

# GLOBAL METRO **MONITOR** 2018

**MAX BOUCHET, SIFAN LIU, and JOSEPH PARILLA with NADER KABBANI**

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**B** | Metropolitan Policy Program  
at BROOKINGS



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**M**ore than half the world's population now lives in urban areas and the 300 largest metropolitan economies in the world account for nearly half of all global output. The concentration of economic growth and prosperity in large metro areas defines the modern global economy, creating both opportunities and challenges in an era in which national political, economic, and societal trends are increasingly influenced by sub-national dynamics. This report, which analyzes employment and GDP per capita growth of 300 large metro areas (with a special feature on cities in the Middle East and North Africa), finds the following:

► **Relative to the world, large metropolitan economies concentrated and accelerated economic growth between 2014 and 2016.**

Between 2014 and 2016, the 300 largest metro areas accounted for 36 percent of global employment growth and 67 percent of global GDP growth, rates that well exceed their 2016 share of each indicator. Emerging economy metro areas continued to disproportionately drive growth, accounting for 80 percent of the 60 best-performing metropolitan areas.

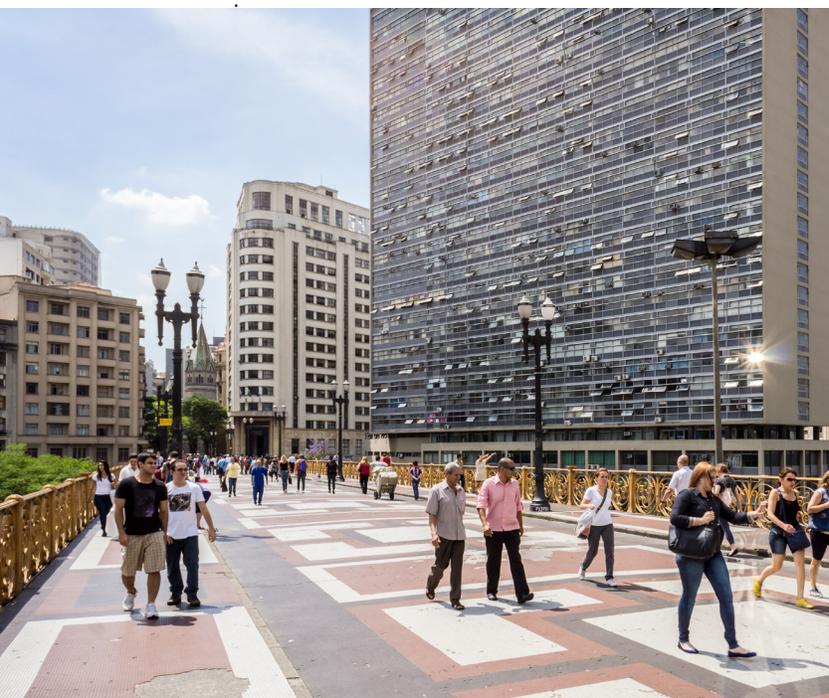
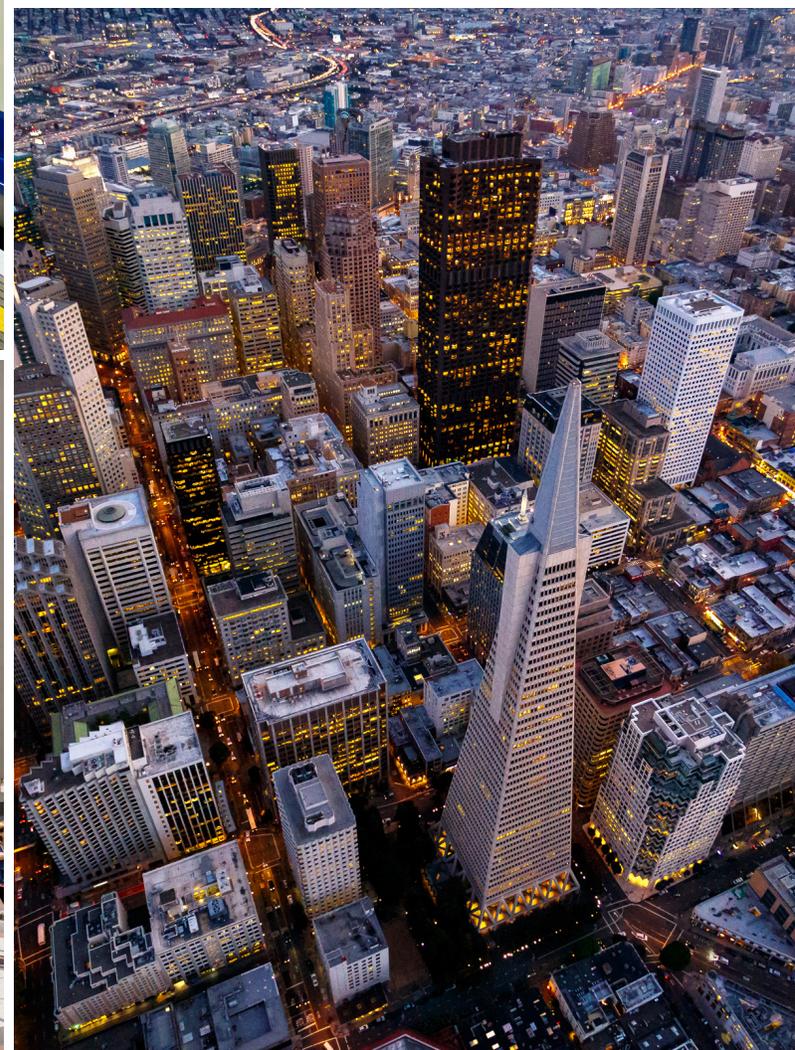
► **Global trends mask notable variation in the performance of large metropolitan economies across world regions.**

Between 2014 and 2016, metro areas in China and Emerging Asia-Pacific nations experienced the fastest GDP per capita growth while Middle Eastern and African metro areas exhibited the fastest employment growth. By contrast, Latin American metro areas experienced the slowest GDP per capita and employment growth. Relative to the rest of their regions, large metro areas have experienced faster employment growth since 2000 but slower GDP per capita growth.

► **Within world regions, a subset of high-performing metro areas is disproportionately accountable for employment and GDP per capita growth.**

Between 2014 and 2016, just over half of the world's 300 largest metropolitan economies were "pockets of growth," outpacing their regions in both indicators. Reflecting its historic urban economic growth, China led this category with 73 percent of its largest metro areas, followed by Emerging Asia-Pacific (65 percent) and the Middle East and Africa (56 percent).

This report reaffirms the economic power of large cities in the global economy, but also reveals significant variation in urban economic growth across the world. While many large cities are pulling away from their surrounding regions, others are struggling. With so much economic activity centered in these 300 metro areas, their individual and collective progress will continue to shape global economic, political, and societal trends.



## INTRODUCTION

“Welcome to the place age,” The Economist wrote in a 2017 cover story.<sup>1</sup> The coinage sought to capture how the diverging economic fortunes of large cities and their surrounding hinterlands contributed to increased populism and the political divisions that led to the election of U.S. President Donald Trump and Britain’s departure from the European Union, a.k.a. Brexit.

These shock political events awoke leaders in advanced economies to not only the pace of national growth, but also *where* that growth is occurring within nations and larger regions. U.S. and UK events led the headlines, but a place-focused lens is perhaps even more relevant to emerging markets. The incredible migration of workers from rural areas to cities remains a crucial trend in many middle-income nations, with the emergence of a significant network of large metro economies in Asia, the Middle East, and Africa. In most instances, the urban-rural differences in access to economic opportunity are even starker in these rising nations than in their Western counterparts.

Together, globalization and urbanization have ushered in the place age, and a growing body of scholarship has documented the associated dichotomies. Positively, urbanization has helped lift the productive potential and standards of living of billions of workers, with major cities continuing to be engines of economic growth, opportunity, and upward mobility. Negatively, the distribution of those opportunities *within* and *between* cities remains uneven. On the latter, the modern marketplace’s demand for scale, connectivity, and concentration favors large metropolises while acting to the detriment of smaller cities and rural areas and their residents. Richard Florida has summarized these twin challenges as “the new urban crisis,” in which the unevenness of modern economic growth creates an inevitable political backlash, or what Andrés Rodríguez-Pose calls “the revenge of places that don’t matter.”<sup>2</sup>

Today, more than half of the world’s population lives in cities and metro areas and, together, the world’s 300 largest metropolitan economies account for nearly half of all global output. Understanding the economic trajectory of these large metropolitan economies offers additional insights into the sources of growth that national or regional assessments tend to obscure. This report analyzes the economic performance of the world’s 300 largest metropolitan areas using two indicators: employment and GDP per capita. Of course, cities well beyond this sample power global economic growth, and these are by no means the only metrics that should guide economic policymakers. For instance, the distribution of economic growth across societies and the effects of growth on the environment are also important considerations, albeit outside the scope of this report. That noted, the two key metrics in the Global Metro Monitor reflect the importance that policymakers and the public attach to achieving rising incomes and standards of living (GDP per capita), as well as generating widespread labor market opportunity (employment).<sup>3</sup>

Finally, this analysis does not attempt to measure which metro areas are most competitive, wealthy, or livable, as incredible differences in wealth and prosperity exist within the sample. Rather, it aims to capture how large metro areas are responding to continued changes in the world economy and, amid concerns about rising place-based disparities, how large metro areas are growing relative to their surrounding nations and regions.

**T**his update of the Global Metro Monitor largely follows the methodology used in previous editions. Therefore, this section focuses primarily on changes introduced in this year's report. (For more details on data and methods, see Appendix B).

Much like previous versions, the 2018 Global Metro Monitor employs a few key variables to assess the economic performance of metropolitan areas: gross domestic product (GDP), employment, and population from 2000 to 2016. To analyze economic circumstances in the current year (2016), this study employs nominal GDP data in U.S. dollars at purchasing

power parity rates (PPP) rates. For trend analysis, it uses real GDP data at 2009 prices and expressed in U.S. dollars.

The report focuses on metropolitan performance on two key economic indicators: GDP per capita and employment. In previous years, the report measured economic performance simply

**KEY TERMS USED IN THE GLOBAL METRO MONITOR:**

- ▶ **Gross domestic product (GDP):** the sum of the market value of goods and services produced in an economy, such as a metropolitan area, a country, or the world. GDP provides an objective measurement for growth across cities but does not reflect how inclusive or environmentally sustainable that growth is. Real GDP is the inflation-adjusted value of the goods and services produced by an economy. By neutralizing price changes, real GDP allows comparisons across time.
- ▶ **Purchasing power parity (PPP) rate:** the rate at which the currency of one country would have to be converted into that of another to purchase the same amount of goods and services in each country. GDP based on PPP rates allows comparison across countries.
- ▶ **GDP per capita:** the GDP divided by the population. It does not equal personal or household income and does not reflect the distribution of income, but proxies the average standard of living of an area.
- ▶ **Employment:** the number of people who performed any work at all in the reference period, for pay or in-kind, or who were temporarily absent from a job for such reasons as illness, maternity or parental leave, holiday, training, or industrial dispute.
- ▶ **Population:** the number of residents of a metropolitan area or country.

through the annualized growth rate of real GDP per capita and the annualized growth rate of employment. This version of the Global Metro Monitor complements those variables with two additional metrics: the overall net change in real GDP per capita and the overall net change in employment. These four indicators—which together approximate both rate of growth and the magnitude of change in labor market opportunity and living standards—are combined into an economic performance index by which the 300 metro areas are ranked over the long term (2000-2016) and short term (2014-2016) (see Appendix B).

This study defines a metropolitan area as an economic region including one or more cities and their surrounding areas, all linked by economic and commuting ties. This year's sample is comprised of the 300 largest metropolitan economies in the world, based on the size of their economies in 2016 at PPP rates. Throughout the report, we refer to this sample as "large metropolitan areas." When examining

trends at the regional scale, we divide regions into two segments: large metro areas and the "rest of region," which include other cities as well as rural areas.

The metropolitan areas analyzed in this report differ from the previous version of the Global Metro Monitor. Metropolitan areas within the top 300 in China (55 new entrants), the Middle East and Africa (10), and the rest of emerging Asia-Pacific (8) have all increased, whereas metro areas in North America, Western Europe and Advanced Asia-Pacific have lost 64 slots in total. These changes are due to the continued rapid growth in emerging market metro areas, which pushed the size of their economies past many slower growing metro areas in Europe and the United States. The dramatic increase in Chinese metro areas also reflects an improvement in how that nation's economic output is calculated on a purchasing power parity basis (PPP), which was previously understating Chinese GDP relative to the rest of the world.

**TABLE 1**

**The distribution of the 300 largest metro areas shifted from Western Europe and North America to China between 2012 and 2016**

300 largest metropolitan economies in the world, by region, 2012 and 2016

Region	2012	2016	Change in number
Advanced Asia-Pacific	33	25	-8
Eastern Europe and Central Asia	14	13	-1
Emerging Asia-Pacific (excluding China)	12	20	+8
China	48	103	+55
Latin America	22	14	-8
Middle East and Africa	15	25	+10
North America	88	57	-31
Western Europe	68	43	-25
<b>Total</b>	<b>300</b>	<b>300</b>	

Source: Global Metro Monitor 2015 and Global Metro Monitor 2018

To interpret metropolitan economic performance, this report classifies metropolitan areas by their respective countries' income levels and world region.<sup>4</sup> The 300 metropolitan areas are classified as "advanced" and "emerging" based on their primary country's 2016 gross national income (GNI) per capita. Using the World Bank's 2016 list of economies, "advanced" status is equivalent to "high-income" level, or GNI per capita in excess of \$12,236. "Emerging" metro areas are located in countries with GNI per capita below that level.<sup>5</sup> Of the 300 metropolitan areas in this study's sample, 160 are in emerging economies countries and 140 are in advanced economies.<sup>6</sup>

Based on World Bank and International Monetary Fund (IMF) definitions, this study identifies seven world regions in which the sampled metropolitan areas lie:

- ▶ **Western Europe:** 43 metro areas in countries that were members of the European Union before the 2004 enlargement (EU-15), plus Norway and Switzerland
- ▶ **North America:** 51 U.S. and six Canadian metro areas
- ▶ **Advanced Asia-Pacific:** 25 metro areas in higher-income Asia-Pacific economies (Australia, Hong Kong, Japan, Macau, New Zealand, Singapore, South Korea, and Taiwan)
- ▶ **Emerging Asia-Pacific:** 20 metro areas in lower-income south and southeast Asian nations (Bangladesh, India, Indonesia, Malaysia, Philippines, Thailand, and Vietnam)
- ▶ **Latin America:** 14 metro areas in Argentina, Brazil, Chile, Colombia, Dominican Republic, Mexico, and Peru
- ▶ **Eastern Europe and Central Asia:** 13 metro areas in Azerbaijan, Czech Republic, Hungary, Kazakhstan, Poland, Romania, Russia, Turkey, and Ukraine
- ▶ **Middle East and Africa:** 20 metro areas in the countries from the Middle East and North Africa (Algeria, Egypt, Iran, Iraq, Israel, Kuwait, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, and the United Arab Emirates) and five metro areas in sub-Saharan African nations (Angola, Nigeria, and South Africa)
- ▶ We treated **China and its 103 metro areas** as a separate category from the Emerging Asia-Pacific region, due to the distinct performance of China's large metro areas.

## A. Relative to the world, large metropolitan economies concentrated and accelerated economic growth between 2014 and 2016.

Economic activity and growth between 2014 and 2016 remained disproportionately concentrated in the world's major metropolitan areas. In 2016, the 300 largest metropolitan areas accounted for a little under one-fourth of the world's workforce but generated nearly one-half of the world's production (Figure 1). The economic power of large metropolitan areas derives from the productive environments they offer firms. The density and connectedness of urban areas lower transportation costs and provide businesses the shared pools of labor, infrastructure, and knowledge they need to remain productive. These forces together enhance job creation and economic growth.<sup>7</sup> These advantages exceed the costs associated with large, dense cities—such as higher rents or greater traffic congestion—and thus firms and industries continue to concentrate in them.

These dynamics mean that large metro areas not only contain disproportionate amounts of economic activity but power recent economic growth as well. Between 2014 and 2016, the 300 largest metro areas accounted for 36 percent of global employment growth and 67 percent of global GDP growth, rates that well exceed their 2016 share of each indicator (Figure 2). Large metro areas accounted for nearly twice the share of GDP growth as employment growth, signaling their incredibly high relative levels of productivity in these places.

By definition, then, large metro economies expanded at a faster pace during this period than the global economy as a whole. Between 2014 and 2016, GDP growth in large urban areas averaged 3.3 percent per year, exceeding the global average of 2.6 percent (Figure 3). Annual employment growth was also faster in

large metro areas, outpacing the world by 0.7 percentage points. These trends persisted even as large metro areas increased their population at a lower rate, a growth pattern which resulted in much higher levels of GDP growth on a per person basis as well (2.2 percent in the largest metro areas versus 1.5 percent globally).

As in past years of this report, development status signals where growth has been most robust over the past two years. Metropolitan economies in emerging countries gravitated toward the top of the economic performance index (Figure 4). Emerging economies accounted for 80 percent of the 60 best-performing metropolitan areas. Large metro areas in China and Emerging Asia-Pacific overwhelmingly dominate the upper ranks (Table 2). Not all emerging market metro areas performed well, however. The bottom quintile of metro areas—those that exhibited slower growth—included many Latin American metro areas, especially Brazil's big cities.

Urban economies in advanced countries had more mixed performance. At or near the top of the league tables were Dublin, San Jose, and San Francisco. Oddities in the statistical accounting of gross domestic product partly account for Dublin's nearly unheard of GDP per capita growth. Many global companies legally reside in Dublin for tax purposes, but do not actually produce there. Some of these companies increased the amount of contract manufacturing they conducted abroad, but statistically that is reflected in the local and national accounting of GDP as an export.<sup>8</sup>

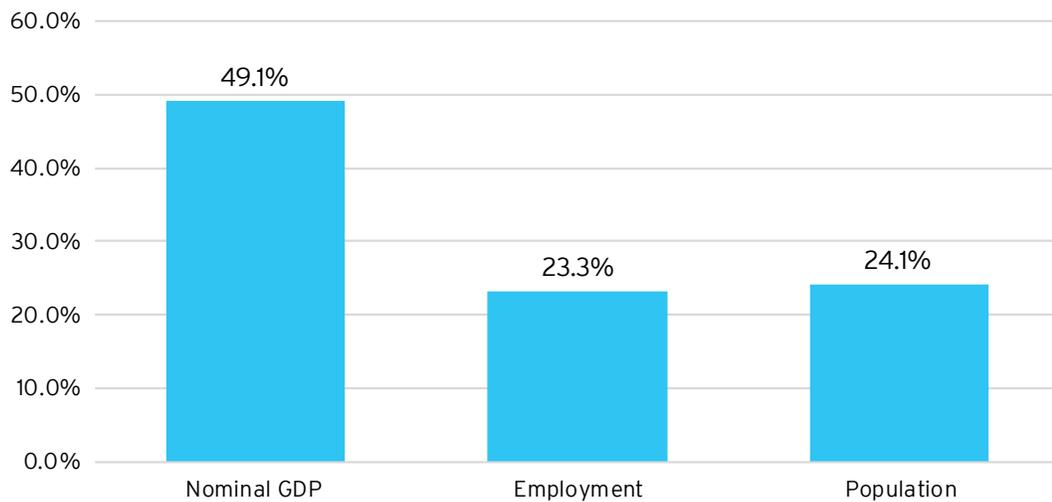
Meanwhile, tremendous growth in the tech sector propelled San Jose and San Francisco—the two anchors for Silicon Valley—into the top four of the economic performance index. At the other end of the spectrum, several North

American metro areas specialized in oil and gas experienced particularly slow growth, as commodity prices declined between 2014 and 2016, including Calgary, Edmonton, Houston, and Oklahoma City.

## FIGURE 1

### Large metro areas generated nearly half of the world's production

300 largest metropolitan areas' share of world total, 2016

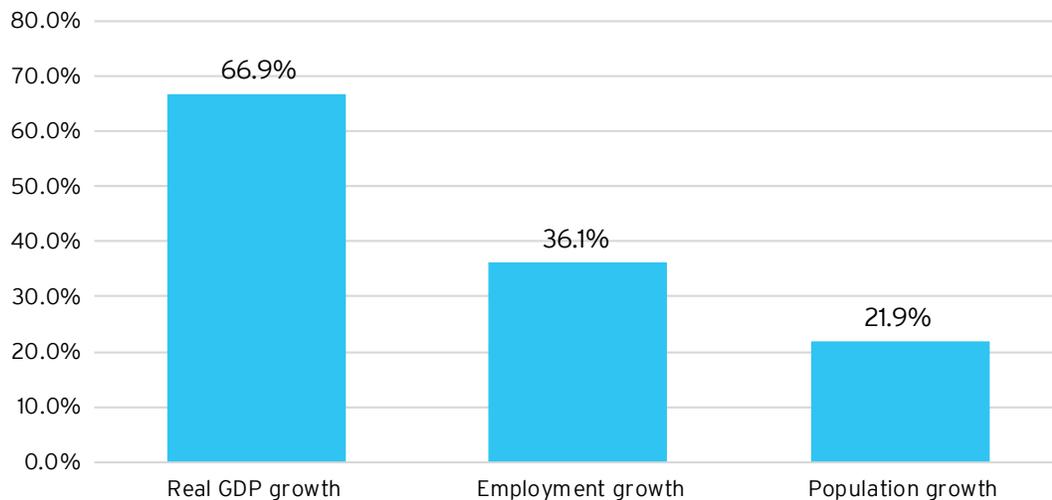


Source: Brookings analysis of Oxford Economics data

## FIGURE 2

### Large metro areas are powering economic growth

300 largest metropolitan areas' share of world total, 2014-2016

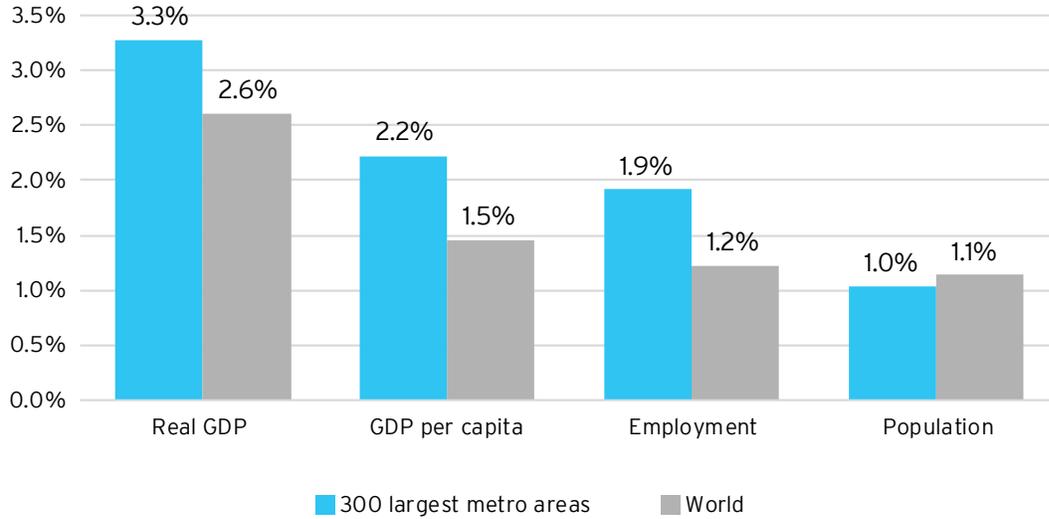


Source: Brookings analysis of Oxford Economics data

**FIGURE 3**

**Large metro areas expanded at a faster pace than the global economy**

Compound annual growth rate, 2014-2016

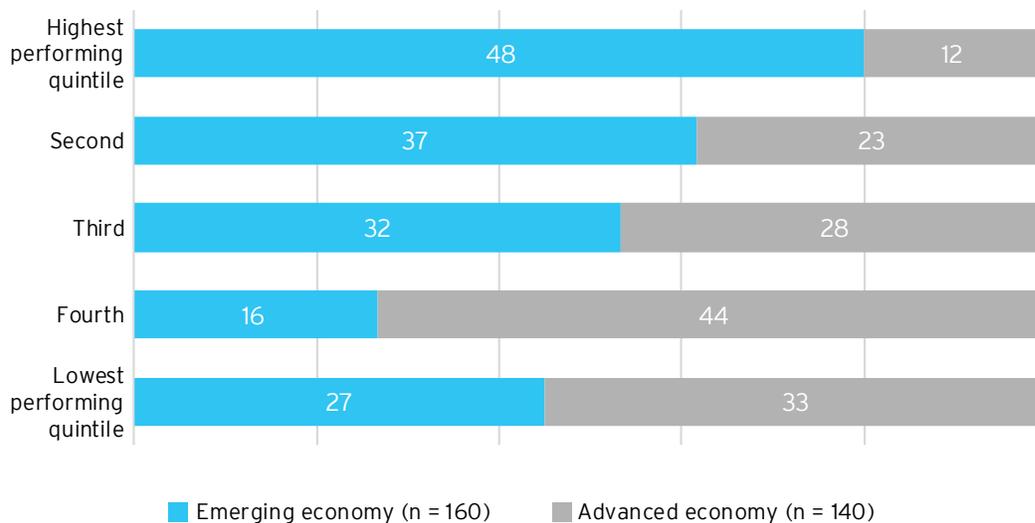


Source: Brookings analysis of Oxford Economics data

**FIGURE 4**

**Large metro areas in emerging economies outperformed those in advanced economies**

Distribution by economic performance quintiles, 2014-2016



Source: Brookings analysis of Oxford Economics data

**TABLE 2**

**Large metro areas in China and Emerging Asia-Pacific dominate the list of fastest growing economies from 2014 to 2016**

Highest performers on economic performance index, 300 largest metropolitan economies, 2014-2016

Rank '14-'16	Metro	Country	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
			Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
1	Dublin	Ireland	2.5%	41.6	21.2%	37.9	3
2	San Jose	United States	3.4%	69.3	7.5%	16.2	15
3	Chengdu	China	5.9%	860.7	7.2%	1.2	12
4	San Francisco	United States	3.8%	166.6	4.1%	6.8	133
5	Beijing	China	2.8%	659.1	6.3%	1.6	7
6	Delhi	India	4.7%	621.0	6.6%	0.5	75
7	Manila	Philippines	5.7%	543.7	5.5%	0.7	127
8	Fuzhou	China	6.0%	315.1	7.8%	1.5	38
9	Tianjin	China	2.5%	436.1	7.6%	2.2	5
10	Xiamen	China	5.4%	317.3	7.1%	1.7	13
11	Wuhan	China	4.5%	382.2	6.9%	1.7	42
12	Istanbul	Turkey	4.4%	459.0	3.9%	1.6	78
13	Chongqing	China	1.3%	458.1	9.8%	1.3	111
14	Hyderabad	India	5.4%	343.5	8.7%	0.3	84
15	Wenzhou	China	5.2%	344.9	7.1%	0.9	24
16	Los Angeles	United States	2.5%	291.8	3.1%	4.0	130
17	Suzhou	China	2.1%	295.1	7.5%	2.7	2
18	Hanoi	Vietnam	4.8%	367.8	7.4%	0.4	83
19	Surat	India	5.9%	271.8	7.9%	0.5	44
20	Hangzhou	China	2.9%	302.5	7.5%	2.0	4
21	Erdos	China	3.5%	35.2	7.2%	4.2	14
22	Changzhou	China	3.6%	186.3	8.4%	2.3	17
23	Mumbai	India	2.9%	470.8	6.9%	0.5	74
24	Yancheng	China	5.0%	180.9	9.0%	1.3	46
25	Dhaka	Bangladesh	4.8%	407.0	5.2%	0.2	77
26	Zhenjiang	China	3.9%	99.3	8.4%	2.4	25
27	Urumqi	China	4.6%	145.3	8.6%	1.5	50
28	Jakarta	Indonesia	2.0%	532.5	4.4%	0.5	33
29	Taizhou (Jiangsu)	China	3.7%	153.4	8.9%	1.7	28
30	Wuhu	China	4.7%	89.5	8.5%	1.9	51

Source: Brookings analysis of Oxford Economics data

**TABLE 2** (continued)

**Large metro areas in other emerging regions-Latin America, Central Asia and Africa-exhibited some of the slowest growth**

Lowest performers on economic performance index, 300 largest metropolitan economies, 2014-2016

Rank '14-'16	Metro	Country	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
			Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
271	Ottawa	Canada	0.8%	11.3	0.3%	0.2	244
272	Doha	Qatar	1.8%	23.5	-0.3%	-0.3	48
273	Taipei	Taiwan	0.6%	40.5	0.1%	0.0	172
274	Basel-Mulhouse	Switzerland	0.8%	10.9	0.1%	0.1	268
275	Oklahoma City	United States	0.7%	8.9	-0.1%	-0.1	236
276	Hannover	Germany	1.0%	13.9	-0.3%	-0.3	257
277	Perth	Australia	0.2%	4.0	0.0%	0.0	49
278	Shenyang	China	0.0%	-0.2	-0.2%	0.0	131
279	Luanda	Angola	3.2%	89.4	-6.9%	-0.8	100
280	Almaty	Kazakhstan	0.7%	11.0	-1.0%	-0.4	105
281	Oslo	Norway	0.4%	6.2	-0.3%	-0.5	150
282	Johannesburg	South Africa	0.6%	23.8	-1.9%	-0.4	203
283	Baku	Azerbaijan	0.5%	14.1	-1.7%	-0.4	125
284	Cape Town	South Africa	0.1%	2.5	-1.5%	-0.2	254
285	Dubai	UAE	-0.8%	-42.4	0.2%	0.1	295
286	Milwaukee	United States	1.1%	18.1	-1.3%	-1.5	260
287	Moscow	Russia	0.6%	87.3	-2.9%	-1.5	107
288	Kiev	Ukraine	-0.3%	-9.4	-2.2%	-0.4	195
289	Rio De Janeiro	Brazil	-0.3%	-28.8	-2.4%	-0.6	208
290	Dalian	China	-2.3%	-165.4	1.3%	0.4	63
291	Houston	United States	1.0%	59.2	-2.1%	-2.8	204
292	Porto Alegre	Brazil	-0.9%	-36.8	-3.7%	-0.9	253
293	Lima	Peru	-2.3%	-242.4	1.1%	0.2	155
294	Brasilia	Brazil	-1.1%	-47.5	-3.2%	-1.3	186
295	Belo Horizonte	Brazil	-2.1%	-100.6	-5.6%	-1.2	228
296	Curitiba	Brazil	-3.9%	-143.2	-6.1%	-1.6	266
297	Edmonton	Canada	1.4%	20.9	-5.9%	-7.5	179
298	Sao Paulo	Brazil	-2.0%	-412.4	-5.8%	-1.9	120
299	Calgary	Canada	0.3%	4.6	-5.3%	-7.4	226
300	Macau	Macau	0.3%	2.5	-14.1%	-17.5	21

Source: Brookings analysis of Oxford Economics data

**B.** Global trends mask notable variation in the performance of large metropolitan economies across world regions.

The previous finding revealed that, as a system, the 300 largest metro areas continue to disproportionately drive economic growth. But this assessment alone misses notable regional variation in how large cities are performing. Figure 5 examines the average annual employment and GDP per capita change in large metro areas in each region.

From this vantage point, several trends in the geography of urban growth between 2014 and 2016 come into sharper relief. First, large metro areas in China and the Emerging Asia-Pacific region have achieved extremely rapid GDP per capita growth by global standards, with a compound annual growth rate at 7 percent and 4.9 percent, respectively. Given the lower

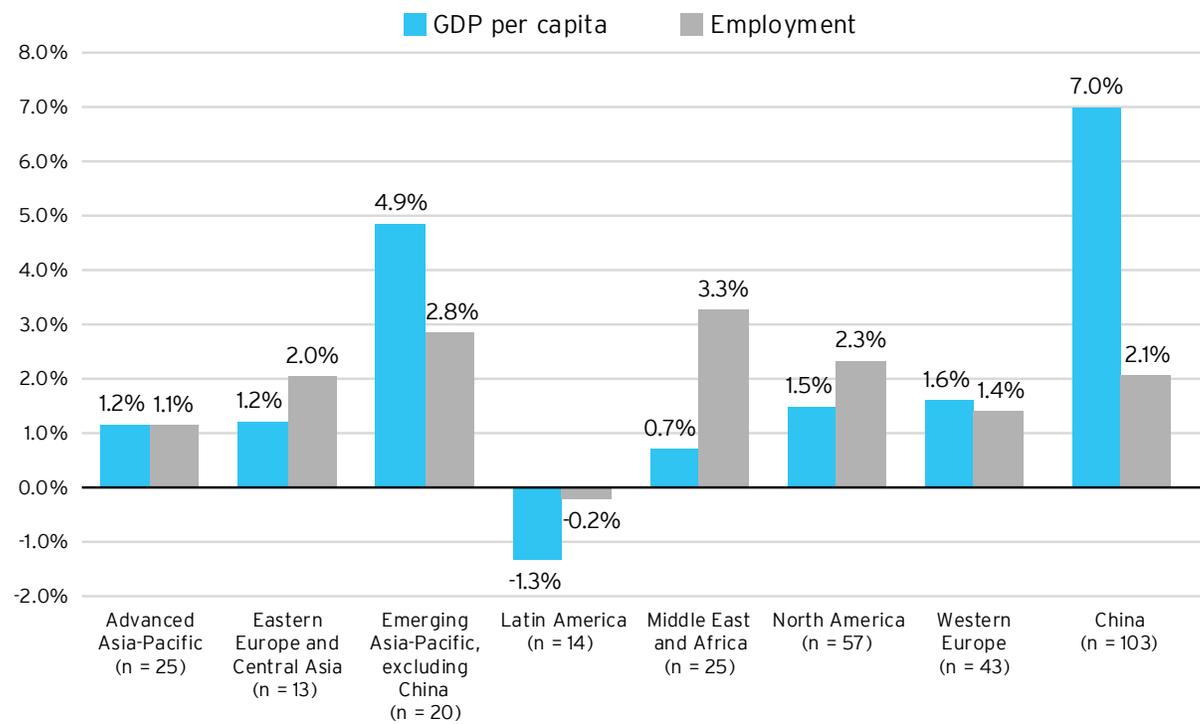
and middle-income levels in those cities, faster growth is somewhat expected, as it is easier to achieve rapid growth from a lower income starting point. However, that trend is not universally applicable across low and middle-income regions. In other emerging regions, GDP per capita growth ranges from a stagnant 0.7 percent growth rate in the Middle East and Africa to a 1.3 percent decline in Latin America.

Employment growth among large metro areas offers a different region-by-region pattern. Employment growth rates were highest in large metro areas in the Middle East and Africa (3.3 percent), Emerging Asia-Pacific excluding China (2.8 percent), and North America (2.3 percent). In China, employment expanded much

**FIGURE 5**

**Large metro areas' economic performance varies by world region**

Compound annual growth rate, 2014-2016



Source: Brookings analysis of Oxford Economics data

slower than GDP per capita, and Latin America registered negative growth in both indicators.

A regional perspective also reveals how large metro areas perform compared to the rest of their regions, which consist of mid-sized and smaller cities plus rural areas. This necessarily requires a longer time horizon—2000 to 2016—to examine how the economic growth trajectories of large metro areas and the rest of their regions are diverging, converging, or holding steady.

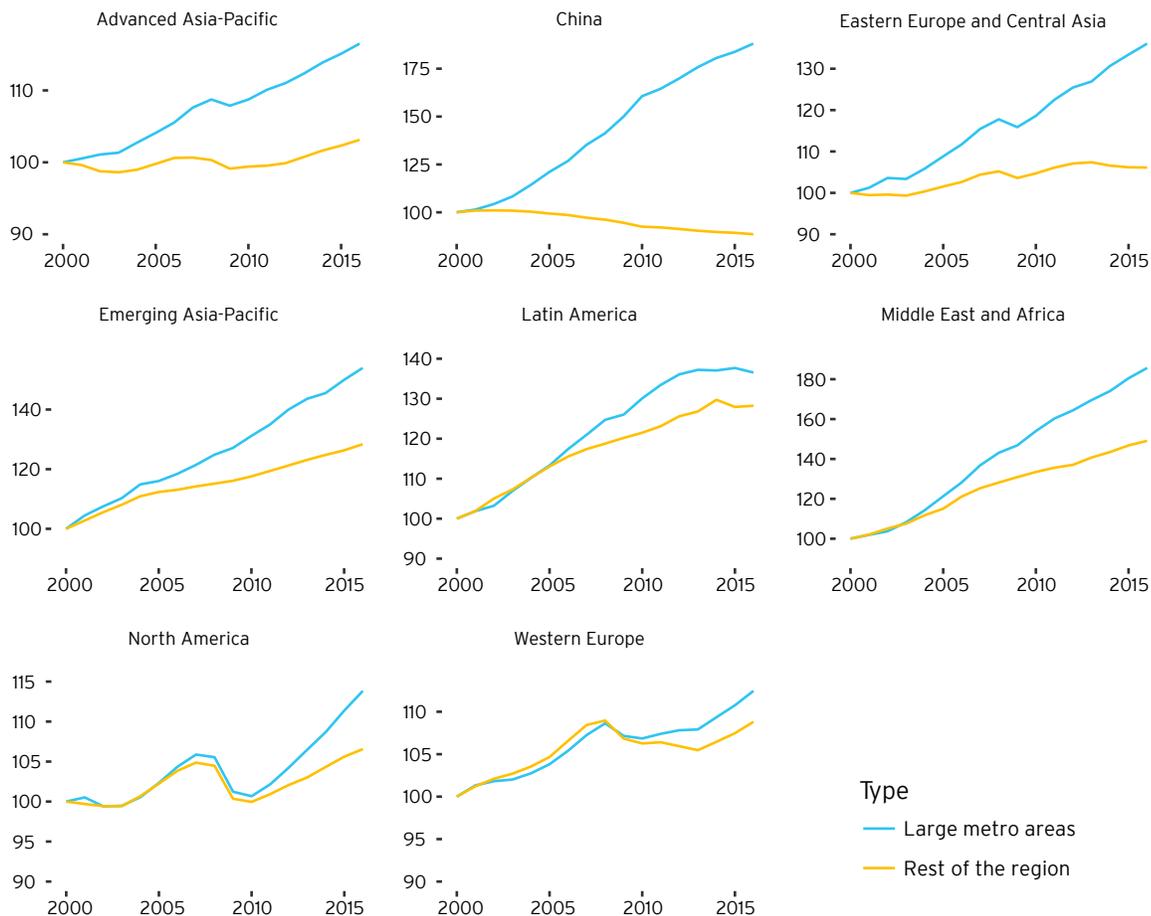
During this period, large metro areas' employment growth has been stronger in every

region, sometimes dramatically so. In China, for instance, the pattern is particularly striking. Large Chinese metro areas experienced an 88.1 percent growth in employment while the rest of the country lost 11.5 percent of its workers, exemplifying the robust growth in the nation's large metro areas and the significant workforce migration from rural areas and smaller towns to large metro areas. The gap in employment growth in Advanced Asia-Pacific, Eastern Europe and Central Asia, and the Middle East and Africa is similar, but not as stark. In Eastern Europe and Central Asia, large metro areas expanded employment even as the rest of

## FIGURE 6

### Large metro areas' employment growth has been stronger in every region

Employment growth, 2000-2016 (Index, 2000=100)

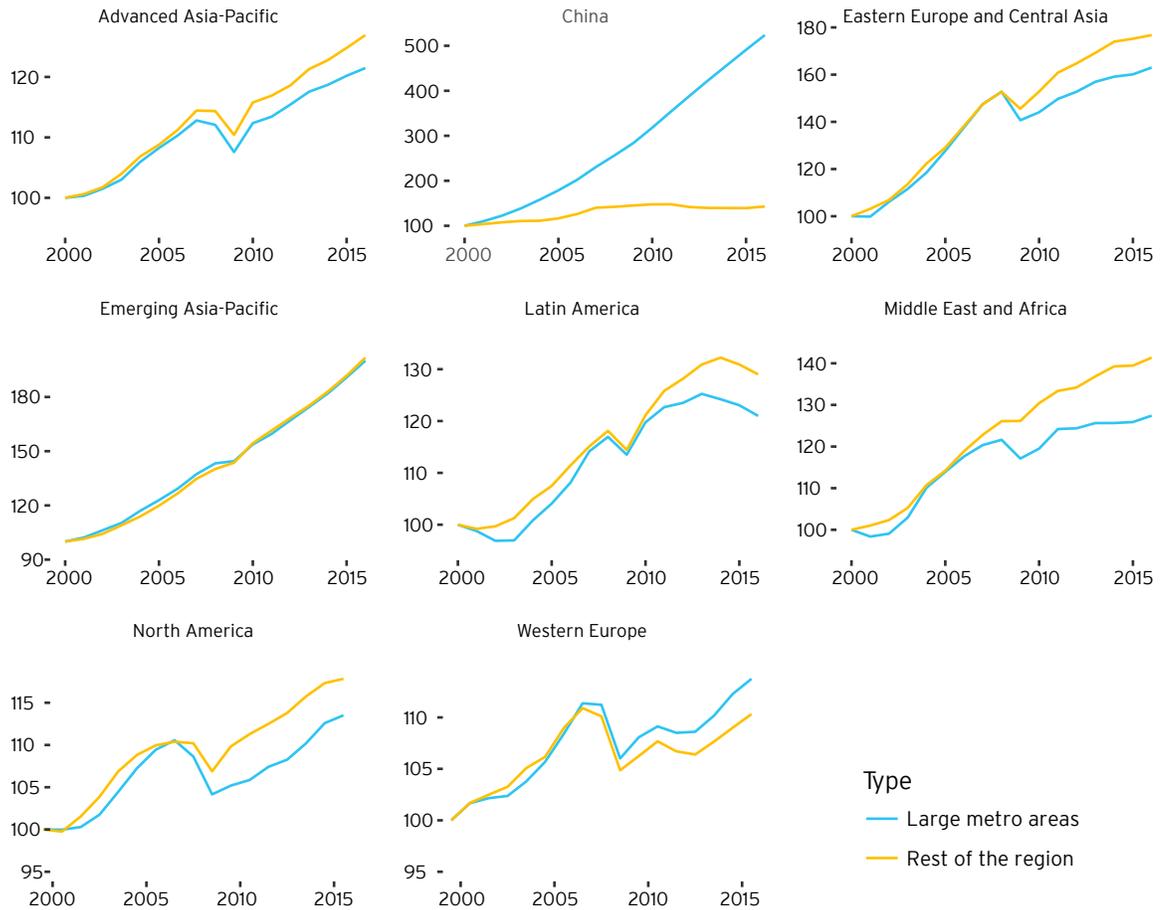


Source: Brookings analysis of Oxford Economics data

**FIGURE 7**

**Large metro areas did not register faster GDP per capita growth than rural areas and smaller metro areas in most regions**

GDP per capita growth, 2000-2016 (Index, 2000=100)



Source: Brookings analysis of Oxford Economics data

the region stagnated. In Western Europe and North America, large metro areas tracked their surrounding regions more closely in the lead up to the financial crisis, but then diverged in the post-recession period.

GDP per capita growth trends by region look different from trends in employment. Between 2000 and 2016, in most regions the 300 largest metro areas did not register faster GDP per capita growth than rural areas and smaller metro areas (Figure 7). Large metro areas in

Western Europe outpaced the rest of the region, although the percentage gain since 2000 is the second smallest among its global counterparts (13.8 percent).

China is once again a remarkable outlier. Large metro areas experienced four times the level of GDP per capita growth than the rest of the country (which grew at a solid 42.8 percent between 2000 and 2016). Incredibly, it appears that the performance of large Chinese metro areas is responsible for the earlier finding that

the 300 largest metro economies are expanding GDP per capita at a faster rate than the world as a whole.

These charts show clearly that China’s urbanization and growth patterns—rapid employment and rapid GDP per capita growth—are unlike any other region in the world. By comparison, large metro areas in the Middle East and Africa appear to be experiencing rising employment but without rapid growth in living standards. Economists have labeled this recent trend “urbanization without growth,” a dynamic that occurs when poverty and weaker local governance constrain large cities’ capacity to address the negative externalities (e.g. congestion, pollution) emanating from growth.<sup>9</sup>

These findings also provide additional nuance to “large city vs. regional hinterland” divergence. In every region, large metro areas are expanding employment at a faster rate than their surrounding regions, but GDP per capita growth

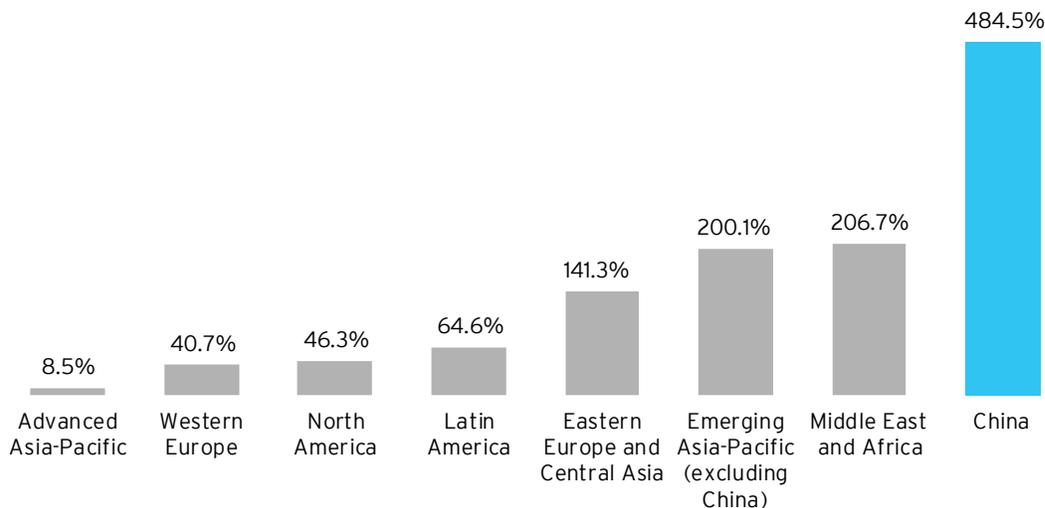
in large metro areas has either trailed or tracked their surrounding nations and regions during the 2000 to 2016 period.

That noted, on average, the populations of large metro areas are still much wealthier than their surrounding areas across all regions (Figure 8). The GDP per capita gap between large metro areas and their surrounding regions remains the largest in emerging markets, not in advanced economies where the political backlash to economic divergence has been most significant. On average, GDP per capita is roughly 40 percent higher in large metro areas in Western Europe and the United States. That gap is not insignificant, but it pales in comparison to GDP per capita percentage differences in China (484.5 percent higher), Middle East and Africa (206.7 percent higher), Emerging Asia-Pacific excluding China (200.1 percent higher), and Eastern Europe and Central Asia (141.3 percent higher).

## FIGURE 8

### People in large metro areas are wealthier across all regions

Percentage difference between GDP per capita in 300 largest metro areas and the rest of their respective region, 2016



Source: Brookings analysis of Oxford Economics data

**C.** Within world regions, a subset of high-performing metro areas is disproportionately accountable for employment and GDP per capita growth.

Large metro areas are not only experiencing differing economic trajectories across regions, but within regions as well. A subset of high-performing metro areas are disproportionately driving growth and not all large metro economies are performing well. Over 2014 and 2016, a clear majority of metro areas outperformed their respective regional economies. Two-thirds (202) of the metropolitan areas exceeded the employment growth of their region. In the same period, over 60 percent (192) of the metro areas registered higher GDP per capita growth than their region.

Within each world region, “pockets of growth” exist, a subset of cities that exceed their region in both employment and GDP per capita growth.

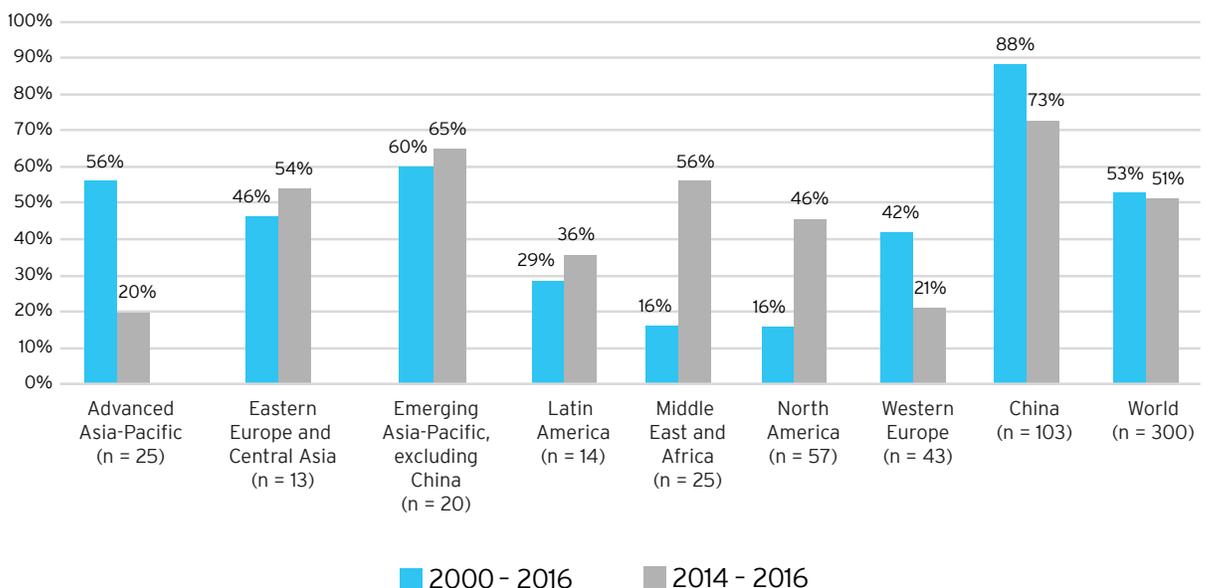
In the short-term, between 2014 and 2016, 51 percent of the 300 largest metro areas registered higher growth rates than their region in both indicators (Figure 9). A majority of metro areas in China, Eastern Europe and Central Asia, Emerging Asia-Pacific, and Middle East and Africa were pockets of growth, whereas most metro areas in Advanced Asia-Pacific, North America and Western Europe underperformed compared to their respective regions on at least one of the two indicators.

Between 2000 and 2016, slightly more metro areas (53 percent) were pockets of growth, driven by the better long-term performance of metro areas in Advanced Asia-Pacific, Western Europe, and China. Notably, in North America

**FIGURE 9**

**The majority of the large metro areas exceeded the growth rates of their region**

Percentage of large metro areas that outperformed their region in both GDP per capita and employment growth



Source: Brookings analysis of Oxford Economics data

and the Middle East and Africa, large metro areas were much more likely to be pockets of growth in the short-term than in the long-term, whereas in Advanced Asia-Pacific and Western Europe the reverse pattern holds.

Yet, even within the set of metro areas that are pockets of growth, there is variation. A smaller subset of metro economies in each region—defined as those in the top quintile of the economic performance index within each region—are powering GDP per capita and employment growth.

This section examines how metro areas performed within their regions between 2014 and 2016, revealing significant variation in the sample:

► **Advanced Asia-Pacific:** While the Advanced Asia-Pacific region sustained stable annual growth in employment (1 percent) and GDP per capita (1.3 percent), the performance of its largest metro areas remained unequal. Auckland had the region's best performance, expanding employment by 4.7 percent and GDP per capita by 3.2 percent. In Australia, Melbourne and Sydney exceeded the overall region's employment growth and registered average GDP per capita growth, whereas Perth's growth stalled in both employment and GDP per capita, partly due to the underperformance of the mining industry. Tokyo performed well compared to the region, in contrast to the slow growth occurring in most Japanese metropolitan areas. Seoul-Incheon registered the second fastest GDP per capita growth in the region (2.8 percent) and second largest increase in employment (320,000). Macau, which we treat separately from China, experienced the worst economic performance in the Advanced Asia-Pacific region. Heavily reliant on gambling tourism from mainland China, its economic growth came to a halt in 2014 after the Chinese government's crackdown on corruption and graft.<sup>10</sup> Gambling revenues dropped from \$44.7 billion in 2013 to \$27.7

billion in 2016.<sup>11</sup> As a free port, Macau also relies on regional trade, which declined by 4.5 percent in 2015<sup>12</sup> and 14.6 percent in 2016.<sup>13</sup>

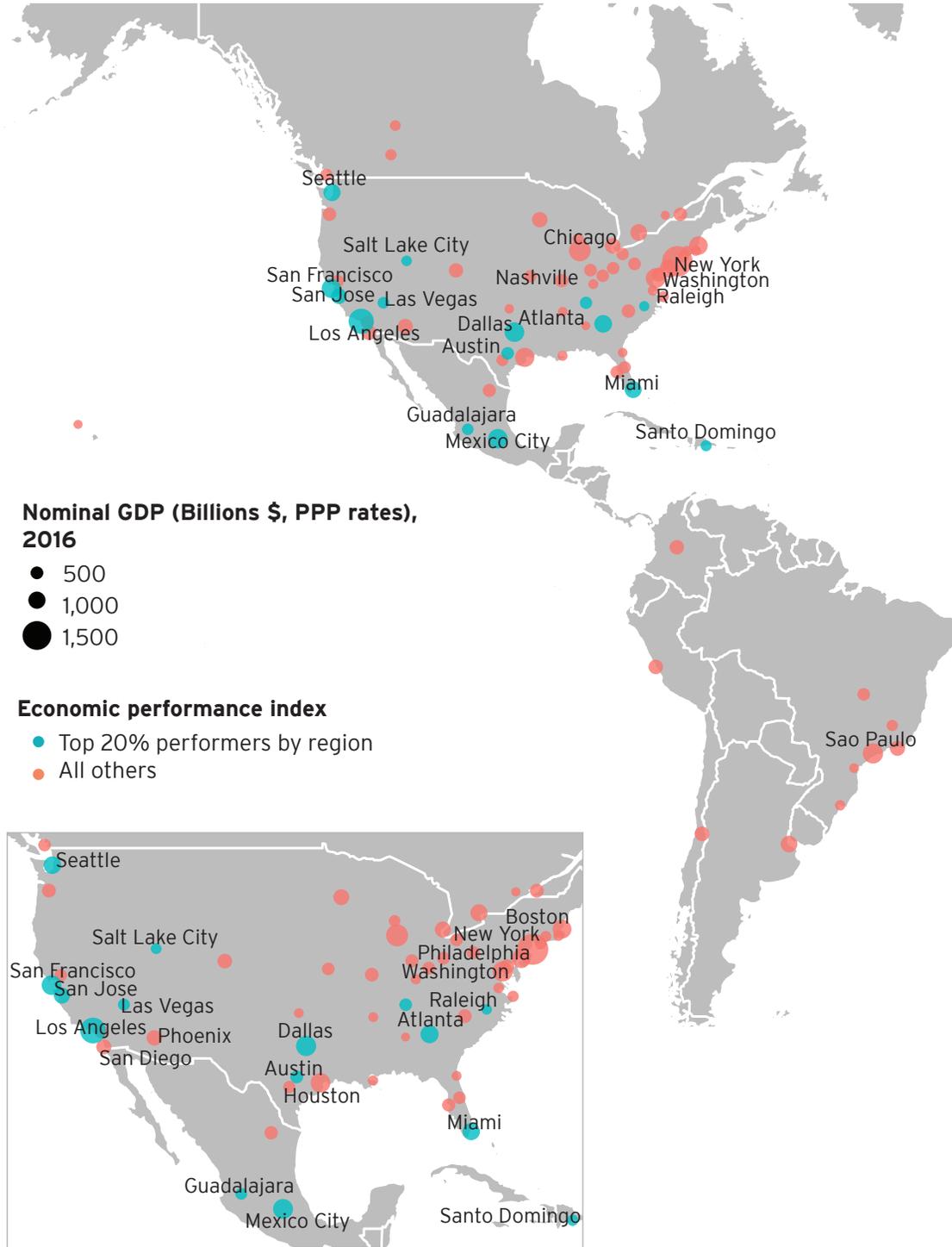
► **China:** In this version of the Global Metro Monitor, no country has more representation than China, where the 103 metro areas in this study continue to propel growth. Within China, the 21 Chinese metro areas that landed in the top fifth of the distribution in terms of economic performance were located in the central industrial basin or the highly urbanized coastal regions. Most large metro areas exceeded the country's low employment growth (0.2 percent) and 10 of these metro areas expanded employment at more than four percentage points faster than the country. Eight metro areas grew their GDP per capita by more than two percentage points above the country's already high GDP per capita growth (6.3 percent). Though not in the top quintile of performance, Zunyi and Guiyang had the nation's highest GDP per capita growth (11.1 and 10.2 percent, respectively). These two cities benefited from a preferential status in China's economic planning with large investments in infrastructure and industrial development. The south and northeastern regions concentrated the lowest performing cities. In particular, four metro areas in the Pearl River Delta had negative employment growth: Zhongshan (-0.6 percent), Zhuhai (-1.2 percent), Foshan (-1.7 percent), and Jiangmen (-2.5 percent).

► **Emerging Asia-Pacific:** The Emerging Asia-Pacific nations, outside of China, also housed some of the fastest-growing metro areas in the world. Together, large metro areas in this region averaged 2.8 percent annual employment growth (above the region's 1.6 percent) and 4.9 percent annual GDP per capita growth (below the region's 5.1 percent). Strong performers in India included Delhi and Hyderabad, with Delhi achieving the largest employment increase in the region (621,000) and Hyderabad boasting the fastest GDP per

**FIGURE 10**

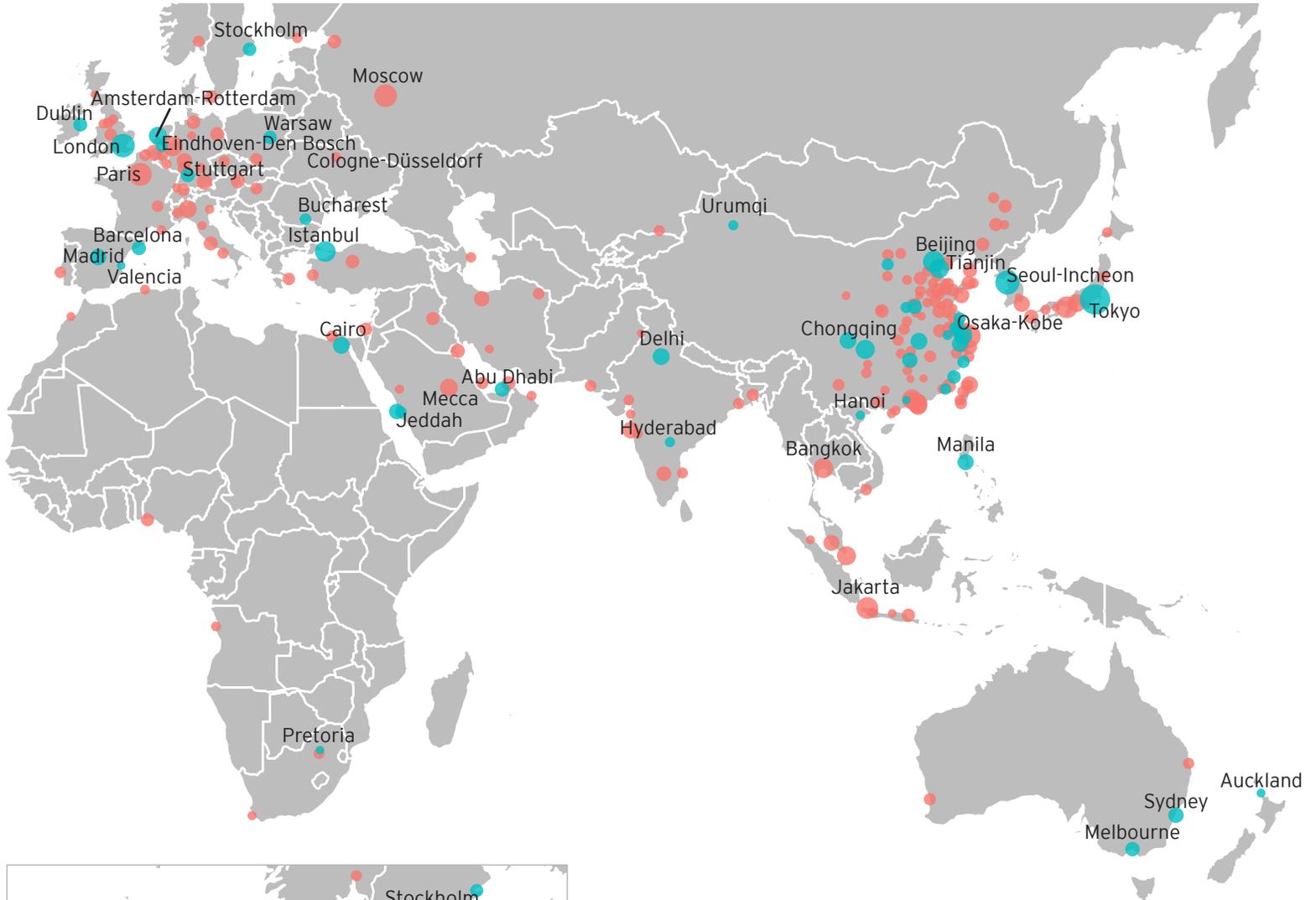
**The economic performance of individual metropolitan areas varies**

Performance on economic index, 300 largest metros, 2014–2016



Source: Brookings analysis of Oxford Economics data

FIGURE 10 (continued)



capita growth rate (8.7 percent). In Southeast Asia, Manila and Hanoi were also in the top quintile of performance. Besides Jakarta's average performance, most major metro areas in Indonesia (Medan, Semarang, and Surabaya) underperformed the region as a whole, with employment growth rates lagging more than 1 percentage point below the region's average.

- ▶ While **Eastern Europe and Central Asia** registered one of the slowest employment (0.2 percent) and GDP per capita growth (1.1 percent), large metro areas collectively outperformed the region. But this masks differences between Eastern Europe and Central Asia. In Eastern Europe, Istanbul had the highest economic performance in the region, adding an additional 460,000 jobs and expanding GDP per capita by 3.9 percent. Bucharest and Warsaw exceeded the region's employment and GDP per capita growth by three percentage points. In contrast, Kiev (Ukraine), Baku (Azerbaijan), Almaty (Kazakhstan), Moscow, and Saint Petersburg (Russia) in Central Asia exhibited slower employment growth and a decrease in GDP per capita.
- ▶ **Latin America** had the weakest economic performance across all regions with an annual decrease in employment (-0.5 percent) and GDP per capita (-1.3 percent). Large metro areas in the region experienced declines as well in both indicators, in particular Brazilian cities such as Brasilia, Belo Horizonte, Curitiba and São Paulo. A subset of Latin American metro areas did counter regional trends. Mexico City and Guadalajara led metropolitan growth in the region, with 3 percent GDP per capita growth each and a combined addition of 366,000 jobs. Santo Domingo achieved the fastest increase in GDP per capita in the region (5.7 percent) raising living standards by \$1,200 from 2014 to 2016.
- ▶ **North America's** large metro areas expanded employment by 2.3 percent and GDP per capita by 1.5 percent annually, above the regional averages of 1.8 percent and 1.3 percent, respectively. West Coast metro areas continued their strong performance. No metro area expanded its GDP per capita faster than San Jose (7.5 percent). Among the top quintile of metro performance in North America, every metro area experienced employment growth of at least 2.5 percent and eleven of the highest performers increased GDP per capita by more than two percent. Aside from Toronto and Vancouver, Canadian metro areas struggled compared to their U.S. peers. Edmonton and Calgary experienced low employment growth and a sharp decline in GDP per capita over the period, due in part to low commodity prices.
- ▶ **Western Europe:** Out of the 43 large metro areas in Western Europe, 24 had lower growth in employment compared to the region's 1.2 percent growth and 31 had lower GDP per capita growth compared to the region's 1.4 percent growth. Dublin exceeded Western Europe's GDP per capita by nearly 20 percentage points.<sup>14</sup> London registered an increase of 364,000 employees, the largest overall job gain in the region, while Stockholm recorded the second largest increase in GDP per capita (\$3,800). Eindhoven-Den Bosch, Amsterdam-Rotterdam—two major industry hubs in Northern Europe—recorded robust growth in GDP per capita as well. Metro areas in the southern portion of Western Europe varied in their performance. Madrid, Barcelona, Valencia and Lisbon exceeded regional growth, while Marseille, Venice, Rome, Milan, Naples, Florence, and Athens lagged regional averages.
- ▶ **Middle East and Africa** registered 2.2 percent employment annual growth and 0.8 percent GDP per capita annual growth from 2014 to 2016. With the exception of Pretoria,

which recorded the highest regional growth in employment (7.6 percent) and robust GDP per capita growth (3.5 percent), major African cities underperformed compared with their Middle Eastern peers. Johannesburg and Cape Town registered negative GDP per capita growth and limited employment growth. GDP per capita decreased by 3.4 percent in Lagos and by nearly 7 percent in Luanda. See below for more details on the 50 metropolitan areas in the Middle East and North Africa that we profile in a special feature.



## SPECIAL FEATURE

### METRO MENA: EXAMINING ECONOMIC PERFORMANCE IN THE MIDDLE EAST AND NORTH AFRICA'S LARGEST CITIES

The Middle East and North Africa (MENA) region grew considerably over the past half a century, driven by high population growth rates and an accumulation of wealth generated, directly and indirectly, from oil. While the region achieved notable advances in human development, it fell short in creating economic opportunities, especially for women and youth.<sup>15</sup> For over a quarter century, the MENA region has had the highest youth unemployment rates and the lowest female labor force participation rates in the world.<sup>16</sup>

In addition, for decades now, the MENA region has also been an epicenter of conflict and instability, from the long-standing Israeli-Palestinian conflict, to successive wars in Iraq, to ongoing civil wars in Libya, Syria, and Yemen. MENA is the birthplace of al-Qaida and the Islamic State (ISIS) and currently has the highest population share of refugees in the world.<sup>17</sup> As such, the MENA region continues to command the attention of the world to a far greater degree than its 6 percent population share might otherwise warrant.

Today, many MENA countries face a combination of difficult economic conditions and uncertain political transitions. Oil-producing countries are struggling to deal with low oil and natural gas prices, which also indirectly affect MENA countries that rely on remittances and development assistance. In Libya, Syria, and Yemen, armed conflict has devastated the lives and livelihoods of people and refugees from these countries have taxed the infrastructure and services of neighboring countries. Until recently, in Egypt, Tunisia, and Bahrain, political transitions have taken precedence over economic reform. Saudi Arabia is undergoing an ambitious, multifaceted transition that involves political, social, and economic dimensions.

Within this context of economic and political uncertainty, this special feature examines the contribution of 50 of the MENA region's large metropolitan areas to the region's employment and GDP per capita growth. Data limitations prevent us from covering all large urban areas in the region.<sup>18</sup> The countries covered in this special feature differ from those of the Middle East and



Africa region presented in the main report. They include the Middle Eastern countries of Bahrain, Iraq, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, the Occupied Palestinian Territories, Qatar, Saudi Arabia, Syria, the United Arab Emirates (UAE), and Yemen and the North African countries of Algeria, Egypt, Libya, Morocco, and Tunisia.

### **A. Large metropolitan areas in MENA account for over half of the region's economic activity.**

The 50 large metropolitan areas included in this special feature contributed substantially to economic activity and output. As a whole, these metropolitan areas accounted for 28 percent of the region's population and 32 percent of its employed workforce but generated just over half (50 percent) of the region's economic output in 2016 (Figure 11). This is similar to the catalytic economic role played by the 300 largest metropolitan areas worldwide (Figure 1).

It follows that GDP per capita in the MENA region was higher in large metropolitan areas as

compared to other regions. This was the case for nearly all MENA countries (Figure 12). However, there were significant differences across countries.

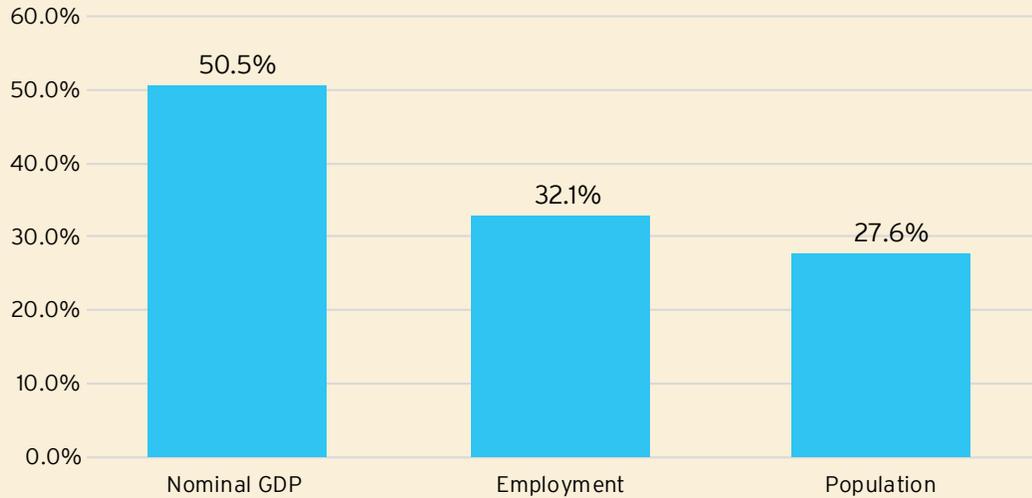
In the Gulf States of Bahrain, Kuwait, Qatar, and the UAE, GDP per capita in large metropolitan areas was roughly equal to that in other areas of the country. The near parity of income per capita in the Gulf States may reflect their small size or the fact that oil and natural gas extraction is typically located outside metro areas.

In Iran, Yemen, Tunisia, Oman, and Egypt, GDP per capita in large metro areas was more than twice as high as in other areas of the country.<sup>19</sup> It is interesting to note that these five countries were among those that experienced social and economic unrest during the past decade. Thus, while metropolitan areas can help generate higher levels of income per capita, large differences may point to structural inequalities that policymakers should address.

**FIGURE 11**

**Large metro areas generated half of the MENA region's production**

Large metro areas' share of MENA totals, 2016



Source: Brookings analysis of Oxford Economics data

**FIGURE 12**

**GDP per capita was higher in large metro areas as compared to the rest of their country across nearly all MENA countries, with large regional variations**

Percentage difference of GDP per capita between large metro areas and the rest of their country, 2016



Source: Brookings analysis of Oxford Economics data

Finally, in Saudi Arabia, GDP per capita in large metro areas was 26 percent higher than in other areas of the country. In Libya, Israel, Algeria, Morocco, Lebanon, Jordan, and Iraq, GDP per capita in large metro areas was between 50 and 90 percent higher than in other areas of the country. In these countries, the gap between GDP per capita in metro and other areas was close to regional and global averages, reflecting the enhanced productivity benefits of metro areas. We note, however, that data for Iraq and Libya only include the capital cities of Baghdad and Tripoli. Including other large metro areas such as Basra (Iraq) and Benghazi (Libya) would likely increase the observed difference in GDP per capita between metro and other areas of Iraq and Libya.

## **B. Between 2014 and 2016, metropolitan areas in MENA contributed slightly more to economic growth in their countries than other areas.**

Economic growth in the MENA region between 2014 and 2016 was fairly evenly distributed across metro areas and other areas. Employment growth rates across metro areas was 3.4 percent between 2014 and 2016, slightly higher than the 3.1 percent employment growth in MENA as a whole (Figure 13). Similarly, GDP per capita grew by 1.5 percent across metro areas, slightly higher than the 1.4 percent growth in GDP per capita across the region. While metro areas contributed disproportionately to economic growth, this contribution was less than that of the 300 largest metro areas' contribution to worldwide growth (Figure 3).

Some metropolitan areas experienced growth in employment and GDP per capita that was higher than national averages while others lagged behind. Of the 50 metropolitan areas covered in the report, slightly more than half (26) experienced employment growth rates that were higher than their national average between 2014 and 2016 while 24 experienced employment growth rates that were lower than

the national average. In terms of GDP per capita, 23 metropolitan areas experienced growth rates that were higher than the national average, while 27 experienced growth rates that were less than the national average.

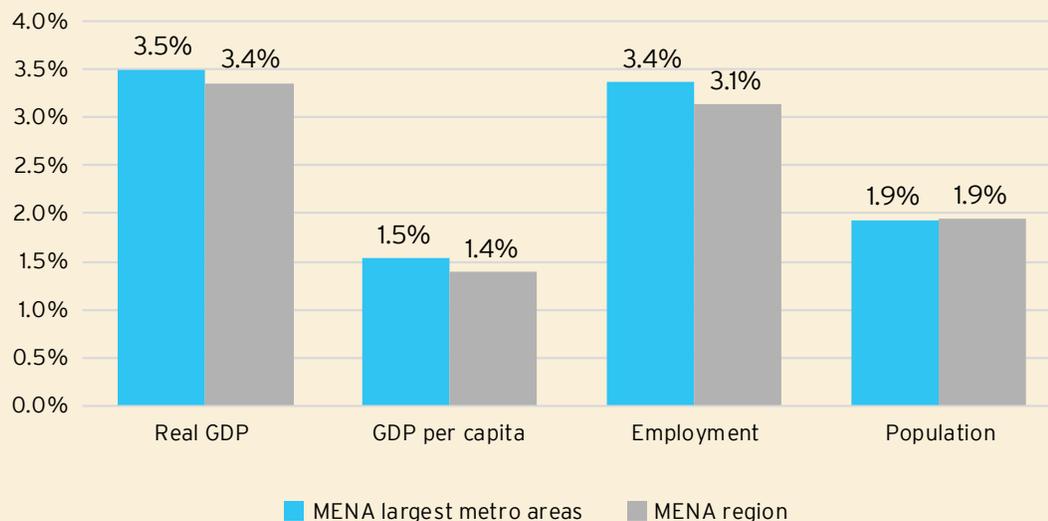
These averages also mask notable differences across metropolitan areas. In terms of employment, Abu Dhabi's growth rate was 3.4 percentage points higher than UAE's national average of 0.7 percent, followed by Jeddah and Mecca, which were 2.8 and 2.3 percentage points higher than Saudi Arabia's national average of 3.1 percent, respectively. The findings for Jeddah and Mecca likely reflect massive construction and infrastructure investments taking place in the greater combined Jeddah-Mecca metropolitan area.

In Egypt, employment growth was significantly lower than national rates in Suez, which was 3 percentage points lower than Egypt's national average of 2.3 percent. Similarly, Doha's employment growth was 2.2 percentage points lower than Qatar's national average of 4 percent. In the case of Doha, lower employment growth may reflect infrastructure projects taking place outside the capital in the lead up to the 2022 World Cup, including the construction of an entirely new city, Lusail, to the north of Doha. In terms of GDP per capita, relatively strong performers included Port Said, whose growth rate was 3.3 percentage points higher than Egypt's (2.3 percent). In Jeddah and Mecca, growth in GDP per capita was, respectively, 2.5 and 2.8 percentage points higher than Saudi Arabia's 0.6 percent. In Agadir, GDP per capita growth was 2.6 percentage points higher than Morocco's 1.4 percent. Agadir had solid employment growth, reflecting the emergence of the area as a prime tourist destination and leader in renewable energy.

Growth in GDP per capita was significantly lower than the national average in Suez, which was 4.7 percentage points lower than Egypt's 2.3 percent, followed by Manama, which was 2.4 percentage points lower than Bahrain's 3.7

**FIGURE 13**

**Large metro areas in MENA grew at a slightly faster pace than the region**  
Compound annual growth rate, 2014-2016



Source: Brookings analysis of Oxford Economics data

percent. The finding that Suez (at the south end of the Suez Canal) is lagging in terms of employment and GDP per capita growth suggests that efforts to expand the Suez Canal has yet to ripple through the regional economy. At the same time, Port Said (at the north end of the Canal) is leading, possibly due to the development of the large Zohr gas field project.

**C. Over both the short term (2014 to 2016) and long term (2000 to 2016), about one-third of metropolitan areas in MENA expanded employment and GDP per capita at a faster clip than their respective nations.**

Some of the large metropolitan areas covered in this section stood out as “pockets of growth,” meaning that they exceeded national averages in terms of *both* employment growth and growth of GDP per capita. In total, 13 of the 50 metropolitan areas were pockets of growth. One key standout was Abu Dhabi, which experienced employment

growth of 4.1 percent compared to the average in the UAE of 0.7 percent and growth in GDP per capita of 3.2 percent compared to the national average of 2.3 percent. The finding suggests that Abu Dhabi, which has the largest sovereign wealth fund in the region and the second largest in the world after Norway, was not as aggressive as other oil-producing states in cutting back on public employment and finances in the face of lower oil prices.

Other pockets of growth included four of six metropolitan areas in Egypt, three of four metropolitan areas in Saudi Arabia, two metropolitan areas in Israel, and one metropolitan area in each of Algeria, Morocco, and Tunisia. Agadir was the only pocket of growth in Morocco (out of seven Moroccan metropolitan areas included in the analysis). Notably, none of the 12 metropolitan areas covered in Iran were pockets of growth during the 2014 and 2016 period.

Taking a longer time horizon, covering the period from 2000 to 2016, we find that 34 metropolitan areas experienced employment growth rates and

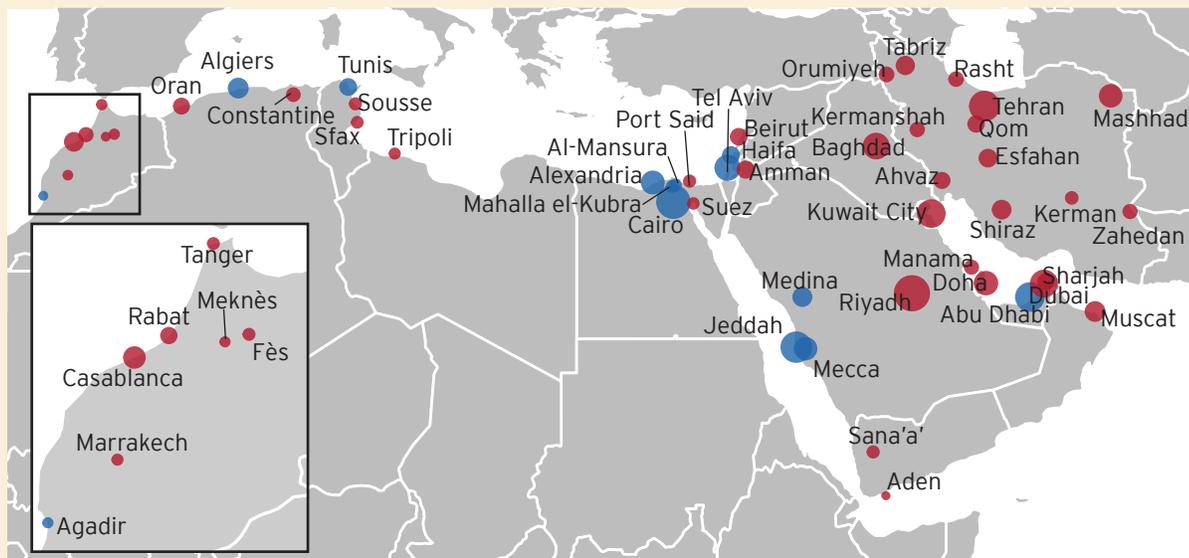
26 experienced growth rates in GDP per capita higher than the national average. As a result, nearly one-third of MENA's large metropolitan areas (15) were pockets of growth between 2000 and 2016. These included seven (out of 12) metropolitan areas in Iran, two in Algeria, two in Tunisia, one in Israel, and one in each of Morocco and Saudi Arabia.

It is interesting to note that nearly half the short-term pockets of growth also performed similarly in the longer term, indicating that they have been consistently driving their countries' growth. These include Algiers, Al-Mansura (Egypt), Tel Aviv, Agadir, Jeddah, and Tunis. These pockets of growth have been consistently surpassing national figures and contributing positively to their country's economies.

**FIGURE 14**

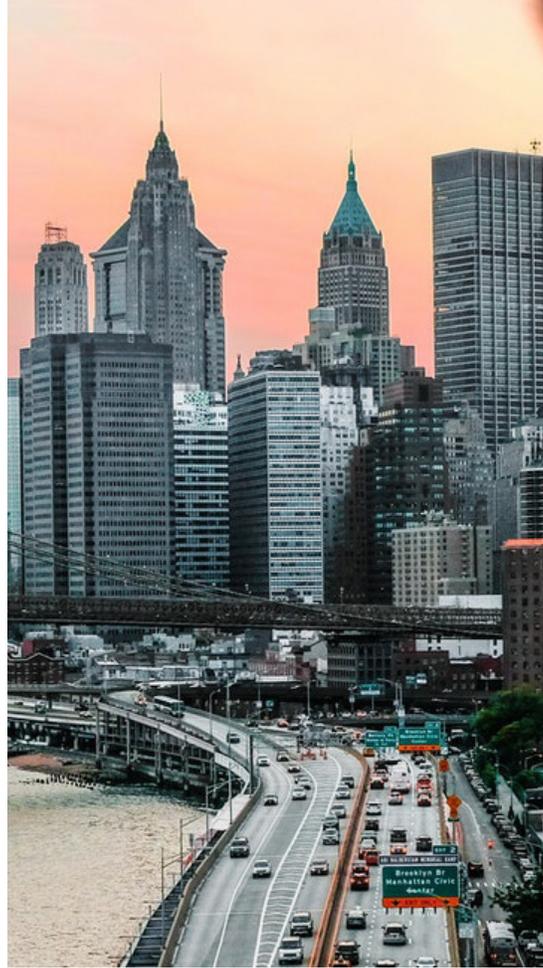
**About one-third of large metro areas in MENA are expanding employment and GDP per capita faster than their respective nations**

Performance status, 50 of the largest metro areas in the MENA region, 2014–2016



Nominal GDP (Billions \$, PPP rates), 2016	Growth status
● 100	● Pockets of growth
● 200	● All others
● 300	
● 400	

Source: Brookings analysis of Oxford Economics data



## CONCLUSION

**T**his report reaffirms the economic power of large cities in the global economy. In 2016, the 300 largest metropolitan economies accounted for under one-quarter of the world's labor pool but nearly half of global output. These large metro areas continued to be critical sources of economic opportunity between 2014 and 2016, accounting for disproportionate shares of global job and GDP growth.

These statistics partly reflect trends occurring in particular world regions, both emerging and advanced. Most prominently, China's dramatic urbanization has resulted in more than one-third of the world's 300 largest metropolitan areas now calling that country home, underscoring that the world's urban growth story cannot be told without a deliberate focus on China.

This report also took a unique look at large metropolitan economies in the Middle East and North Africa, a region that urgently must address twin challenges related to security and economic opportunity. Currently, large metro areas in MENA are neither leading on economic growth nor holding the region back; that will need to shift to improve both opportunity and regional security.

In North America and Europe, there is a newfound focus on the disparities between large cities and

their surrounding hinterlands. While this report is not definitive on this account, it does reveal mixed evidence that regional inequalities are growing in these advanced economies. Rather, the largest disparities in GDP per capita between cities and their adjacent regions continue to be in emerging markets, largely due to the low living standards offered outside of the biggest cities.

For local leaders, the "place age" demands an understanding of metropolitan economic advantages and weaknesses in a regional and global context, with an ardent focus on policies that will improve wages and incomes. For national leaders, the place age demands a greater focus on sub-national economic trends, as those seem to be increasingly important in shaping national and international policy and politics. Our hope is that this report provides insights for both sets of policymakers.

## APPENDIX A

### Ranking of the 300 largest metro areas on Economic Performance Index, 2014-2016

Rank '14-'16	Metro	Country	Region	Income group	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
					Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
1	Dublin	Ireland	Western Europe	Advanced	2.5%	41.6	21.2%	37.9	3
2	San Jose	United States	North America	Advanced	3.4%	69.3	7.5%	16.2	15
3	Chengdu	China	China	Emerging	5.9%	860.7	7.2%	1.2	12
4	San Francisco	United States	North America	Advanced	3.8%	166.6	4.1%	6.8	133
5	Beijing	China	China	Emerging	2.8%	659.1	6.3%	1.6	7
6	Delhi	India	Emerging Asia-Pacific	Emerging	4.7%	621.0	6.6%	0.5	75
7	Manila	Philippines	Emerging Asia-Pacific	Emerging	5.7%	543.7	5.5%	0.7	127
8	Fuzhou	China	China	Emerging	6.0%	315.1	7.8%	1.5	38
9	Tianjin	China	China	Emerging	2.5%	436.1	7.6%	2.2	5
10	Xiamen	China	China	Emerging	5.4%	317.3	7.1%	1.7	13
11	Wuhan	China	China	Emerging	4.5%	382.2	6.9%	1.7	42
12	Istanbul	Turkey	Eastern Europe and Central Asia	Emerging	4.4%	459.0	3.9%	1.6	78
13	Chongqing	China	China	Emerging	1.3%	458.1	9.8%	1.3	111
14	Hyderabad	India	Emerging Asia-Pacific	Emerging	5.4%	343.5	8.7%	0.3	84
15	Wenzhou	China	China	Emerging	5.2%	344.9	7.1%	0.9	24
16	Los Angeles	United States	North America	Advanced	2.5%	291.8	3.1%	4.0	130
17	Suzhou	China	China	Emerging	2.1%	295.1	7.5%	2.7	2
18	Hanoi	Vietnam	Emerging Asia-Pacific	Emerging	4.8%	367.8	7.4%	0.4	83
19	Surat	India	Emerging Asia-Pacific	Emerging	5.9%	271.8	7.9%	0.5	44
20	Hangzhou	China	China	Emerging	2.9%	302.5	7.5%	2.0	4
21	Erdos	China	China	Emerging	3.5%	35.2	7.2%	4.2	14
22	Changzhou	China	China	Emerging	3.6%	186.3	8.4%	2.3	17
23	Mumbai	India	Emerging Asia-Pacific	Emerging	2.9%	470.8	6.9%	0.5	74
24	Yancheng	China	China	Emerging	5.0%	180.9	9.0%	1.3	46
25	Dhaka	Bangladesh	Emerging Asia-Pacific	Emerging	4.8%	407.0	5.2%	0.2	77
26	Zhenjiang	China	China	Emerging	3.9%	99.3	8.4%	2.4	25
27	Urumqi	China	China	Emerging	4.6%	145.3	8.6%	1.5	50
28	Jakarta	Indonesia	Emerging Asia-Pacific	Emerging	2.0%	532.5	4.4%	0.5	33
29	Taizhou (Jiangsu)	China	China	Emerging	3.7%	153.4	8.9%	1.7	28
30	Wuhu	China	China	Emerging	4.7%	89.5	8.5%	1.9	51
31	Ho Chi Minh City	Vietnam	Emerging Asia-Pacific	Emerging	3.8%	315.2	7.3%	0.5	76
32	Zhengzhou	China	China	Emerging	3.0%	185.5	8.7%	1.7	64
33	Abu Dhabi	UAE	Middle East and Africa	Advanced	4.1%	103.9	3.2%	3.4	300

Rank '14-'16	Metro	Country	Region	Income group	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
					Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
34	Luoyang	China	China	Emerging	4.6%	135.7	8.2%	1.2	85
35	Pretoria	South Africa	Middle East and Africa	Emerging	7.6%	171.1	3.5%	0.6	217
36	Seattle	United States	North America	Advanced	3.3%	120.9	2.5%	3.8	146
37	Jeddah	Saudi Arabia	Middle East and Africa	Advanced	6.0%	199.7	3.0%	1.3	135
38	Changsha	China	China	Emerging	2.8%	130.9	7.9%	2.3	41
39	Zhaoqing	China	China	Emerging	5.8%	125.0	7.0%	0.8	70
40	Wuxi	China	China	Emerging	2.1%	147.1	7.0%	2.6	8
41	Nashville	United States	North America	Advanced	3.9%	70.7	3.1%	3.5	178
42	Qingdao	China	China	Emerging	2.6%	212.2	6.7%	1.8	16
43	Shenzhen	China	China	Emerging	1.8%	326.5	4.7%	1.8	1
44	Nanchang	China	China	Emerging	3.2%	126.5	8.4%	1.6	53
45	Guangzhou	China	China	Emerging	2.0%	240.0	5.7%	2.0	6
46	Bangalore	India	Emerging Asia-Pacific	Emerging	3.7%	309.1	5.3%	0.5	59
47	Raleigh	United States	North America	Advanced	3.7%	41.6	3.4%	3.5	280
48	Madrid	Spain	Western Europe	Advanced	2.6%	163.7	3.4%	3.0	193
49	Ganzhou	China	China	Emerging	4.7%	121.6	8.7%	0.5	94
50	Jiaxing	China	China	Emerging	4.2%	128.1	6.5%	1.3	40
51	Nanjing	China	China	Emerging	1.4%	148.0	8.2%	2.2	9
52	Austin	United States	North America	Advanced	4.1%	77.1	2.6%	3.0	141
53	Huai'an	China	China	Emerging	3.3%	98.7	9.2%	1.2	36
54	Bucharest	Romania	Eastern Europe and Central Asia	Emerging	3.3%	70.4	5.5%	2.5	115
55	Heze	China	China	Emerging	5.3%	98.1	7.7%	0.5	82
56	Dallas	United States	North America	Advanced	3.4%	225.0	1.7%	2.1	187
57	Kunming	China	China	Emerging	3.4%	131.4	7.7%	1.2	80
58	Baotou	China	China	Emerging	1.7%	47.8	7.5%	3.0	32
59	Kolkata	India	Emerging Asia-Pacific	Emerging	2.5%	323.5	6.5%	0.2	138
60	Changde	China	China	Emerging	3.9%	117.0	7.8%	0.9	93
61	Zhangzhou	China	China	Emerging	3.5%	64.4	9.0%	1.2	89
62	Warsaw	Poland	Eastern Europe and Central Asia	Advanced	3.2%	108.1	4.2%	2.4	119
63	Salt Lake City	United States	North America	Advanced	3.6%	47.7	2.7%	3.2	180
64	Weifang	China	China	Emerging	3.9%	128.9	6.8%	1.0	65
65	Barcelona	Spain	Western Europe	Advanced	2.8%	116.1	3.6%	2.7	261

Rank '14-'16	Metro	Country	Region	Income group	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
					Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
66	London	United Kingdom	Western Europe	Advanced	2.1%	364.3	1.3%	1.5	109
67	Jinhua	China	China	Emerging	3.0%	150.0	7.0%	1.1	20
68	Auckland	New Zealand	Advanced Asia-Pacific	Advanced	4.7%	72.7	3.2%	2.1	188
69	Atlanta	United States	North America	Advanced	3.3%	165.9	2.1%	2.3	286
70	Liuzhou	China	China	Emerging	4.3%	108.4	6.4%	0.9	88
71	Tokyo	Japan	Advanced Asia-Pacific	Advanced	1.2%	485.0	0.8%	0.8	173
72	Stockholm	Sweden	Western Europe	Advanced	2.0%	55.9	2.8%	3.8	116
73	Lanzhou	China	China	Emerging	3.4%	94.5	7.7%	1.1	96
74	Jiaozuo	China	China	Emerging	3.5%	64.4	8.0%	1.2	91
75	Yangzhou	China	China	Emerging	1.6%	76.2	8.8%	1.9	27
76	Shaoxing	China	China	Emerging	2.7%	119.3	6.6%	1.5	22
77	Mecca	Saudi Arabia	Middle East and Africa	Advanced	5.5%	77.9	3.4%	1.3	158
78	Miami	United States	North America	Advanced	3.2%	159.0	2.3%	2.1	243
79	Nanning	China	China	Emerging	3.5%	127.6	7.0%	0.8	60
80	Las Vegas	United States	North America	Advanced	3.7%	66.2	3.0%	2.5	291
81	New York	United States	North America	Advanced	1.9%	357.6	1.0%	1.4	161
82	Suqian	China	China	Emerging	3.1%	82.6	8.9%	0.8	37
83	Zunyi	China	China	Emerging	2.6%	32.8	11.1%	0.9	86
84	Huzhou	China	China	Emerging	3.4%	78.5	7.0%	1.3	29
85	Weihai	China	China	Emerging	2.3%	40.9	7.1%	2.2	54
86	Ahmedabad	India	Emerging Asia-Pacific	Emerging	3.5%	188.4	6.3%	0.4	113
87	Cairo	Egypt	Middle East and Africa	Emerging	3.6%	310.2	2.7%	0.3	152
88	Pune	India	Emerging Asia-Pacific	Emerging	3.6%	150.2	7.0%	0.4	124
89	Tehran	Iran	Middle East and Africa	Emerging	3.9%	211.6	3.6%	0.7	147
90	Portland	United States	North America	Advanced	3.2%	69.0	2.3%	2.8	106
91	Nanyang	China	China	Emerging	3.4%	100.2	7.8%	0.6	114
92	Mashhad	Iran	Middle East and Africa	Emerging	5.3%	112.9	3.3%	0.8	151
93	Boston	United States	North America	Advanced	2.0%	105.3	2.1%	3.1	164
94	Hohhot	China	China	Emerging	1.9%	38.4	7.6%	2.1	58
95	Seoul-Incheon	South Korea	Advanced Asia-Pacific	Advanced	1.2%	320.9	2.8%	1.2	55
96	Hefei	China	China	Emerging	1.4%	78.4	8.3%	1.7	23
97	Karachi	Pakistan	Middle East and Africa	Emerging	4.1%	264.8	2.6%	0.1	134
98	Riverside	United States	North America	Advanced	4.3%	113.5	2.5%	1.4	240
99	Shanghai	China	China	Emerging	0.5%	139.7	7.0%	2.0	10

Rank '14-'16	Metro	Country	Region	Income group	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
					Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
100	Huizhou	China	China	Emerging	2.3%	96.2	7.2%	1.2	19
101	Charlotte	United States	North America	Advanced	3.8%	83.4	1.9%	2.1	255
102	Xiangfan	China	China	Emerging	2.5%	82.5	7.9%	1.0	122
103	Xuchang	China	China	Emerging	2.7%	42.0	8.1%	1.1	90
104	Vancouver	Canada	North America	Advanced	3.2%	83.5	2.4%	2.2	171
105	Shiraz	Iran	Middle East and Africa	Emerging	5.8%	68.0	2.8%	0.7	163
106	Guiyang	China	China	Emerging	1.0%	31.6	10.2%	1.4	69
107	Valencia	Spain	Western Europe	Advanced	2.9%	40.0	3.8%	2.2	276
108	Ningbo	China	China	Emerging	1.2%	88.3	6.9%	1.8	11
109	Jinan	China	China	Emerging	1.7%	99.7	6.5%	1.5	18
110	Stuttgart	Germany	Western Europe	Advanced	1.7%	60.3	2.5%	3.1	190
111	Sacramento	United States	North America	Advanced	3.3%	60.4	2.4%	2.2	281
112	Xi'an	China	China	Emerging	1.7%	106.7	7.2%	1.2	62
113	Maoming	China	China	Emerging	3.8%	54.9	6.4%	0.7	108
114	Quanzhou	China	China	Emerging	1.4%	77.2	7.5%	1.5	52
115	Detroit	United States	North America	Advanced	2.0%	77.3	2.6%	2.6	288
116	Budapest	Hungary	Eastern Europe and Central Asia	Advanced	3.5%	123.6	2.6%	1.2	198
117	Chenzhou	China	China	Emerging	3.0%	53.0	7.4%	0.7	103
118	Anyang	China	China	Emerging	3.0%	60.4	7.1%	0.8	157
119	Xuzhou	China	China	Emerging	1.4%	61.3	8.3%	1.3	47
120	Yichang	China	China	Emerging	1.2%	61.2	8.1%	1.4	30
121	Yantai	China	China	Emerging	1.2%	50.1	6.9%	1.8	39
122	Muscat	Oman	Middle East and Africa	Advanced	7.2%	86.0	0.0%	0.0	160
123	Riyadh	Saudi Arabia	Middle East and Africa	Advanced	4.6%	229.8	0.2%	0.1	132
124	Lianyungang	China	China	Emerging	1.6%	29.0	8.8%	1.0	68
125	Linyi	China	China	Emerging	2.7%	83.5	6.2%	0.6	97
126	Chicago	United States	North America	Advanced	1.6%	146.4	1.7%	2.0	256
127	Mexico City	Mexico	Latin America	Emerging	1.4%	257.6	3.0%	0.7	156
128	Tai'an	China	China	Emerging	1.7%	55.6	6.9%	1.1	66
129	Honolulu	United States	North America	Advanced	1.5%	14.0	2.6%	2.9	175
130	Santo Domingo	Dominican Republic	Latin America	Emerging	2.0%	57.3	5.7%	1.2	185
131	Ankara	Turkey	Eastern Europe and Central Asia	Emerging	3.5%	128.3	2.2%	0.7	140
132	Eindhoven-Den Bosch	Netherlands	Western Europe	Advanced	1.2%	28.4	2.6%	2.9	206
133	Nantong	China	China	Emerging	0.2%	10.5	8.6%	1.8	31
134	Melbourne	Australia	Advanced Asia-Pacific	Advanced	3.4%	152.5	1.0%	0.9	170
135	Amsterdam-Rotterdam	Netherlands	Western Europe	Advanced	1.2%	97.9	2.0%	2.4	213

Rank '14-'16	Metro	Country	Region	Income group	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
					Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
136	Toronto	Canada	North America	Advanced	2.0%	127.1	1.8%	1.6	197
137	Hengyang	China	China	Emerging	1.8%	57.0	7.6%	0.7	73
138	Dongguan	China	China	Emerging	0.7%	20.6	7.7%	1.6	34
139	Chennai	India	Emerging Asia-Pacific	Emerging	2.5%	136.4	5.1%	0.2	238
140	Prague	Czech Republic	Eastern Europe and Central Asia	Advanced	1.5%	36.1	3.3%	2.3	166
141	Dongying	China	China	Emerging	-0.4%	-5.2	5.9%	3.0	35
142	Lahore	Pakistan	Middle East and Africa	Emerging	4.0%	143.2	2.6%	0.1	176
143	San Antonio	United States	North America	Advanced	3.2%	62.1	1.8%	1.5	200
144	Sydney	Australia	Advanced Asia-Pacific	Advanced	2.4%	115.7	1.5%	1.6	183
145	Zhuzhou	China	China	Emerging	1.3%	32.1	7.6%	1.1	153
146	Tampa	United States	North America	Advanced	3.6%	88.7	1.4%	1.1	267
147	Liaocheng	China	China	Emerging	1.9%	29.2	7.1%	0.9	104
148	Richmond	United States	North America	Advanced	2.5%	31.7	1.9%	2.0	284
149	Alexandria	Egypt	Middle East and Africa	Emerging	3.5%	107.2	3.1%	0.3	194
150	Kuala Lumpur	Malaysia	Emerging Asia-Pacific	Emerging	1.8%	124.6	3.5%	1.0	92
151	Kuwait City	Kuwait	Middle East and Africa	Advanced	6.6%	181.2	-1.3%	-0.9	184
152	Taiyuan	China	China	Emerging	1.7%	64.0	5.8%	0.9	112
153	Harbin	China	China	Emerging	1.0%	50.9	6.9%	1.0	137
154	Baltimore	United States	North America	Advanced	1.7%	45.3	1.9%	2.2	192
155	Tel Aviv	Israel	Middle East and Africa	Advanced	2.2%	71.7	2.1%	1.6	139
156	Medina	Saudi Arabia	Middle East and Africa	Advanced	5.1%	46.5	1.3%	0.4	216
157	Philadelphia	United States	North America	Advanced	1.7%	95.4	1.5%	1.8	199
158	Cangzhou	China	China	Emerging	1.8%	34.8	6.5%	0.8	117
159	Louisville	United States	North America	Advanced	2.7%	34.5	1.7%	1.7	248
160	Guadalajara	Mexico	Latin America	Emerging	2.6%	108.1	3.1%	0.7	232
161	Shijiazhuang	China	China	Emerging	1.5%	45.1	6.4%	0.9	121
162	Phoenix	United States	North America	Advanced	3.2%	121.7	0.9%	0.8	277
163	New Orleans	United States	North America	Advanced	0.9%	10.0	2.6%	2.7	290
164	Binzhou	China	China	Emerging	1.5%	24.7	6.2%	1.1	72
165	Denver	United States	North America	Advanced	3.2%	87.3	0.9%	1.1	241
166	Langfang	China	China	Emerging	1.3%	22.7	7.1%	0.9	110
167	Columbus	United States	North America	Advanced	2.3%	47.7	1.5%	1.7	234
168	Handan	China	China	Emerging	1.5%	62.2	6.0%	0.6	87

Rank '14-'16	Metro	Country	Region	Income group	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
					Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
169	Jacksonville	United States	North America	Advanced	3.5%	43.7	1.2%	1.0	287
170	Zhoukou	China	China	Emerging	1.2%	27.7	7.7%	0.5	123
171	Copenhagen-Malmö	Denmark	Western Europe	Advanced	1.8%	56.3	1.4%	1.7	210
172	Bandung	Indonesia	Emerging Asia-Pacific	Emerging	1.5%	103.1	5.3%	0.3	145
173	Taizhou (Zhejiang)	China	China	Emerging	0.9%	37.9	6.0%	0.9	57
174	Washington	United States	North America	Advanced	1.8%	114.0	0.9%	1.3	201
175	Changchun	China	China	Emerging	0.4%	19.0	6.5%	1.3	81
176	Monterrey	Mexico	Latin America	Emerging	3.1%	117.6	1.1%	0.4	209
177	Yueyang	China	China	Emerging	0.3%	9.2	7.6%	0.9	61
178	Osaka-Kobe	Japan	Advanced Asia-Pacific	Advanced	1.0%	182.5	1.0%	0.9	274
179	Manchester	United Kingdom	Western Europe	Advanced	1.9%	53.0	1.8%	1.3	221
180	Baghdad	Iraq	Middle East and Africa	Emerging	3.1%	91.2	1.9%	0.3	191
181	Zhuhai	China	China	Emerging	-1.2%	-25.7	7.0%	2.2	56
182	Zibo	China	China	Emerging	0.2%	4.7	5.9%	1.5	67
183	Berlin	Germany	Western Europe	Advanced	2.1%	91.3	1.2%	1.0	229
184	Zhongshan	China	China	Emerging	-0.6%	-24.1	7.1%	1.8	26
185	Karlsruhe	Germany	Western Europe	Advanced	1.2%	39.2	1.6%	1.6	222
186	Orlando	United States	North America	Advanced	4.3%	97.3	-0.2%	-0.2	282
187	Tangshan	China	China	Emerging	0.2%	6.5	5.5%	1.2	95
188	Memphis	United States	North America	Advanced	1.9%	23.1	1.5%	1.3	297
189	Luxembourg-Trier	Luxembourg	Western Europe	Advanced	1.9%	25.0	1.0%	1.4	167
190	Izmir	Turkey	Eastern Europe and Central Asia	Emerging	2.1%	62.4	2.2%	0.6	154
191	Lisbon	Portugal	Western Europe	Advanced	1.8%	50.6	1.6%	1.0	293
192	Birmingham (UK)	United Kingdom	Western Europe	Advanced	1.9%	69.8	1.2%	0.9	263
193	Zurich	Switzerland	Western Europe	Advanced	1.9%	46.7	0.6%	1.1	169
194	Indianapolis	United States	North America	Advanced	2.6%	51.6	0.6%	0.7	264
195	Leeds-Bradford	United Kingdom	Western Europe	Advanced	2.2%	50.4	1.1%	0.7	242
196	Hartford	United States	North America	Advanced	0.6%	6.2	1.5%	2.0	279
197	Xianyang	China	China	Emerging	-0.5%	-6.9	7.6%	0.8	162
198	Birmingham (US)	United States	North America	Advanced	1.0%	10.3	1.7%	1.6	275
199	Busan-Ulsan	South Korea	Advanced Asia-Pacific	Advanced	1.2%	91.1	1.6%	0.7	165
200	Brisbane	Australia	Advanced Asia-Pacific	Advanced	1.5%	33.5	1.3%	1.2	142
201	Shizuoka	Japan	Advanced Asia-Pacific	Advanced	0.6%	8.8	1.9%	1.7	258
202	Xinxiang	China	China	Emerging	0.1%	1.7	6.7%	0.6	129

Rank '14-'16	Metro	Country	Region	Income group	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
					Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
203	Munich	Germany	Western Europe	Advanced	1.6%	76.9	0.6%	0.8	224
204	Singapore	Singapore	Advanced Asia-Pacific	Advanced	1.4%	101.8	0.7%	0.7	45
205	Minneapolis	United States	North America	Advanced	1.7%	64.3	0.7%	0.9	252
206	Jining	China	China	Emerging	-0.5%	-11.8	6.8%	0.9	98
207	Nagoya	Japan	Advanced Asia-Pacific	Advanced	0.5%	42.5	1.5%	1.5	231
208	Bangkok	Thailand	Emerging Asia-Pacific	Emerging	0.5%	103.6	2.5%	0.5	207
209	Cologne-Düsseldorf	Germany	Western Europe	Advanced	1.2%	137.7	0.5%	0.5	218
210	Cincinnati	United States	North America	Advanced	1.8%	38.8	0.8%	0.8	249
211	Daegu	South Korea	Advanced Asia-Pacific	Advanced	0.9%	22.3	2.8%	0.8	214
212	Providence	United States	North America	Advanced	1.4%	16.5	1.2%	1.0	265
213	Paris	France	Western Europe	Advanced	0.6%	82.8	0.7%	1.0	205
214	Pittsburgh	United States	North America	Advanced	0.1%	3.4	1.7%	1.7	212
215	Tainan	Taiwan	Advanced Asia-Pacific	Advanced	1.3%	24.9	1.9%	0.8	174
216	Milan	Italy	Western Europe	Advanced	0.8%	60.5	1.0%	1.0	283
217	Hiroshima	Japan	Advanced Asia-Pacific	Advanced	0.8%	16.2	1.4%	1.2	247
218	Brussels	Belgium	Western Europe	Advanced	1.1%	54.5	0.8%	0.9	227
219	St. Louis	United States	North America	Advanced	1.7%	44.8	0.7%	0.7	278
220	Hong Kong	Hong Kong	Advanced Asia-Pacific	Advanced	0.6%	44.4	1.5%	1.1	126
221	Montreal	Canada	North America	Advanced	1.2%	48.1	1.1%	0.8	235
222	Foshan	China	China	Emerging	-1.7%	-99.4	6.7%	2.1	43
223	Medan	Indonesia	Emerging Asia-Pacific	Emerging	0.3%	11.3	5.1%	0.4	181
224	Turin	Italy	Western Europe	Advanced	1.0%	19.8	1.3%	1.0	298
225	Casablanca	Morocco	Middle East and Africa	Emerging	1.9%	48.8	1.5%	0.2	220
226	Aachen-Liège	Belgium	Western Europe	Advanced	1.0%	24.4	1.2%	0.9	262
227	Lyon	France	Western Europe	Advanced	1.0%	21.5	1.0%	1.1	246
228	Liverpool	United Kingdom	Western Europe	Advanced	0.8%	15.0	1.5%	1.0	223
229	Algiers	Algeria	Middle East and Africa	Emerging	1.7%	33.6	1.8%	0.2	189
230	Buenos Aires	Argentina	Latin America	Emerging	1.6%	188.7	-1.2%	-0.2	182
231	Glasgow	United Kingdom	Western Europe	Advanced	1.1%	16.9	1.2%	0.9	215
232	Nuremberg-Fürth	Germany	Western Europe	Advanced	1.5%	28.3	0.7%	0.7	202
233	Vienna-Bratislava	Austria	Western Europe	Advanced	1.5%	61.4	0.4%	0.4	219
234	Semarang	Indonesia	Emerging Asia-Pacific	Emerging	0.1%	6.5	5.2%	0.3	230
235	Taoyuan	Taiwan	Advanced Asia-Pacific	Advanced	1.8%	35.9	0.8%	0.3	144

Rank '14-'16	Metro	Country	Region	Income group	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
					Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
236	Yulin	China	China	Emerging	-1.3%	-15.3	5.6%	1.2	79
237	Santiago	Chile	Latin America	Advanced	1.0%	67.8	1.2%	0.3	143
238	Florence	Italy	Western Europe	Advanced	0.9%	13.1	1.0%	0.9	296
239	Okayama	Japan	Advanced Asia-Pacific	Advanced	0.5%	8.5	1.3%	1.1	270
240	Sendai	Japan	Advanced Asia-Pacific	Advanced	0.1%	2.7	1.5%	1.3	250
241	Saint Petersburg	Russia	Eastern Europe and Central Asia	Emerging	2.1%	122.4	-1.0%	-0.3	149
242	San Diego	United States	North America	Advanced	2.8%	75.9	-0.4%	-0.4	211
243	Kitakyushu-Fukuoka	Japan	Advanced Asia-Pacific	Advanced	0.4%	20.4	1.2%	1.0	272
244	Surabaya	Indonesia	Emerging Asia-Pacific	Emerging	-0.5%	-30.2	5.1%	0.8	168
245	Dezhou	China	China	Emerging	-1.5%	-27.5	6.5%	0.9	148
246	Sapporo	Japan	Advanced Asia-Pacific	Advanced	0.5%	12.5	1.2%	0.9	285
247	Baoding	China	China	Emerging	-0.7%	-21.8	6.1%	0.4	136
248	Katowice-Ostrava	Poland	Eastern Europe and Central Asia	Advanced	0.0%	1.7	2.7%	0.8	225
249	Cleveland	United States	North America	Advanced	0.9%	19.1	0.6%	0.7	251
250	Zhanjiang	China	China	Emerging	-1.4%	-24.7	6.6%	0.6	128
251	Zaozhuang	China	China	Emerging	-1.5%	-26.4	5.7%	0.9	102
252	Taichung	Taiwan	Advanced Asia-Pacific	Advanced	0.8%	21.8	1.1%	0.5	177
253	Kansas City	United States	North America	Advanced	2.3%	47.7	-0.2%	-0.2	271
254	Marseille	France	Western Europe	Advanced	0.7%	10.7	0.7%	0.7	233
255	Kaohsiung	Taiwan	Advanced Asia-Pacific	Advanced	0.7%	17.8	1.2%	0.5	196
256	Virginia Beach	United States	North America	Advanced	0.9%	13.5	0.6%	0.5	273
257	Lille	France	Western Europe	Advanced	0.4%	10.4	1.0%	0.7	259
258	Venice-Padova	Italy	Western Europe	Advanced	0.3%	4.0	1.0%	0.8	294
259	Rome	Italy	Western Europe	Advanced	1.1%	44.7	0.2%	0.2	292
260	Bogota	Colombia	Latin America	Emerging	0.0%	-4.7	2.7%	0.5	99
261	Bridgeport	United States	North America	Advanced	0.6%	5.0	0.4%	0.7	239
262	Hamburg	Germany	Western Europe	Advanced	1.1%	37.3	0.2%	0.2	237
263	Helsinki	Finland	Western Europe	Advanced	0.6%	11.2	0.5%	0.6	245
264	Daqing	China	China	Emerging	0.8%	16.1	0.9%	0.3	118
265	Athens	Greece	Western Europe	Advanced	0.6%	19.1	0.6%	0.4	289
266	Jilin	China	China	Emerging	-2.7%	-49.5	6.6%	1.1	159
267	Jiangmen	China	China	Emerging	-2.5%	-66.8	6.9%	1.0	71
268	Naples	Italy	Western Europe	Advanced	0.9%	25.1	0.4%	0.2	299
269	Lagos	Nigeria	Middle East and Africa	Emerging	1.7%	147.0	-3.4%	-0.3	101
270	Frankfurt am Main	Germany	Western Europe	Advanced	1.1%	54.9	-0.1%	-0.1	269

Rank '14-'16	Metro	Country	Region	Income group	Employment, '14-'16		GDP per capita, '14-'16		Rank '00-'16
					Growth Rate	Change (thousands)	Growth Rate	Change (thousands)	
271	Ottawa	Canada	North America	Advanced	0.8%	11.3	0.3%	0.2	244
272	Doha	Qatar	Middle East and Africa	Advanced	1.8%	23.5	-0.3%	-0.3	48
273	Taipei	Taiwan	Advanced Asia-Pacific	Advanced	0.6%	40.5	0.1%	0.0	172
274	Basel-Mulhouse	Switzerland	Western Europe	Advanced	0.8%	10.9	0.1%	0.1	268
275	Oklahoma City	United States	North America	Advanced	0.7%	8.9	-0.1%	-0.1	236
276	Hannover	Germany	Western Europe	Advanced	1.0%	13.9	-0.3%	-0.3	257
277	Perth	Australia	Advanced Asia-Pacific	Advanced	0.2%	4.0	0.0%	0.0	49
278	Shenyang	China	China	Emerging	0.0%	-0.2	-0.2%	0.0	131
279	Luanda	Angola	Middle East and Africa	Emerging	3.2%	89.4	-6.9%	-0.8	100
280	Almaty	Kazakhstan	Eastern Europe and Central Asia	Emerging	0.7%	11.0	-1.0%	-0.4	105
281	Oslo	Norway	Western Europe	Advanced	0.4%	6.2	-0.3%	-0.5	150
282	Johannesburg	South Africa	Middle East and Africa	Emerging	0.6%	23.8	-1.9%	-0.4	203
283	Baku	Azerbaijan	Eastern Europe and Central Asia	Emerging	0.5%	14.1	-1.7%	-0.4	125
284	Cape Town	South Africa	Middle East and Africa	Emerging	0.1%	2.5	-1.5%	-0.2	254
285	Dubai	UAE	Middle East and Africa	Advanced	-0.8%	-42.4	0.2%	0.1	295
286	Milwaukee	United States	North America	Advanced	1.1%	18.1	-1.3%	-1.5	260
287	Moscow	Russia	Eastern Europe and Central Asia	Emerging	0.6%	87.3	-2.9%	-1.5	107
288	Kiev	Ukraine	Eastern Europe and Central Asia	Emerging	-0.3%	-9.4	-2.2%	-0.4	195
289	Rio De Janeiro	Brazil	Latin America	Emerging	-0.3%	-28.8	-2.4%	-0.6	208
290	Dalian	China	China	Emerging	-2.3%	-165.4	1.3%	0.4	63
291	Houston	United States	North America	Advanced	1.0%	59.2	-2.1%	-2.8	204
292	Porto Alegre	Brazil	Latin America	Emerging	-0.9%	-36.8	-3.7%	-0.9	253
293	Lima	Peru	Latin America	Emerging	-2.3%	-242.4	1.1%	0.2	155
294	Brasilia	Brazil	Latin America	Emerging	-1.1%	-47.5	-3.2%	-1.3	186
295	Belo Horizonte	Brazil	Latin America	Emerging	-2.1%	-100.6	-5.6%	-1.2	228
296	Curitiba	Brazil	Latin America	Emerging	-3.9%	-143.2	-6.1%	-1.6	266
297	Edmonton	Canada	North America	Advanced	1.4%	20.9	-5.9%	-7.5	179
298	Sao Paulo	Brazil	Latin America	Emerging	-2.0%	-412.4	-5.8%	-1.9	120
299	Calgary	Canada	North America	Advanced	0.3%	4.6	-5.3%	-7.4	226
300	Macau	Macau	Advanced Asia-Pacific	Advanced	0.3%	2.5	-14.1%	-17.5	21

Source: Brookings analysis of Oxford Economics data

## APPENDIX B

### Selection and definition of metropolitan areas

The fifth edition of the Global Metro Monitor employs the size of each metropolitan economy as the main selection criterion, given the focus on metropolitan economic performance. As with previous installments of the series, the sample is composed of the 300 largest metropolitan areas for which economic data was available, based on the size of their respective economies in 2016 at purchasing power parity rates. Oxford Economics provided the sample of metropolitan areas.

This study uses the general definition of a metropolitan area as an economic region with one or more cities and their surrounding areas, all linked by economic and commuting ties. In the United States, metro areas are defined by the federal Office of Management and Budget (OMB) to include one or more urbanized areas of at least 50,000 inhabitants, plus outlying areas connected by commuting flows.<sup>20</sup>

For the European Union countries, Switzerland, and Norway, the European Observation Network for Territorial Development and Cohesion (ESPON) defines metro areas as having one or more functional urban areas of more than 500,000 inhabitants.<sup>21</sup> This study uses the most accurate metropolitan area compositions of European metro areas, because the current ESPON 2013 database employs commuting data at the municipal level to define functional urban areas, the building blocks of metropolitan areas.<sup>22</sup> This identification method is most consistent with the U.S. definition of metro areas based on commuting links, with the possibility of a metro area crossing jurisdictional borders, and having multiple cities included. For metropolitan areas outside of the United States and Europe, this study uses the official metropolitan area definition from national statistics. Not all countries, especially emerging ones, have created

statistical equivalents of a metropolitan area. Due to data limitations, some metropolitan areas in this report do not properly reflect regional economies, but the federal city (Moscow, St. Petersburg), provincial-level, sub-provincial or prefecture levels in China, municipality (Tehran, Baghdad, Almaty), or the administrative region (Alexandria Governorate, Algiers Province, Hanoi Province).

### Baseline variables and data sources

This Global Metro Monitor employs several key variables to assess the economic performance of metropolitan areas: gross domestic product (GDP), employment, population, and GDP per capita, all from 2000 to 2016. For static analysis and cross-border comparison, this study employs nominal GDP at purchasing power parity rates. For trends analysis, it uses GDP data at 2009 prices and expressed in U.S. dollars.<sup>23</sup> Data availability and comparability at metropolitan level precluded expanding the economic analysis to other indicators of interest, such as housing prices, employment rates, unemployment rates, and income distributions.

This edition employs Oxford Economics data for analysis.

To generate GDP by metropolitan area, Oxford Economics collects data from national and local statistics bureaus in each country or from providers such as Haver, OECD, and Eurostat. Where GDP data exists for the relevant definition of the city it has been used directly. Where this data is missing or not available for the desired city definition it is scaled down (from national or regional level) or scaled up (from narrower city definitions) using the closest matching GDP and population data. For population, this study uses data collected by Oxford Economics from relevant national statistical agencies and the

United Nations. City-level employment data is available in most advanced countries and some emerging countries. Where available employment data is not granular enough to cover the specific city, Oxford Economics estimates it from broader regional/national data using population location quotients for each industry that are then aggregated.<sup>24</sup>

## Metro area economic performance index

The report focuses on the economic performance of metropolitan areas using a standardized score based on two indicators, GDP per capita and employment. These two indicators reflect the importance that people and policymakers attach to achieving rising incomes and living standards, as well as generating widespread labor market opportunity. For each of these indicators, the score factors in two measures of change to characterize the rate and the magnitude of a metropolitan economy's growth: the annualized growth rate and the overall net change (Figure 10).

Identifying economic data available across the entire sample of 300 metro areas limited the choice and number of additional indicators to be

included in the standardized score. For example, while changes in the employment rate or the unemployment rate may better indicate labor market opportunity, there are no consistent data on the number of unemployed people or the size of the labor force across metropolitan areas worldwide.

The scoring method compares each value of a variable ( $x_i$ ) to the median ( $x_{med}$ ), then divides their difference by the distance between the value of that variable at the 90th percentile of the distribution ( $x_{90}$ ) and the 10th percentile ( $x_{10}$ ):

$$\text{standardized score} = \frac{x_i - x_{med}}{x_{90} - x_{10}}$$

Each of the four indicators (compound annual growth rates of GDP per capita and employment, and the net changes in GDP per capita and employment) is standardized using this method for the 2000-2016 and 2014-2016 periods. Once standardized, the score for each of the four indicators are equally weighted and added for each metro area, thereby yielding a total score and ranking for each metro area for each time period.

**Figure 10. What is in the economic performance index?**

Labor opportunity	Standard of living
<ul style="list-style-type: none"> <li>▶ Measured as employment level</li> <li>▶ The index factors in both the rate of growth of employment (how fast a city increases labor opportunity) and the magnitude of this change (how many more jobs the metro area provides)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Measured as GDP divided by metro population (GDP per capita)</li> <li>▶ The index factors in both the rate of growth of GDP per capita (how fast income increases), and the magnitude of this change (how much GDP per capita increases)</li> </ul>

Inter-decile range standardization helps minimize the influence of outliers by using the 90th and the 10th percentile values instead of the minimum and maximum values, and best reflects the non-normal distribution of metro economic growth rates. This method was judged more appropriate for these data than Z-score standardization, which compares each value of a

variable to the mean and divides their difference by the standard deviation, as they do not follow a normal distribution. It was also preferred to range standardization (which compares each value of a variable to the minimum and divides their residual by the distance between the minimum and the maximum) because of the sensitivity of this latter method to outliers.

## ENDNOTES

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- 3 Data are currently unavailable to compare the distribution of income gains across global metropolitan areas. Employment growth, in addition to GDP per capita growth, provides an indirect measure of whether increased labor market opportunity is accompanying growth in the average standard of living.
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- 18 Many MENA countries do not collect enough sub-national data to allow a disaggregated analysis of employment and GDP of some large metropolitan areas in the region. These include one or more large urban areas in Lebanon, Libya, Iraq, the Occupied Palestinian Territories, Saudi Arabia, Syria, and Yemen.

**19** Some metro areas in MENA may undercount the number of people contributing to economic output, and thus overestimate GDP per capita, by not adequately taking into account commuters that travel in and out of a metropolitan area for work or people living in informal housing who are not captured by the official statistics.

**20** For this installment of the Global Metro Monitor, Brookings used the 2013 metropolitan statistical areas delineations defined by the U.S. Office of Management and Budget. U.S. Office of Management and Budget, Revised Delineations of Metropolitan Statistical Areas, Micropolitan Statistical Areas, and Combined Statistical Areas, and Guidance on Uses of the Delineations of These Areas, OMB BULLETIN NO. 13-01 (U.S. Office of Management and Budget, 2013).

**21** European Observation Network for Territorial Development and Cohesion (ESPON), Study on Urban Functions, ESPON Project 1.4.3 (European Observation Network for Territorial Development and Cohesion, 2007). ESPON is a European Commission program, funded by the Commission, the European Union member countries, Iceland, Lichtenstein, Norway, and Switzerland. See ESPON, ESPON 2013 Programme, [www.espon.eu/programme/projects/project-overview/](http://www.espon.eu/programme/projects/project-overview/).

**22** ESPON Database 2013 and Personal Communication from Didier Peeters, researcher, the Institute for Environmental Management and Land-use Planning, Free University of Brussels, May 2012. For a discussion of metropolitan areas and functional urban areas in Europe, see Didier Peeters, "The Functional Urban Areas Database Technical Report" (European Observation Network for Territorial Development and Cohesion (ESPON), March 2011).

**23** The purchasing power parity (PPP) rates come from a variety of sources such as the International Monetary Fund, the European Central Bank, and other national statistics agencies. If national and metropolitan GDP data were available both in current and constant prices, Oxford Economics rebased the constant price series to 2009 for consistency, and then applied the 2009 USD exchange rate (which come from various national statistics offices) to the whole series. Where constant price series were not available for a metropolitan area, Oxford Economics used the respective national industry deflators to create constant price series for that specific metropolitan area.

**24** Oxford Economics, "Global Cities Methodological Note", October 2017.

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**Joseph Parilla**

Fellow

Metropolitan Policy Program at Brookings

[jparilla@brookings.edu](mailto:jparilla@brookings.edu)



**B** | Metropolitan Policy Program  
at BROOKINGS

1775 Massachusetts Avenue, NW

Washington, D.C. 20036-2188

telephone 202.797.6139

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