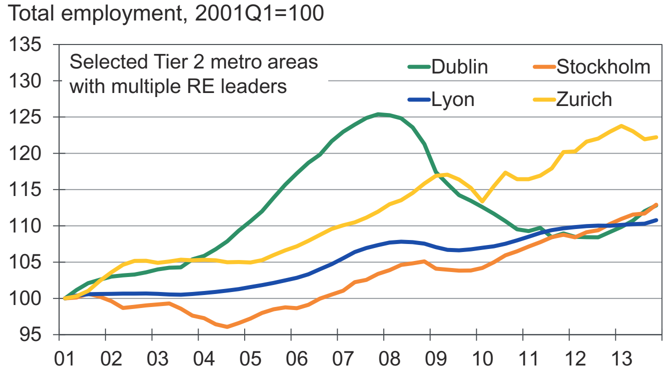
The Tier 2 metro areas with a single leading real estate industry did not perform quite so well (see Chart 29). Cologne's employment growth has been rather stale over the years but more volatility is evident in Amsterdam, Birmingham and Brescia. Employment growth in Bucharest, however, exemplifies the healthy trends now evident in some of Central Europe's capital cities and industrial centers.

As the European economy improves, job growth is expected to accelerate in many of these Tier 2 metro areas, particularly those with multiple drivers (see Chart 30). With fewer imbalances accruing over the last decade, new hiring will not be offset by as many layoffs as might be expected in some of the larger and more volatile metro areas. The only metro area in Tier 2 that may continue to see measurable job declines in the three-year forecast period is Helsinki, whose IT and electronics industries are facing some restructuring (see Chart 31).

The only Tier 3 metro areas considered in this study are those with multiple leading

Chart 28: Dublin Is the Outlier

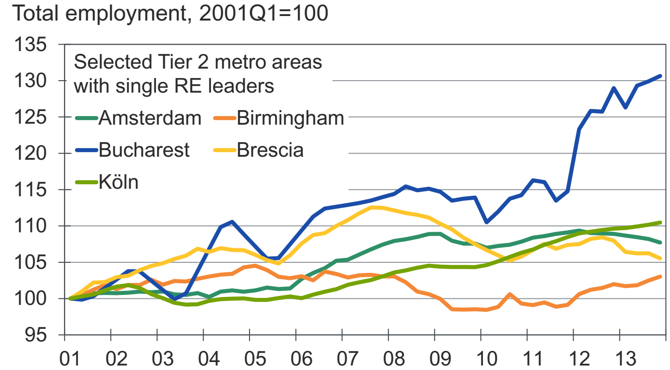
Total employment, 2001Q1=100



Sources: National statistical offices, Moody's Analytics

Chart 29: Slower Growth; Modest Volatility

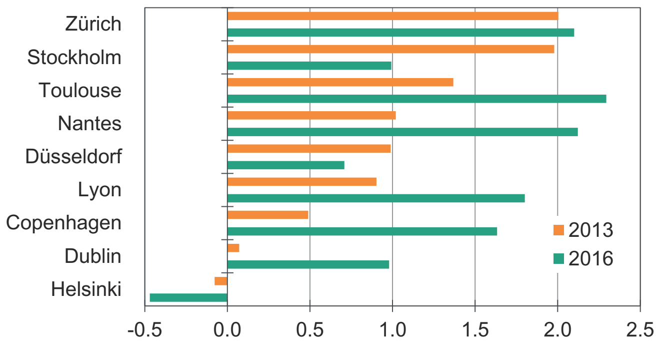
Total employment, 2001Q1=100



Sources: National statistical offices, Moody's Analytics

Chart 30: Tier 2 Outlook, Multiple RE Leaders

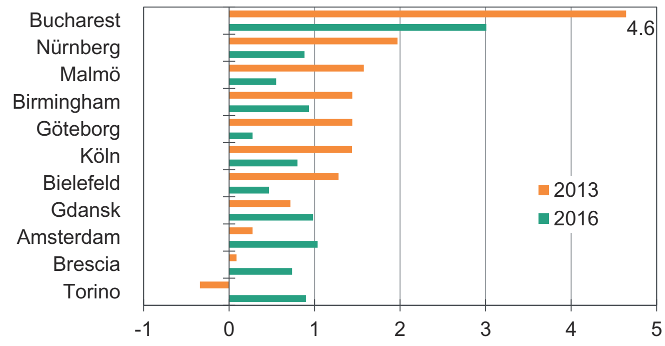
Total employment, 3-yr annualized growth rate, metro areas



Source: Moody's Analytics

Chart 31: Tier 2 Outlook, Single RE Leaders

Total employment, 3-yr annualized growth rate, metro areas



Source: Moody's Analytics

real estate industries. Of the twelve metro areas in this group, five are in the U.K: Bristol, Leeds, Coventry, Edinburgh and Reading (see Chart 32). With Greater London so dominant in the U.K. economy, one needs to reach down into Tier 3 to find some of its other metro areas. But these five illustrate that however small they are relative to London and to the size of other EU metro areas, they still have diversified economies with multiple drivers of economic growth and real estate demand. A further three of the Tier 3 metro areas are in Central and Eastern Europe —Wroclaw, Riga and Sofia—again illustrating the emergence of the region's economy. Indeed, Wroclaw is an emerging industrial center in Poland but has the greatest diversity of economic drivers among the 12 on the Tier 3 list.

Comparing the Tier 3 metro areas with the Tier 2 metro areas with multiple leading industries, the group of smaller Tier 3 areas shows similar volatility but faster overall growth since 2001 (see Chart 33). Employment in the Tier 3 aggregate today stands 16% above its level in 2001, the fastest of any of the groups in this study. These metro areas may be relatively small, but they have shown resilience and growth over the years (see Chart 34.

Outlook by industry

A quick look across projected growth of metro areas by industry, rather than by size class and overall industrial structure, illustrates some of the general regional differences to be expected in coming years (see Chart 35). Among the industrial centers, that is metro areas in which manufacturing, transport and storage are leading industries, much of the projected growth is in the emerging industrial centers of Poland and the Czech Republic. The German metro areas of Bielefeld, Saarbrucken, Stuttgart and Wolfsburg already have recovered well over the past three years and productivity gains should limit job growth. But continued new investment in the Polish and Czech metro areas and their growth as they provide intermediate inputs into a number of German industries should propel labor market growth in the coming years.

We expect faster acceleration of office-space using industries in coming years as the economic recovery spreads more broadly across Europe (see Chart 36). There is reason to believe that job growth in London may slow from its pace of the past three years as the area's financial services industry becomes increasingly cost conscious under the constraints of its regulatory environment. But elsewhere the growth of office-space using employment will remain stable or even

Chart 32: Smaller Areas With Some Complexity

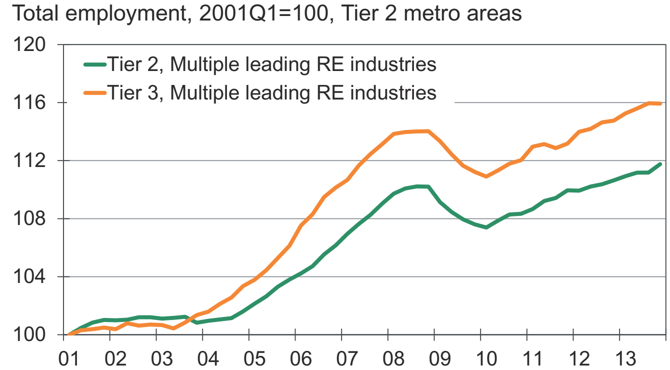
Tier 3 metro areas with multiple leading RE industries

Metro Area	Healthcare	Finance	Education	Office	Industrial
Wroclaw		x	x	x	x
Bristol	x		x	x	
Coventry		x	x		
Edinburgh		x		x	
Leeds		x	x		
Linz				x	x
Oslo	x	x			
Padova				x	x
Reading	x		x		
Rennes	x		x		
Riga	x			x	
Sofia	x	x			

Source: Moody's Analytics

Chart 33: Tier 3: Similar Volatility, More Growth

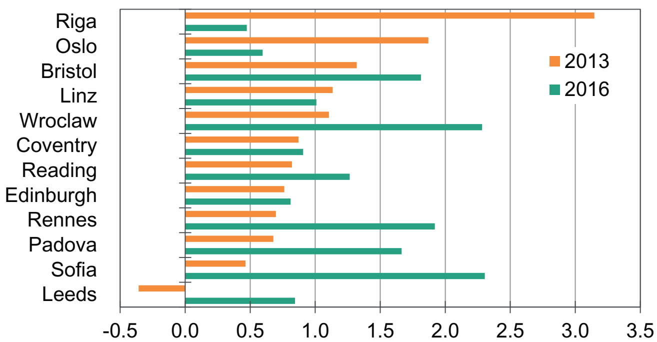
Total employment, 2001Q1=100, Tier 2 metro areas



Sources: National statistical offices, Moody's Analytics

Chart 34: Tier 3 Outlook, Multiple RE Leaders

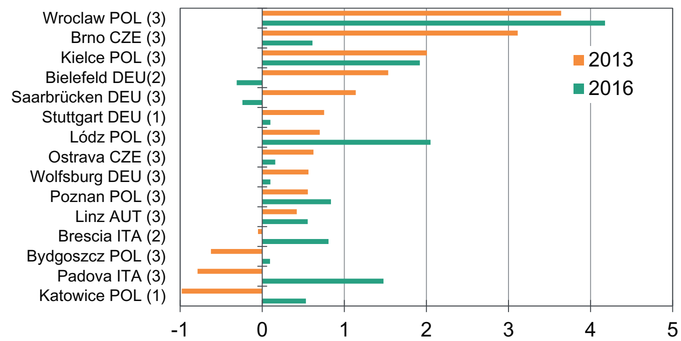
Total employment, 3-yr annualized growth rate, metro areas



Sources: National statistical offices, Moody's Analytics

Chart 35: Industrial Center Outlook (All Tiers)

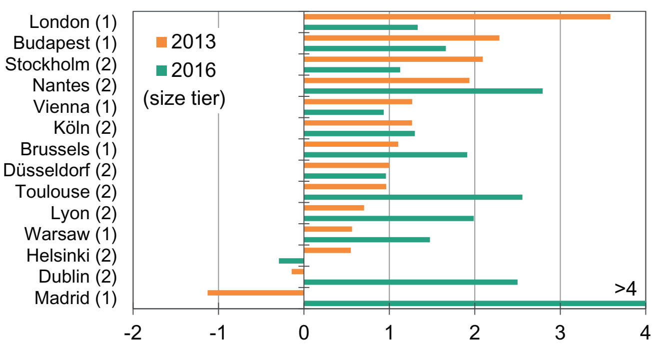
Manufacturing employment, 3-yr annualized growth rate



Sources: National statistical offices, Moody's Analytics

Chart 36: Office Space Outlook (Tiers 1, & 2)

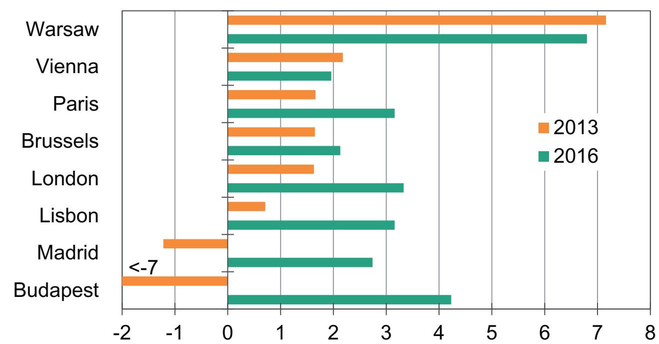
Office-using employment, 3-yr annualized growth rate



Sources: National statistical offices, Moody's Analytics

Chart 37: Income Will Improve With Recovery

Tier 1: Disposable income per capita, 3-yr annualized growth rate



Sources: National statistical offices, Moody's Analytics

accelerate modestly, as in a number of French metro areas. And some of the hardest hit metro areas of the financial crisis like Dublin and Madrid could well see rapid acceleration as their relatively low wage rates, combined with a skilled workforce, create opportunities for a labor market rebound.

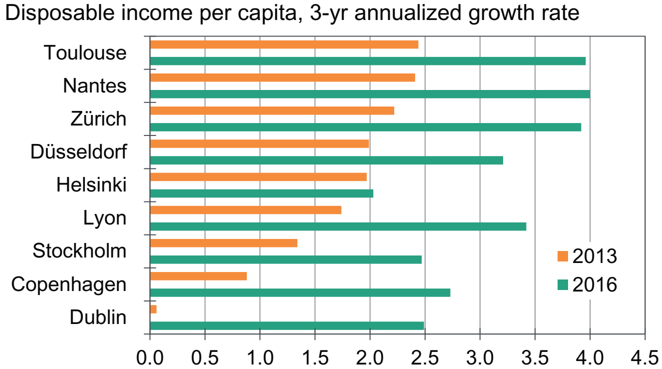
Income growth

A methodology that relies on location quotients does not necessarily work well for identifying retail centers outside of tourist destinations. But income growth gives some indication of retail potential. Disposable personal income in Warsaw is expected to continue to grow as the metro area expands its role as a center of economic growth for Central Europe (see Chart 37). Similarly, among the Tier 1 metro areas Budapest and Madrid will see an acceleration in income growth. More modest accelerations are expected elsewhere. Even in London, where job growth may slow from its pace of recent years, a tightening labor market may generate wage increases that will help boost income per capita.

With many of the employment sectors among the Tier 2 metro areas, a more even pattern of income growth is expected (see Chart 38). With Dublin's economy expected to improve in coming years, its nominal income growth will finally begin to look more like its peers in Tier 2.

Chart 38: Tier 2: Stronger Income Growth

Disposable income per capita, 3-yr annualized growth rate



Source: National statistical offices, Moody's Analytics

Income growth in Tier 3 will be led by its Central European metro areas (see Chart 39). Elsewhere, nominal growth will accelerate but will remain at about half the rate of growth as in the emerging areas such as Wroclaw, Sofia and Riga.

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