



# Focus on Tax

## **KPMG's guide to international tax competitiveness**

Competitive Alternatives – special report

2016 edition

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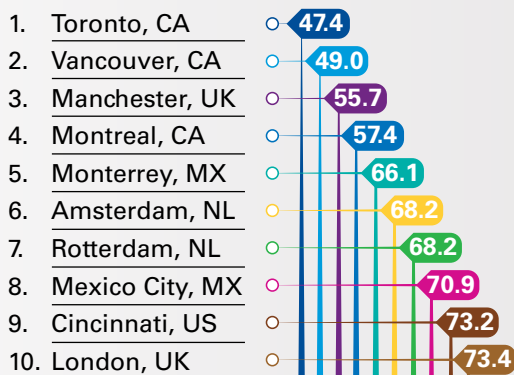


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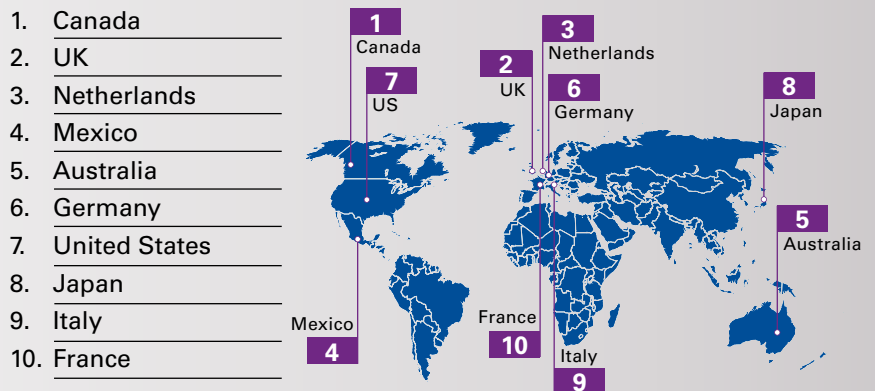
# Global ranking of tax competitiveness

## Top 10 tax competitive cities\*



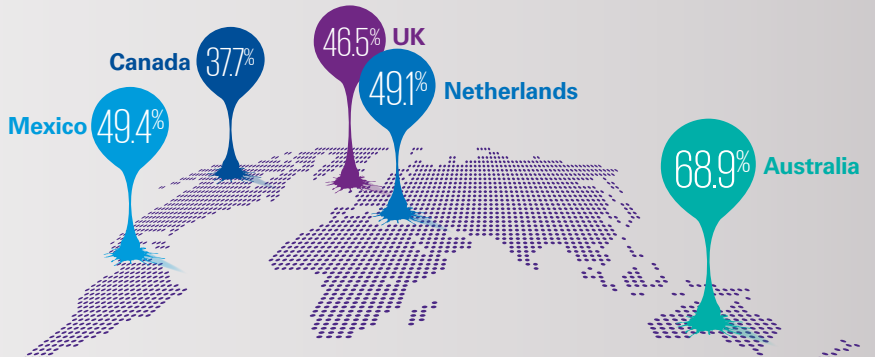
\*Total Tax Index comparison of major global cities

## Countries with the lowest tax costs\*



\*Total Tax Index comparison of countries examined

## Top 5 countries with the lowest total effective tax rates\*



\*For combined sectors examined in this study

## Top 5 tax competitive countries by sector

	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>
<b>Digital Services</b>	Canada	UK	Netherlands	Mexico	US
<b>Research &amp; Development</b>	Canada	Netherlands	UK	Mexico	Australia
<b>Corporate Services</b>	Canada	Mexico	UK	Netherlands	US
<b>Manufacturing</b>	Canada	Mexico	UK	Netherlands	Australia

# Summary

This report is a supplement to KPMG's *Competitive Alternatives 2016* guide to international business location costs and compares the general tax competitiveness of 111 cities in 10 countries.

This report assesses the tax competitiveness of all cities and countries featured in the main *Competitive Alternatives 2016* research report, with a focus on tax comparisons for 51 major international cities. The 10 countries examined are Australia, Canada, France, Germany, Italy, Japan, Mexico, the Netherlands, the United Kingdom and the United States. Details of all cities covered are included in Appendix A.

Our goal in preparing this supplement is to offer a comprehensive methodology to assess the numerous and complex factors affecting a company's tax burden, in order to provide a simple and effective approach for cross-location comparisons based on the tax results of different business scenarios.

To this end, this report compares the total tax burden faced by companies in each of the countries and cities, including:

- Corporate income taxes
- Property taxes
- Capital taxes
- Sales taxes
- Miscellaneous local business taxes
- Statutory labor costs (i.e., statutory plan costs and other payroll-based taxes).

Total tax costs are compared between countries and cities using a **Total Tax Index (TTI)** for each location. The TTI is a measure of the total taxes paid by companies in a particular location, expressed as a percentage of total taxes paid by similar firms in the US. Thus, the United States has a TTI of 100.0, which represents the benchmark against which the other countries and cities are scored. (For details of the calculation, see Appendix B.)

This study compares a number of model business operations to assess the average annual tax costs faced by these

businesses during their first 10 years of operation. The model businesses are assumed to be foreign-owned corporations that are newly located in each jurisdiction, giving rise to potential incentives for investment and/or job creation. Incentive benefits from broadly available programs in each jurisdiction are included in this study.

The three major tax components analyzed in this study are as follows:

- **Corporate income tax (CIT):** Companies are assumed to have a standard level of net income before income tax (in US dollars) in all locations. In this way, the amount of income tax paid can be compared among locations both in absolute dollars and as effective tax rates.
- **Other corporate taxes (OCT):** Other corporate taxes include property taxes, capital taxes, sales taxes and miscellaneous business taxes. These taxes are based on actual business costs that would be incurred by each business in each location. For example, industrial property tax costs in each US city are calculated by applying the property tax assessment rules and tax rates for each city to actual values for modern industrial properties in that city.
- **Statutory labor costs (SLC):** These costs include both statutory plan costs and other payroll-based taxes. These costs are calculated based on rates and rules applicable in each jurisdiction, as applied to actual wage and salary levels for that jurisdiction. For example, labor taxes are based on Mexican wage rates in Mexico and German wage rates in Germany, reflecting actual costs incurred by companies operating in different jurisdictions.

The tax rates used in this study are those in effect as at January 1, 2016. Tax calculations over the 10-year analysis horizon incorporate future tax changes that were announced on or before January 1, 2016 and that are scheduled to come into effect during the next 10 years.

## Key findings

In addition to the observations in the rest of this report regarding the overall and sector-specific tax costs of the locations compared, our analysis of the study results has also led to the following general observations:

- **Tax policy varies widely by country.** Our study reveals that there is no standard approach in setting tax policy among the countries examined. Although the types of taxes used to raise government revenues are more or less the same among countries, there is a huge range in how these taxes are weighted and applied. Some countries have a tax policy focused on delivering a low corporate income tax rate in order to compete for new investment. These countries may need to rely more heavily on other taxes, such as sales or payroll taxes, to derive their tax revenues. Similarly, some countries use their tax policies to attract certain types of businesses with targeted incentives for activities such as manufacturing or research & development (R&D). Among the countries examined, government efforts to grow revenue through taxation and combat Base Erosion and Profit Shifting (BEPS) varied. Most jurisdictions have proposed or amended domestic policies to address tax avoidance strategies as set out in the Organization for Economic Cooperation and Development's (OECD) 15-point Action Plan. A country's tax policy choices can significantly affect the tax costs for businesses in that country.
- **Differences in how taxes are weighted and applied create complexity.** While companies often use a country's corporate income tax rate as a proxy for overall tax costs in that country, this rate does not tell the whole story. Variations in how taxes are weighted and applied complicate efforts to compare tax costs effectively and highlight the need to make comparisons based on the complete range of tax costs that apply in each location. Consider France and Mexico; as discussed in the Tax Components chapter, these two countries rank 2<sup>nd</sup> and 10<sup>th</sup> respectively for their effective rates of corporate income tax. However, once all other taxes are considered, Mexico's rank rises to 4<sup>th</sup> due to its low statutory labor costs and moderate other corporate taxes, while France's rank falls to 10<sup>th</sup> due to its heavy burden of statutory labor costs.
- **Tax costs vary widely by industry.** The overall results for each location combine the results of different types of business operations, but results can vary widely between sectors. For companies in service industries, labor costs generally represent a more significant cost factor than for other companies, so the impact of statutory labor costs on these companies is more of an issue. Companies in the manufacturing sector are more capital intensive, so the imposition of capital taxes, property taxes and the availability of tax incentives for manufacturing activities are more important considerations for such firms. Meanwhile, R&D operations see large variations in tax costs among countries due to intense competition to promote R&D activity by offering generous tax incentives.
- **Tax costs vary more widely than most other costs.** In the main *Competitive Alternatives 2016* study, we noted that taxes (excluding statutory labor costs) typically represent up to 18 percent of location-sensitive costs. This cost is lower than other main business costs, such as labor (40-86 percent of location-specific costs), transportation (6-21 percent) and facilities (2-15 percent) costs. However, while taxes do not comprise the largest portion of total costs, tax costs can vary greatly between locations. Since tax costs are likely to vary more widely than other costs, they can take on greater importance than other costs in business location decisions.

## Results by country

The overall results for all locations are based on average results from 7 different business-to-business service sector operations and 12 different manufacturing sector operations.

Among the countries studied, **Canada** has the lowest Total Tax Index at 52.4. In other words, total tax costs in Canada are 47.6 percent lower than in the **United States**, which has a TTI of 100.0 and represents the benchmark against which all locations are scored. The **United Kingdom**, the **Netherlands** and **Mexico** also have TTI scores below 70.0, providing these countries with significant tax advantages relative to the other six countries compared. At the other end of the spectrum, **France's** TTI of 136.6 signifies that total tax costs in France are 36.6 percent higher than in the US.

The TTI rankings of countries in 2016 are broadly consistent with the 2014 rankings. Key points to note when comparing the 2014 and 2016 results include the following:

- The **Netherlands** has edged ahead of **Mexico** with a very narrow advantage in the current year. However, changes in the specific cities compared within the Netherlands in the current study may account for this marginal change in ranking between two very tax-competitive countries.
- The **United States** has dropped two places in the overall results in 2016 due to the impact of the strong US dollar relative to other global currencies. For countries other than the United States, the appreciation of the US dollar means that costs for non-income taxes (i.e. other corporate taxes and statutory labor costs) are lower in 2016 than in 2014 when converted to US dollar terms. (Income taxes are not subject to the same issue, as all locations are assumed to earn a standard level of net income before tax, in US dollars.)
- A further implication of this exchange rate-driven change is that countries (other than the US) with relatively higher tax costs experience a relatively greater decrease in their TTI in 2016 and countries where the tax system relies more heavily on labor taxes or other corporate taxes see greater reductions in their TTI than countries where the tax system has a greater reliance on corporate income taxes.

2016 Rank	Country	Total Tax Index			2014 Rank
		2016	2014	Change	
1	Canada	52.4	53.6	-1.2	1
2	United Kingdom	64.5	66.6	-2.1	2
3	Netherlands	68.2	74.5	-6.3	4
4	Mexico	68.5	70.2	-1.7	3
5	Australia	95.7	112.9	-17.2	6
6	Germany	97.9	116.3	-18.4	7
7	United States	100.0	100.0	—	5
8	Japan	108.2	118.6	-10.4	8
9	Italy	110.5	135.8	-25.3	9
10	France	136.6	163.3	-26.7	10

- In this edition of *Focus on Tax*, the analysis of property taxes for service operations (occupying leased office space) has been enhanced to include property taxes on real estate that are levied on the landlord but which are then passed on to the tenant as additional rent. In previous editions of *Competitive Alternatives*, these indirect property taxes were included in facility costs but were not separately identified for inclusion in the *Focus on Tax* comparisons. In this study, these tax costs have now been separately identified and have been reclassified as property taxes. To the extent that countries have higher or lower tax costs on office real estate, these variations now also impact the TTI calculations.

In addition to these global and structural influences on the changes in TTIs and country rankings for the current year, the following specific tax changes (since the prior edition of *Focus on Tax*) also impact the study results for the countries and/or cities compared:

- In **Australia**, in 2015 the state of South Australia announced an agenda of personal and business tax reforms, including the phase-out (starting in 2015) of stamp duty on the transfer of non-residential property and a higher tax-free threshold for land tax. These changes are implemented as part of the tax calculations for Adelaide in this study.

- **Canada** reduced its federal income tax credits for R&D in 2014, with the main credit rate dropping from 20 percent to 15 percent and capital expenditures now being ineligible for tax credits.
- **France** implemented a temporary investment stimulus measure for 2015/2016 that allows qualifying new industrial equipment purchased in the relevant period to be depreciated based on 140 percent of the actual cost of the asset. In addition, in 2014 France abolished its annual lump sum minimum tax based on turnover.
- **Germany** saw very few tax changes over the last two years, with only some tax rate increases for land transfer and property taxes in Frankfurt impacting the study analysis.
- **Italy** benefits from an announced reduction in the federal corporate income tax rate from 27.5 percent to 24.0 percent which takes effect in 2017, as well as from the introduction of a new R&D tax credit (as discussed further in the R&D Services chapter).
- **Japan** has continued a process of tax reform which was initiated in/around 2013. Over the last two years, Japan has seen some reductions in corporate income tax rates but with some offsetting increases in business taxes on value added and capital.
- **Mexico's** tax structures have been relatively stable over the last two years, after numerous proposed changes (not all of which were implemented) in the years leading up to 2014.
- In the **Netherlands**, the existing employee wage tax credit for R&D expenditures has been enhanced in 2016 to expand its scope from R&D wage costs only to also include R&D materials and depreciation of R&D equipment. This credit program is discussed further in the R&D Services chapter.
- The **United Kingdom** continues to see ongoing reductions in its corporate income tax rate, having achieved a prior goal of reducing the rate to 20 percent by 2015 and now having scheduled further reductions to 19 percent in 2017 and 18 percent in 2020.
- In the **United States**, the federal R&D tax credit has finally been legislated as a permanent credit after decades of

uncertainty (as discussed in the R&D Services chapter). In addition, a trend continues among states toward sourcing services income to the markets of the customers rather than the traditional approach of sourcing to the location where the services are performed—a change that can be beneficial to services firms with out-of-state clients.

The above discussion presents many of the factors and considerations that impact on the calculation of TTI for all countries in the current year. In general, it is important to note that TTI is the product of a number of factors, including:

- **Changes in tax rates**, including income tax rate increases and decreases.
- **Incentive changes**, including new, revised, or expired incentive programs.
- **Exchange rate changes**, with the significant appreciation of the US dollar relative to all major global currencies in 2014 through 2016 (as noted above).
- **Changes in the US baseline**, as even minor tax changes in the US baseline locations influence the relative TTIs of all other locations.
- **Lesser factors**, such as changes in underlying business costs in each location (e.g. property values and labor rates).

## Results by city

For the purposes of this study, we compared 111 cities from the 10 countries noted above. In this report, we highlight 51 major international cities, representing those cities used in developing the international comparisons (2-4 cities per country) plus additional cities with metro area populations of at least 2 million (primarily in the United States). We believe that this group of cities will be of most interest to companies seeking to locate international business operations. Detailed results for all cities are presented in Appendix A.

The results for the 51 major cities are generally consistent with the national results except among the larger number of US cities shown in the table.

Rank	Major Cities	Total Tax Index
1	Toronto, CA	47.4
2	Vancouver, CA	49.0
3	Manchester, UK	55.7
4	Montreal, CA	57.4
5	Monterrey, MX	66.1
6	Amsterdam, NL	68.2
7	Rotterdam, NL	68.2
8	Mexico City, MX	70.9
9	Cincinnati, US	73.2
10	London, UK	73.4
11	Cleveland, US	78.8
12	Baltimore, US	81.0
13	Atlanta, US	81.6
14	Tampa, US	81.6
15	Orlando, US	81.6
16	Pittsburgh, US	83.0
17	Miami, US	84.2
18	Charlotte, US	84.3
19	Philadelphia, US	84.6
20	Detroit, US	85.7
21	Minneapolis, US	89.2
22	North Virginia, Metro DC, US	89.3
23	Boston, US	92.0
24	Portland, US	92.0
25	San Antonio, US	92.2
26	Dallas-Fort Worth, US	93.6

Rank	Major Cities	Total Tax Index
27	Houston, US	93.9
28	Denver, US	93.9
29	Seattle, US	94.4
30	Melbourne, AU	94.5
31	Phoenix, US	95.0
32	Kansas City, US	95.5
33	Brisbane, AU	95.5
34	St. Louis, US	96.3
35	Berlin, GE	96.4
36	Chicago, US	96.7
37	Sydney, AU	96.7
38	San Diego, US	97.5
39	Sacramento, US	97.7
40	Riverside-San Bernardino, US	97.9
41	Las Vegas, US	99.1
42	Frankfurt, GE	99.3
43	Osaka, JP	103.0
44	New York City, US	104.7
45	Los Angeles, US	105.1
46	San Francisco, US	106.3
47	Milan, IT	110.1
48	Rome, IT	110.8
49	Tokyo, JP	113.4
50	Marseille, FR	133.8
51	Paris, FR	139.5

High tax costs in the four US baseline cities<sup>1</sup>, most notably in **New York City** and **Los Angeles**, result in the US placing behind Australia and Germany in the national rankings. However, many individual US cities have more favorable tax costs than the four largest cities, including the leading US cities: **Cincinnati**, **Cleveland**, **Baltimore** and **Atlanta**. Among the 31 US metro areas with populations over two million, at least 20 rank ahead of all the Australian cities and 28 rank ahead of **Frankfurt** (the city with the highest tax costs among the Australian and German cities compared).

This high degree of variation in rankings for the US cities also calls attention to the issue of the relative spreads of TTI results among cities within each study country:

- In the Netherlands and Italy, the spread of tax burdens between cities is very low, due to highly centralized tax systems. Indeed, in the Netherlands both **Amsterdam** and **Rotterdam** have the same TTI despite some differences in local taxes. In Italy, the spread for TTI between **Milan** and **Rome** is only 0.7 percentage points.

<sup>1</sup> The US baseline reflects average tax costs for the four largest US metro areas: New York City, Los Angeles, Chicago and Dallas-Fort Worth.



- The spread of tax burdens is between 2 and 3 percentage points for the cities in Australia and Germany, while Mexico and France also see TTI spreads between their cities of less than 6 percentage points. In these countries, low internal variations in tax burden make taxes a relatively less significant variable to consider in the process of selecting business locations within the country.
- In comparison, countries with less centralized tax systems see much larger variations in tax burden among cities and selection of an appropriate business location within the country can have a much greater impact on total tax costs. For example, in the United States, the tax burden spread between **Cincinnati** and **San Francisco** is 33.1 percentage points, while in Canada and Japan the tax burden spread between cities is in the range of 10 percentage points for both countries.
- The United Kingdom presents a different situation, with a 17.7 point spread between **Manchester** and **London** despite the UK having a highly centralized tax system. The UK's standardized rates for local property taxes fail to reflect the huge gulf in property values that exists between London and other cities, resulting in a much higher burden for other corporate taxes in London than in Manchester.

Underlying business cost fundamentals also have a significant impact on tax costs. In the *Competitive Alternatives 2016* study, these same cities were ranked based on total business costs. Within most countries, cities were ranked in the same general order in those rankings of total business costs as in this ranking of total tax costs, but exceptions include:

- In Canada the ranking of **Montreal** varies between the two studies, having the lowest total business costs but the highest total tax costs among the large Canadian cities.
- In the United States, **Cincinnati** has both the lowest tax costs and the lowest total business costs. At the other end

of the scale, **San Francisco** has the highest tax costs and second highest total business costs, while **New York City** has the second highest tax costs and the highest total business costs. However, there are also cities with high business costs but low tax costs or vice versa. For example, **St. Louis** ranks 9<sup>th</sup> among the 31 large US cities for total business costs but 23<sup>rd</sup> for total tax costs, while **Philadelphia** ranks 25<sup>th</sup> among 31 US cities for total business costs but 10<sup>th</sup> for total tax costs.

## Results by sector

In this chapter, the TTI results presented reflect the overall results for each location, based on average results from 7 service sector operations and 12 manufacturing sector operations. TTI results also vary among the major business sectors examined:

- **Digital services** operations tend to see a lower impact from other corporate taxes than in other sectors. Targeted incentives for digital media production are also an important consideration in this sector.
- **R&D services** operations are separately assessed due to the strong focus most countries and regions have on fostering innovation through the provision of tax incentives for R&D activities.
- **Corporate services** operations are the most “pure” representation of the corporate income tax system in most locations, as fewer special tax incentives apply to these activities. Statutory labor costs are generally very significant for these operations.
- **Manufacturing** is characterized by the importance of taxes on capital and property, and the frequency of special incentives for investment or job creation being used to stimulate manufacturing.

# Measuring tax costs

This report uses two measures for total tax costs, with both measures incorporating all major taxes levied on corporations.

The two tax measures used here have been designed to enable a comprehensive comparison of the diverse forms of taxation that business face—broadly speaking, income taxes, property taxes, capital taxes, sales taxes, miscellaneous local business taxes and statutory labor costs (statutory plan costs and other payroll-based taxes).

**Total Tax Index (TTI)** is the primary measure used throughout this report to compare tax burdens by comparing the total actual tax cost (in US dollars) for each jurisdiction. For calculating income taxes, net income before income tax has been standardized as a fixed dollar amount in all locations, so that income taxes paid can be realistically compared among jurisdictions in absolute dollar terms.

**Total Effective Tax Rate (TETR)** expresses total tax costs as an effective rate and contextualizes tax burden relative to income. TETR is the sum of the effective rates of corporate income tax (net of incentives), other corporate taxes and statutory labor costs, all expressed as a percentage of standardized net income before income taxes.

**TTI and TETR rankings are identical** with both measures expressing the same results and the same rankings, just in a different format.

In calculating taxes, the study includes income taxes imposed by all levels of government (national, regional and/or local),

reflecting specific income tax rules for each jurisdiction (as discussed further in Chapter 3). Other taxes are also calculated according to specific local rules.

Labor taxes and other non-income taxes are calculated to reflect actual business costs in each location using data on wage rates, real property values and other relevant business cost factors from KPMG's *Competitive Alternatives 2016* comparison of international business costs. For example:

- Statutory labor costs are calculated using contribution rates and rules applicable to the statutory programs in each country, based on local wage rates (e.g., Mexican wage rates in Mexico and German wage rates in Germany). In this way, the final costs reflect real world costs incurred by companies operating in different jurisdictions.
- Property tax costs are calculated using local property tax rates and rules applicable in each location, based on local property values (e.g., Japanese property values in Japan and US property values in the United States). Again, this reflects real world costs incurred by companies operating in different jurisdictions.

***For more details on the methodology, including a numerical example of how TTI and TETR are calculated, see Appendix B.***

# Tax components

Total tax costs analyzed in this study comprise three core components: corporate income taxes, other corporate taxes and statutory labor costs.

In the chart below, the main bars present the TTI for each of the 10 countries studied and also illustrate the relative share of each tax component in total tax costs. The chart also presents (in purple) the effective corporate income tax rate in each country. As seen in the chart, effective corporate income tax rates vary directly with the share of income taxes in total tax costs, but do not provide any useful information regarding the total tax costs in each country. To understand the total tax burden in any country, it is essential to also consider other corporate taxes and statutory labor costs.

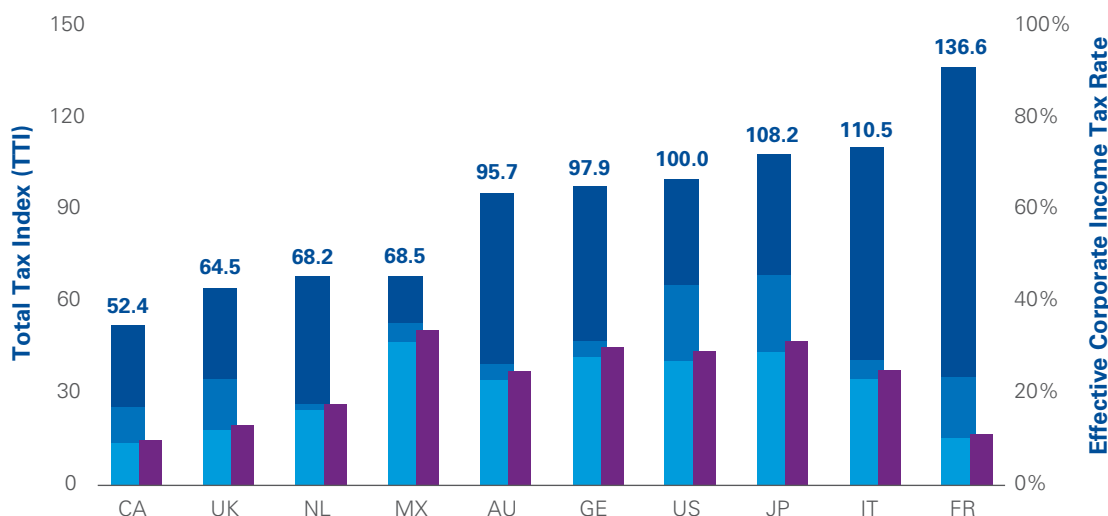
The importance of the three tax components varies quite significantly among countries:

- The share of **corporate income taxes** in total tax costs is directly related to the effective corporate income tax rate and is lowest in Canada, the United Kingdom and the Netherlands. At the other end of the scale, corporate income taxes are

highest in Germany, Japan and Mexico. The effective income tax rates shown here are lower than the nominal tax rates in many countries due to the inclusion of various tax incentives, including R&D incentives, in these calculations.

- **Other corporate taxes** represent the smallest component of total tax costs in most countries examined. However, even here, the impact of these taxes varies widely between countries. The Netherlands, Germany and Australia are the countries with the lowest costs for other corporate taxes, while other corporate taxes are highest in France, the United States and Japan.
- **Statutory labor costs** represent the tax component with the greatest variations among the study countries. Mexico, Canada and the United Kingdom have the lowest statutory labor costs, while these costs are highest in Australia, Italy and France.

## Total tax index by type of tax and effective corporate income tax rates – Overall



- Share of total taxes: Corporate income taxes, net of incentives
- Share of total taxes: Other corporate taxes
- Share of total taxes: Statutory labor costs
- Effective rate of corporate income tax, net of incentives (RHS)

These findings highlight the different ways in which countries collect their tax revenues as well as the importance of basing tax comparisons on total tax costs instead of only comparing corporate income tax rates. The results for Mexico and France best illustrate this issue. These two countries rank 10<sup>th</sup> and 2<sup>nd</sup>, respectively, for their effective corporate income tax rates, but after including other corporate taxes and statutory labor costs, rank 4<sup>th</sup> and 10<sup>th</sup>, respectively, for total tax costs.

## Income taxes

Income taxes represent the first major component of total tax costs. While countries are often compared based on the national corporate income tax rate, this falls far short of providing a comprehensive picture of actual income tax costs in a country. In some countries, such as Australia, France and the United Kingdom, income tax only applies at the national level, while in other countries separate income taxes may also be levied by states or provinces (in Canada, Italy and the United States), by local governments (such as in Germany), or by all three levels of government (in Japan and in certain US cities).

Also, there is the issue of whether an income tax actually exists at all in a jurisdiction, with some US states (e.g. Washington and Texas) claiming no income tax, but instead having taxes based on gross receipts with limited deductions. Clearly, such taxes are based on income—just gross income instead of net income—and give rise to the likelihood of a tax liability even if the company is in a net loss position.

Stepping back to the beginning of the income tax calculation process, one must consider the actual base to which tax rates are applied. Most jurisdictions require some adjustments to net income before tax when determining taxable income. Some examples of the types of adjustments that need to be considered in the various countries are as follows:

- In the United States, rules regarding Qualified Productive Activities Income (QPAI or s. 199 Deduction) provide for a deduction equal to 9 percent of net income derived from domestic manufacturing, limited to no more than 50 percent

of wages paid. This works out to be effectively equivalent to a 3 percent tax rate reduction for manufacturers on their federal income taxes. Some states allow this additional deduction to flow through to state taxable income calculations, but many do not.

- In Italy, the regional income tax (regional tax on productive activities or IRAP) only allows a partial deduction for wage and salary costs. For most workers, deductible costs are limited to the first €7,500 of wages or salaries plus the employer's share of social security payments. These rules can result in a taxable income base that is far higher than net income before tax, especially for firms where payroll represents a major business cost.
- In Italy, the calculation of federal taxable income includes an Allowance for Corporate Equity, allowing companies a deduction for the notional return on new equity brought into (or re-invested in) the corporation.
- In Germany, the local income tax (local trade tax) disallows a deduction for 25 percent of interest paid and 20 percent of lease or rental payments on movable assets. This results in higher taxable income, especially for capital-intensive firms with significant equipment under lease.
- Different deductibility rules even exist for income taxes themselves. For example, in the United States, state income taxes paid are deductible for federal income tax purposes but at the state level, many combinations exist for the deductibility (full or partial) or non-deductibility of income taxes paid to the home state, to other states and to the federal government. Another example can be found in Italy, where regional income tax paid is deductible for federal taxable income only to the extent that the regional tax liability was due to non-deductible labor costs.
- While the model business operations used in this study did not contain specific assumptions regarding items such as bad debts, provisions, asset sales, dividend distributions and charitable donations, such items can cause further significant adjustments to taxable income.

Once taxable income has been determined, then calculation of gross income tax begins. While many countries impose a simple flat rate of corporate income tax, such as current rates of 30 percent in both Australia and Mexico, other countries adopt a variety of graduated tax rate structures. For example, the Netherlands has a relatively simple progressive tax structure: 20 percent on the first € 200,000 of taxable income and 25 percent on the excess. At the other end of the spectrum is Japan, which has a complex system in which three levels of government levy four separate taxes at varying rates based on a company's levels of net taxable income, corporate capital and national corporate income tax paid.

In addition to calculating the gross liability for regular income tax, it is also necessary to consider possible rules related to minimum tax. For example:

- In the United States, the Alternative Minimum Tax (AMT) system recalculates net taxable income with a number of adjustments, including less favorable depreciation write-offs. AMT income is subject to tax at a rate of 20 percent and AMT is only payable if it exceeds regular income tax calculated for the year.
- France formerly had a minimum tax payable based on the turnover of the corporation, but this tax has been abolished since the 2014 edition of this study.

Finally, following the calculation of gross income tax and any minimum tax liability, income tax credits also need to be factored in to the calculation of net income tax costs. Examples of such credits are as follows:

- Many jurisdictions offer R&D tax credits, which are discussed in Chapter 5. Some jurisdictions also offer tax credits for digital media production and/or other IT activities, which are discussed in Chapter 4.
- In the United States, most states offer some form of income tax credit for new investment and/or job creation to help stimulate economic development. The scope of this study includes significant, commonly available tax credit programs

with clearly defined eligibility criteria and calculation formulas. Discretionary or negotiated tax credits are not included in this analysis.

- In Canada, federal income tax credits for investment in manufacturing facilities and equipment are available, but only in certain parts of the country.
- In countries that have minimum tax rules, minimum tax paid in prior years in excess of regular income tax for those years may also give rise to credits that offset future income tax.

All of these issues need to be considered to effectively compare income tax burdens between countries and cities and have all been considered in this study.

### Other corporate taxes

The other corporate taxes considered in this study include property, capital, sales and miscellaneous local business taxes. The study disregards as immaterial any taxes where the estimated cost to the business is less than US\$1,000 per year.

**Property-based taxes** apply in all countries and cities studied, although the applicable categories of assets, tax rates, tax bases and administration of these taxes can vary significantly between locations. In this study, property taxes were generally calculated based on actual local tax rates and actual real estate values in each city, adjusted (where required) to reflect property assessment methods for each location.

For service operations occupying leased office space, property taxes on real estate are typically levied on the landlord. New in this edition of *Competitive Alternatives*, the amount of property tax passed on to the tenant by the landlord as additional rent has been separately identified in the real estate research and is included here as part of total property tax costs.

In locations that directly tax business equipment or business occupancy, such taxes are also included in the calculation of property-based taxes.

**Capital taxes** only apply in certain countries and regions:

- In the United States, capital taxes (in various forms) apply in about one third of all locations examined.
- In Japan, prefectural and municipal capital taxes apply in the locations considered in this study.
- In Italy, a national tax applicable to relevant corporate borrowings imposes a minor one-time tax cost.
- In France, minor capital tax costs exist due to one-time taxes or fees on the issuance of share capital.

**Sales and transaction taxes** come in various forms in different countries and regions, and impact upon companies differently:

- **Gross receipts taxes** apply in a small number of jurisdictions in the United States, either instead of, or in addition to, state or local income taxes. The United States also imposes an industry-specific gross receipts tax on manufacturers of medical devices, a tax which is currently the subject of a two-year suspension and political efforts seeking its permanent repeal. In addition, since 2010, France has also been levying a modified gross receipts tax based on gross value added.
- **Non-refundable sales taxes** apply in most US states and some Canadian provinces. Where non-refundable sales taxes apply, exemptions are often available for many of the costs incurred by manufacturers to avoid the compounding of taxes into the price of goods at each stage of the production process.
- **Refundable value-added taxes** (VAT or GST). These taxes apply in all of the countries included in this study, except for the United States. For this analysis, value-added taxes are generally excluded since their refundable nature means there

is no net cost to a business once input tax credits (refunds) have been claimed. While these taxes do impose a cost on companies in terms of cash flow timing and administration, such costs are not considered material to this study. Where restrictions exist on claiming input tax credits, any net cost to the business operations analyzed is considered as a non-refundable sales tax.

- **Land and share transfer taxes.** These one-time transfer taxes have not been considered in this analysis due to the specific assumptions made for the model business operations examined.

**Miscellaneous local business taxes.** Most taxes levied by all levels of government are captured within one of the other broad tax categories outlined in this chapter. However, some miscellaneous local business taxes do apply and have been considered in this analysis if material to the business operation. For example, in the United States, a local business tax of US\$36.00 per employee per annum applies to many types of businesses located in Denver.

### Statutory labor costs

All countries studied levy a variety of charges and taxes on payroll, which we refer to collectively as statutory labor costs. Statutory labor costs include the employer portions of required pension, unemployment, medical, workplace injury or similar plan contributions and/or other payroll-based taxes.

In some cases, such as the payroll taxes levied by Australian states, these taxes go into general revenue. However, in most cases, they relate to specific statutory plans such as Social Security or Medicare. The scope, rates and complexity of these taxes can vary immensely between countries and regions.

# Digital services

The digital services sector reflects results for two model businesses: a software development firm and a video game production studio.

## Results by country

**Canada** ranks first for digital services operations with a very low TTI of 25.4, primarily due to significant provincial incentives that provide financial support to video game producers and other digital media industries.

Canada is not alone in offering incentives in this sector. Approximately one quarter of states in the **United States** also offer significant incentives to the digital media industry. As a result, the US ranks 5<sup>th</sup> among the 10 countries in this sector, ahead of its overall 7<sup>th</sup> place ranking.

Comparing the TTI rankings of countries in 2016 to 2014, this sector is the only sector analyzed that sees no changes in rankings over the last two years. As explained in the Summary chapter, the US dropped two places in the overall TTI results in 2016 due to the impact on tax costs of the strong US dollar relative to other global currencies. However, the incentive support provided to digital media firms in certain US states is sufficient that it allows the United States to maintain its 5<sup>th</sup> place ranking in this sector.

2016 Rank	Country	Total tax index	2014 Rank
1	Canada	25.4	1
2	United Kingdom	68.6	2
3	Netherlands	77.7	3
4	Mexico	85.4	4
5	United States	100.0	5
6	Japan	101.1	6
7	Germany	105.8	7
8	Australia	109.9	8
9	Italy	132.4	9
10	France	165.5	10

## Results for major cities

The results for the major international cities are generally consistent with the national results, with **Toronto, Montreal** and **Vancouver** all exhibiting very low TTIs due to the impact of digital media incentives offered by the relevant Canadian provinces. State incentives for this industry also drive relatively strong results for a number of US cities in this sector, including **Cincinnati, Cleveland, Tampa, Orlando** and **Miami**.

## Impact of tax components

Effective corporate income tax rates in the digital services sector for most countries are generally similar to the overall results. However, in Canada and the US, targeted incentives for this sector influence effective income tax rates:

- Canada reports an effective corporate income tax rate of -2.9 percent in this sector, with refundable incentives for digital media firms that exceed corporate income tax otherwise payable. Among the major cities, the video game production studio modelled receives incentives ranging from 17.5 to 35.0 percent of eligible direct labor costs. In Montreal, a similar incentive program also benefits a broader range of digital firms, including software and IT firms.
- The United States' effective corporate income tax rate in this sector, at 31.7 percent, is 2.4 percent higher than in the overall results. This is because US incentive programs broadly tend to reward manufacturing investment and job creation to a greater extent than the service sectors. However, a number of US states offer incentives for digital media firms, ranging from 5 percent of direct resident salary costs in Texas to 35 percent in Ohio. Louisiana is the one state that also extends its credits to a broader range of software and IT firms.



Rank	Major cities	Total tax index
1	Toronto, CA	23.4
2	Montreal, CA	27.4
3	Vancouver, CA	46.3
4	Cincinnati, US	58.4
5	Cleveland, US	60.7
6	Manchester, UK	61.6
7	Tampa, US	67.7
8	Orlando, US	68.4
9	Miami, US	68.7
10	London, UK	75.7
11	Rotterdam, NL	77.7
12	Amsterdam, NL	77.7
13	Denver, US	81.5
14	Monterrey, MX	82.9
15	Kansas City, US	87.7
16	St. Louis, US	87.7
17	San Antonio, US	87.9
18	Mexico City, MX	87.9
19	Dallas-Fort Worth, US	88.4
20	Atlanta, US	89.7
21	Houston, US	90.4
22	Detroit, US	91.4
23	Pittsburgh, US	92.0
24	Phoenix, US	93.2
25	Philadelphia, US	93.8
26	Minneapolis, US	96.1

Rank	Major cities	Total tax index
27	Charlotte, US	97.0
28	Sacramento, US	97.3
29	Riverside-San Bernardino, US	98.0
30	San Diego, US	98.2
31	Baltimore, US	98.3
32	Seattle, US	98.6
33	Osaka, JP	99.3
34	Portland, US	100.5
35	North Virginia, Metro DC, US	102.0
36	San Francisco, US	102.5
37	Tokyo, JP	102.8
38	New York City, US	102.9
39	Berlin, GE	103.3
40	Las Vegas, US	103.3
41	Los Angeles, US	103.6
42	Boston, US	104.0
43	Chicago, US	105.2
44	Frankfurt, GE	108.3
45	Brisbane, AU	108.8
46	Melbourne, AU	108.8
47	Sydney, AU	110.9
48	Rome, IT	131.9
49	Milan, IT	132.8
50	Marseille, FR	160.7
51	Paris, FR	170.2

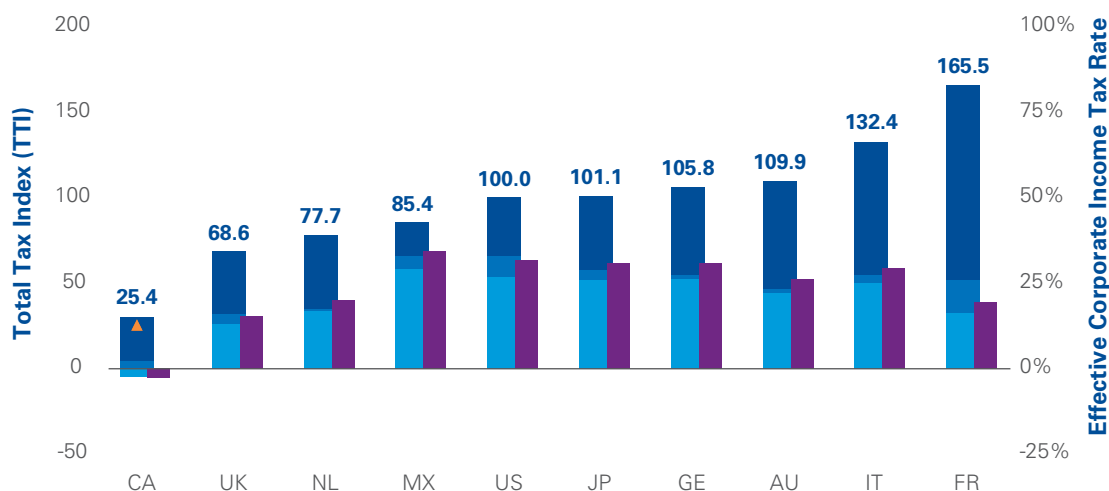


Among the sectors compared, firms in the digital services sector tend to see the lowest impact of other corporate taxes. This finding relates primarily to differences in the significance of property-based taxes and capital-based taxes between the sectors. These forms of tax tend to be much less significant for the digital sector than for the manufacturing sector or the R&D sector, as relatively lower levels of both equipment and capital are employed in this sector.

Finally, while tax burdens within the digital services sector are strongly influenced by statutory labor costs, as seen in the chart below, the relative significance of statutory labor costs in this sector is less than in either the R&D sector or the corporate services sector.

In the chart below, the main bars represent the TTI for each of the 10 countries studied and also illustrate the relative share of each tax component in total tax costs. The chart also summarizes the effective corporate income tax rate in each country.

### Total tax index by type of tax and effective corporate income tax rates – Digital



- Share of total taxes: Statutory labor costs
- Share of total taxes: Other corporate taxes
- Share of total taxes: Corporate income taxes, net of incentives
- ▲ Total Tax Index (net of positive and negative elements, shown where negative elements exist)
- Effective rate of corporate income tax, net of incentives (RHS)

# R&D services

The R&D services sector reflects results for three model businesses: a biomedical R&D facility, a clinical trials management firm and an electronic systems development/testing operation.

## Results by country

The TTI results of countries for R&D operations differ from the other sectors and the overall results, primarily due to the impact of tax incentives that target R&D activities.

**Canada**, the **Netherlands** and the **United Kingdom** all have particularly low TTI ratings, at less than 70, reflecting the impact of significant R&D incentives in those countries.

Even at the other end of the spectrum, **France** also offers significant R&D tax credits, which help to reduce France's TTI rating to 109.2 for R&D, as compared to 165.5 in the digital services sector. In addition, a new R&D tax credit introduced by **Italy** in 2015 contributes to its drop in TTI from 212.0 in 2014 to 147.7 in the current year. Therefore, even in high-tax countries, R&D incentives can still significantly reduce total tax costs.

Comparing the TTI rankings of countries in 2016 to 2014, the Netherlands moves ahead of the United Kingdom and Australia moves ahead of the United States, both primarily due to exchange rate impacts as outlined in the Summary chapter.

2016 Rank	Country	Total tax index	2014 Rank
1	Canada	48.8	1
2	Netherlands	51.8	3
3	United Kingdom	68.6	2
4	Mexico	89.0	4
5	Australia	97.2	6
6	United States	100.0	5
7	France	109.2	9
8	Japan	112.7	7
9	Germany	115.9	8
10	Italy	147.7	10

In addition, France moves ahead of both Japan and Germany, due to a variety of changes including the new inclusion in this edition of the study of property taxes paid by the landlord and passed on to the tenant as additional rent.

## Results for major cities

The results for the major international cities are generally consistent with the national results for R&D except among the larger number of US cities shown in the table. High tax costs in the US baseline cities, especially **Los Angeles** and **New York City** result in the US placing behind Mexico and Australia in the national rankings despite advantages held by many individual US cities including **Atlanta**, **Detroit** and **Cincinnati**. To illustrate this issue, among 31 US metro areas with populations over two million, 13 rank ahead of **Monterrey** and 23 rank ahead of **Mexico City**, while at least 25 US cities rank ahead of both **Melbourne** and **Sydney**.

## Impact of tax components

Most of the countries examined in this study, along with many states and provinces within those countries, offer tax incentives to promote R&D activities.

The policy objective of governments in offering such incentives is to foster the growth of R&D and innovation in their respective jurisdictions. There is continual jockeying among jurisdictions seeking an R&D advantage, with many of the jurisdictions examined in this study having revised their R&D tax incentives in recent years. While some program enhancements have been seen, fiscally driven program contractions have also been seen in recent years.

The nature and form of these tax incentives differ among the countries. Below is a quick summary of the main R&D tax incentives in each of the countries studied in this report. The R&D incentives detailed here and considered in this study apply to sizable domestic or foreign-owned companies undertaking in-house R&D. In some countries, even more favorable treatment may be available to small domestic corporations and/or for R&D contracted to research institutes or universities.

- **Australia's** current R&D tax incentive program has been in place since 2011. Refundable tax credits of 45 percent are available to companies with group turnover less than AUD \$20 million, with non-refundable credits of up to 40 percent available to larger corporations. R&D expenses are not deductible in the calculation of taxable income, but the credits work to provide an effective deduction of 150 percent of R&D costs for small corporations or up to 133.3 percent of R&D costs for larger corporations.
- **Canada** offers federal income tax credits for R&D. The rates for these credits were reduced in 2014, with the new lower rates now reflected in this analysis. The applicable tax credit rate is now 15 percent of total current R&D expenditures, while R&D capital expenditures are now ineligible for tax credits. Most Canadian provinces also offer provincial R&D tax incentives at rates that typically vary from 10 to 20 percent, with some of these credits being refundable.
- **France** offers an income tax credit equal to 30 percent of the first €100 million of R&D expenditures in a year and 5 percent on excess expenditures. Tax credits can be carried forward and refunded if not used after 3 years.
- **Italy's** regional income tax system permits the full deduction of salaries for R&D personnel, as compared to a deduction limit of just € 7,500 per employee for non-R&D staff. This offers companies a significantly enhanced deduction for highly-paid R&D professionals.

In addition, the Federal Budget Law of 2015 introduced a new R&D tax credit regime. A minimum investment in R&D of € 30,000 is required to qualify and the credits are calculated on new R&D spending in excess of the average

amount spent in the last three taxation years. Incremental R&D staff costs are eligible for a credit of 50 percent, but only for staff holding or enrolled in a PhD program and those holding a Masters degree with a scientific or technical specialization. Incremental depreciation charges on R&D equipment are eligible for a credit of 25 percent, but only for articles of equipment costing more than € 2,000 per item. While the introduction of this new tax incentive assists the results for Italy in this sector, its incremental nature and various limitations mean that the actual benefits realized by the model R&D firms analyzed in this study are much lower than the R&D incentives seen in some other countries.

- **Japan** offers an income tax credit of between 8 and 12 percent of total R&D expenditures, with the actual rate being determined based on the ratio of R&D spending to sales. However, the total income tax credit is limited to 25 percent of the corporate income tax liability for the year (up from 20 percent in 2014). For fiscal years starting between April 1, 2008 and March 31, 2017, additional R&D credits and a higher credit limit are available to stimulate further short-term R&D activity. These enhancements were originally scheduled to expire in 2014 but were subsequently extended through to 2017.
- **Mexico** offers incentive support for R&D activities, but its program is highly discretionary and is not included in the study calculations.
- **The Netherlands** offers an R&D incentive program that allows the employer to retain a portion of the employee wage taxes deducted from the pay of R&D employees. Originally this credit was only for R&D wages, but in 2016 R&D materials and depreciation of R&D equipment were made eligible for the credit. The credit is equal to 32 percent of the first € 350,000 of eligible R&D expenses (40 percent for start-up firms) plus 16 percent of any excess R&D costs. These amounts are retained by the employer, but the employee is still credited with having paid the full amount of personal wage (income) tax. Although the benefit to the employer R&D firm is taxable, the benefit can significantly reduce the company's effective income tax rate and may exceed corporate income tax paid by the company in a year.

Rank	Major cities	Total tax index
1	Vancouver, CA	39.4
2	Toronto, CA	40.8
3	Rotterdam, NL	51.6
4	Amsterdam, NL	51.8
5	Manchester, UK	51.9
6	Montreal, CA	56.8
7	Atlanta, US	77.1
8	Detroit, US	77.5
9	Cincinnati, US	77.5
10	Tampa, US	77.8
11	Pittsburgh, US	79.5
12	Philadelphia, US	80.3
13	Orlando, US	80.7
14	Charlotte, US	81.3
15	Miami, US	81.6
16T <sup>1</sup>	Cleveland, US	82.9
16T <sup>1</sup>	Phoenix, US	82.9

Rank	Major cities	Total tax index
18	Baltimore, US	83.1
19	Kansas City, US	83.6
20	Monterrey, MX	84.4
21	London, UK	85.1
22	Portland, US	85.3
23	St. Louis, US	87.2
24	Sacramento, US	88.0
25	Minneapolis, US	88.0
26	Seattle, US	88.0
27	San Antonio, US	90.7
28	Dallas-Fort Worth, US	91.0
29	Riverside-San Bernardino, US	91.2
30	North Virginia, Metro DC, US	91.3
31	San Diego, US	91.5
32	Mexico City, MX	93.4
33	Denver, US	93.7
34	Boston, US	93.9

Rank	Major cities	Total tax index
35	Melbourne, AU	95.7
36	San Francisco, US	95.8
37	Brisbane, AU	98.0
38	Sydney, AU	98.6
39	Houston, US	98.9
40	Chicago, US	100.8
41	Los Angeles, US	103.2
42	Las Vegas, US	103.6
43	Marseille, FR	104.7
44	New York City, US	105.1
45	Osaka, JP	108.3
46	Berlin, GE	113.1
47	Paris, FR	113.7
48	Tokyo, JP	117.0
49	Frankfurt, GE	118.7
50	Rome, IT	146.3
51	Milan, IT	148.8

<sup>1</sup> Exact ties exist between these pairs of cities. In other instances in this report, cities are shown with the same TTI rounded to one decimal place but with separate rankings, based on very small differences in total taxes paid in the underlying analysis.

- **The United Kingdom** offers an R&D incentive system that combines additional tax deductions with potentially refundable credits. R&D expenses are eligible for a deduction equal to 130 percent of the actual expenditures, or 230 percent for small and medium sized-enterprises (with up to 500 employees, subject to other financial criteria). SMEs that cannot utilize the additional deductions (due to tax losses) may be able to surrender the losses in exchange for a cash payment equal to 14.5 percent of the allowed deduction (equivalent to 230 percent × 14.5 percent = 33.35 percent of the actual R&D expenditures).
- **The United States'** federal R&D tax credit program was a source of great uncertainty for decades, being temporary in nature and being extended numerous times, often retroactively. The Consolidated Appropriations Act of 2016

finally made the US federal R&D credit permanent, with retroactive application to 2015. Therefore, while this credit had been included in prior editions of *Focus on Tax*, for the first time it is now known to be a reliable and continually available credit.

In addition to the federal program, many US states offer R&D tax credit programs which have been included in this analysis. Most state programs follow the federal definitions and calculation formulas, which primarily provide tax relief only for incremental R&D expenditures; however, some states take custom approaches to their R&D incentive programs.

In comparing these various R&D tax incentive programs, it is important to consider whether incentives apply to all R&D expenditures incurred or only to incremental expenditures above a base level of R&D spending.

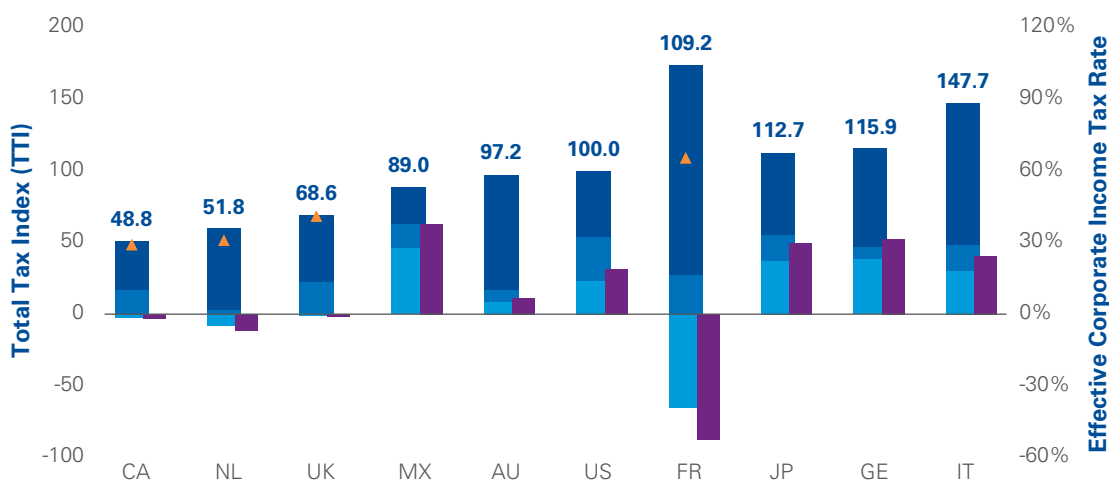
Obviously, the former approach should be preferable, providing incentive assistance on every dollar of eligible R&D spending.

It is also important to consider whether the tax credits are refundable, saleable, or transferable. Businesses often suffer losses during the early stages of major R&D projects, with no income tax payable. If credits can only offset income taxes, this does not provide short-term cash flow assistance to help the firm reduce its cash-burn rate and sustain the R&D project. However, if credits are refundable, can be sold to other firms, or can be transferred to offset other tax liabilities

(such as property tax, sales tax, or employee tax withholdings), then the credits provide an immediate cash benefit for early stage firms.

The following chart illustrates the wide variation in taxes, and especially income taxes (net of incentives), among the countries for R&D operations. Four countries—Canada, the Netherlands, the United Kingdom and France—have R&D tax incentives that effectively produce negative income taxes, as refundable tax incentives are greater than corporate income taxes otherwise payable.

**Total tax index by type of tax and effective corporate income tax rates – R&D**



- Share of total taxes: Statutory labor costs
- Share of total taxes: Other corporate taxes
- Share of total taxes: Corporate income taxes, net of incentives
- ▲ Total Tax Index (net of positive and negative elements, shown where negative elements exist)
- Effective rate of corporate income tax, net of incentives (RHS)

# Corporate services

The corporate services sector reflects results for two model businesses: a professional services operation and a support services operation.

The professional services operation examined in this sector provides an array of financial services, such as securities trading, foreign exchange, funds management and/or treasury, with a focus on serving non-resident corporate clients. For the purposes of determining applicable taxes, it is important to note that this entity is not a financial institution.

The support services operation represents a corporate shared services center providing centralized accounting, customer call center and internal IT support functions.

## Results by country

**Canada, Mexico** and the **United Kingdom** are very closely grouped as the leading countries in this sector, with only 1.4 percentage points on the TTI scale separating these three countries. Meanwhile, **Italy** and **France** have the highest TTI ratings, consistent with the overall results. Indeed, TTI rankings for the last four countries (Germany, Australia, Italy and France) are all consistent with their rankings for statutory labor costs, illustrating the significance of this cost category to services firms where labor represents the predominant business cost factor. This issue also drives the fact that this sector sees the highest TTI scores for both **Australia** and **France** among the four sectors compared.

Comparing the TTI rankings of countries in 2016 to 2014, the only change in rankings are due to the **United Kingdom** dropping back in the rankings from 1<sup>st</sup> place in 2014 to 3<sup>rd</sup> place in the current study. The primary reason for this change in ranking is the inclusion in this edition of the study of property taxes paid by the landlord and passed on to the tenant as additional rent. Extremely high property values and related property taxes in London result in the UK having the second-highest property tax costs among the 10 countries in this sector. This allows **Canada** and **Mexico** to move ahead of the UK, despite the advantage that the UK holds in terms of in corporate income taxes.

2016 Rank	Country	Total tax index	2014 Rank
1	Canada	69.1	2
2	Mexico	70.5	3
3	United Kingdom	70.5	1
4	Netherlands	83.7	4
5	United States	100.0	5
6	Japan	100.7	6
7	Germany	103.5	7
8	Australia	111.3	8
9	Italy	140.0	9
10	France	189.3	10

## Results for major cities

The results for the international cities are generally consistent with the national results for this sector.

Comparing the city rankings for this sector to the overall results, several US cities see large changes in their rankings in this sector:

- **Phoenix, Sacramento, St. Louis** and **Kansas City** all rank at least 12 places higher for corporate services than in the overall results. Multiple factors cause these variations, but include low statutory labor costs for Phoenix, beneficial sourcing rules for services income in California (including Sacramento) and lower property tax costs downtown than in the suburbs for St. Louis and Kansas City.
- By contrast, high property taxes and/or gross receipts taxes in this sector contribute to **North Virginia (Metro DC), Baltimore** and **Boston** all ranking at least 11 places lower in this sector than in the overall results.

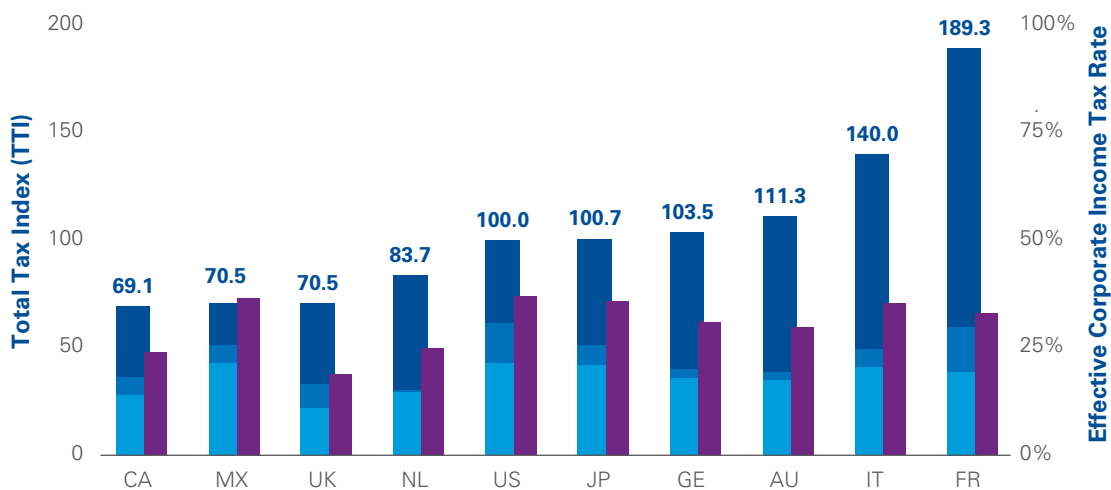
Rank	Major cities	Total tax index
1	Vancouver, CA	55.4
2	Manchester, UK	59.0
3	Toronto, CA	63.4
4	Monterrey, MX	67.6
5	Mexico City, MX	73.4
6	Montreal, CA	74.9
7	London, UK	82.0
8	Kansas City, US	83.2
9	Rotterdam, NL	83.6
10	Amsterdam, NL	83.8
11	Tampa, US	83.8
12	Atlanta, US	83.9
13	Orlando, US	84.3
14T <sup>1</sup>	Cincinnati, US	84.5
14T <sup>1</sup>	St. Louis, US	84.5
16	Pittsburgh, US	85.5
17	Detroit, US	85.6

Rank	Major cities	Total tax index
18	Miami, US	85.9
19	Phoenix, US	86.8
20	Cleveland, US	87.1
21	San Antonio, US	88.5
22	Charlotte, US	88.8
23	Dallas-Fort Worth, US	89.9
24	Baltimore, US	90.8
25T <sup>1</sup>	Minneapolis, US	92.1
25T <sup>1</sup>	Philadelphia, US	92.1
27	Sacramento, US	92.7
28	Portland, US	93.0
29	Houston, US	93.3
30	Riverside-San Bernardino, US	93.4
31	San Diego, US	93.5
32	Denver, US	93.8
33	North Virginia, Metro DC, US	95.5
34	Seattle, US	95.9

Rank	Major cities	Total tax index
35	Osaka, JP	98.5
36	Las Vegas, US	98.8
37	Chicago, US	100.0
38	Boston, US	100.2
39	Berlin, GE	101.1
40	Los Angeles, US	101.8
41	Tokyo, JP	102.9
42	San Francisco, US	103.0
43	Frankfurt, GE	105.9
44	New York City, US	108.2
45	Melbourne, AU	110.0
46	Brisbane, AU	111.6
47	Sydney, AU	112.7
48	Milan, IT	139.7
49	Rome, IT	140.3
50	Marseille, FR	183.2
51	Paris, FR	195.4

<sup>1</sup> Exact ties exist between these pairs of cities. In other instances in this report, cities are shown with the same TTI rounded to one decimal place but with separate rankings, based on very small differences in total taxes paid in the underlying analysis.

## Total tax index by type of tax and effective corporate income tax rates — Corporate services



- Share of total taxes: Corporate income taxes, net of incentives
- Share of total taxes: Other corporate taxes
- Share of total taxes: Statutory labor costs
- Effective rate of corporate income tax, net of incentives (RHS)

## Labor cost comparisons

	Salaries & wages		Benefits			
			Statutory plans		Employee benefits	
	Average per employee <sup>1</sup> (US\$)	Rank	Percent of payroll	Rank	Percent of payroll	Rank
<b>North America</b>						
Canada	\$55,778	4	10%	2	25%	8
Mexico	\$25,981	1	12%	4	23%	6
United States	\$74,889	10	9%	1	37%	10
<b>Europe</b>						
France	\$52,182	3	40%	10	20%	4
Germany	\$65,793	9	16%	7	19%	2
Italy	\$50,917	2	28%	9	23%	5
Netherlands	\$57,676	5	15%	6	24%	7
United Kingdom	\$59,498	6	10%	3	29%	9
<b>Asia Pacific</b>						
Australia	\$60,570	7	19%	8	15%	1
Japan	\$62,502	8	13%	5	20%	3

<sup>1</sup> Average for services sector (7 business operations) and manufacturing sector (12 business operations), as per the overall results. Represents 42 different job positions, including professional and management positions.

## Impact of tax components

Statutory labor costs tend to represent a more important tax component for corporate services operations than for operations in other sectors, due to the very high significance of labor costs among total costs in this sector.

As illustrated in the chart below, the impact of statutory labor costs varies greatly among the countries, with the impact being especially acute in the continental European countries. France and Italy have moderate wage costs but very high statutory plan rates, while Germany has higher base wages but more moderate statutory plan rates. This combination works to somewhat diminish the differentials in the statutory labor cost burden between these countries.

The Labor Cost Comparison table (next page) shows the differences among countries in terms of salaries and wages, statutory plans and other employee benefits. Statutory labor costs, expressed as a percentage of payroll, range from a low of 9 percent in the United States, to a high of 40 percent in France. Between these extremes, statutory labor costs in Italy represent 28 percent of payroll, while in all other countries statutory labor costs represent less than 20 percent of payroll.

There are also areas where statutory labor costs alone do not present a full picture. One key area in this regard is health care.

Public medical plans operate in most study countries, as compared to the predominantly private medical system in the United States. As a result, US employers cover significant



non-statutory costs for private medical insurance. (This is evident in the Labor Cost Comparison table when comparing Employee Benefits in the US and Canada: at 37 percent versus 25 percent of payroll, respectively. This comparison is less clear for the European countries, which have significantly higher benefit costs related to holidays and vacations than the US.)

Even within the public medical system funding differs significantly between countries, influencing the cost to business. Canada's public medical system is funded primarily from general tax revenues, while Australia funds its public medical system primarily from a specific tax levy on employees. However, in most European countries, medical care is funded primarily through statutory levies on the employer. (The former two tax costs are not captured in this analysis, as they do not directly burden the employer, while the latter cost is incorporated in this analysis.)

Looking at the other tax components for this sector, the effective rates of corporate income tax seen in this sector tend to provide the most "pure" representation of the corporate income tax system in most locations, as few special tax incentives apply to activities in this sector.

Within other corporate taxes, one aspect that sets this sector apart is the consideration of property tax costs for downtown offices (for the financial services operation), whereas all other business operations analyzed in this study are assumed to be located in suburban office or industrial areas.



# Manufacturing

The manufacturing sector reflects results for 12 model business operations, as detailed in the main *Competitive Alternatives 2016* study.

## Results by country

The ranking of countries for manufacturing are broadly consistent with the overall results presented above, but with two notable differences.

**Mexico** moves up in the rankings, ahead of the **United Kingdom** and the **Netherlands**, to rank in second place. Among the four sectors compared in this study, in the manufacturing sector Mexico achieves its lowest TTI and its lowest effective rates for all three tax categories—corporate income tax, other corporate taxes and statutory labor costs. The causes of these strong results for Mexico include:

- Mexico’s restrictions on the deductibility of employee benefit costs are less of an issue in this sector than in the more labor intensive service sectors. This factor improves the effective rate of corporate income tax.
- Mexico’s property taxes applicable to industry are very low, reducing the effective rate for other corporate taxes.
- Mexico’s generally moderate statutory labor costs are even lower for manufacturing than for the service sectors.

**Italy** also moves up in the rankings for this sector relative to the overall results, moving ahead of **Germany**, the **United States** and **Japan**. Italy’s regional tax restrictions on the deductibility of employee compensation are less significant in this sector and its Allowance for Corporate Equity and moderately low levels of property tax both assist in this capital intensive sector.

Comparing the TTI rankings of countries in 2016 to 2014, **Canada** manages to claim a slim advantage over **Mexico** as the leading country in this sector in the current year. In addition, the **United States** drops from 5th place in 2014 to 8th place in the current year due to the impact on tax costs of the strong US

2016 Rank	Country	Total Tax Index	2014 Rank
1	Canada	58.2	2
2	Mexico	58.7	1
3	United Kingdom	61.2	3
4	Netherlands	65.3	4
5	Australia	87.6	6
6	Italy	89.9	7
7	Germany	90.6	8
8	United States	100.0	5
9	Japan	111.2	9
10	France	122.0	10

dollar relative to other global currencies (as outlined previously in the Summary chapter).

## Results for major cities

The results for the 51 major international cities are generally consistent with the national results except among the larger number of US cities shown in the table.

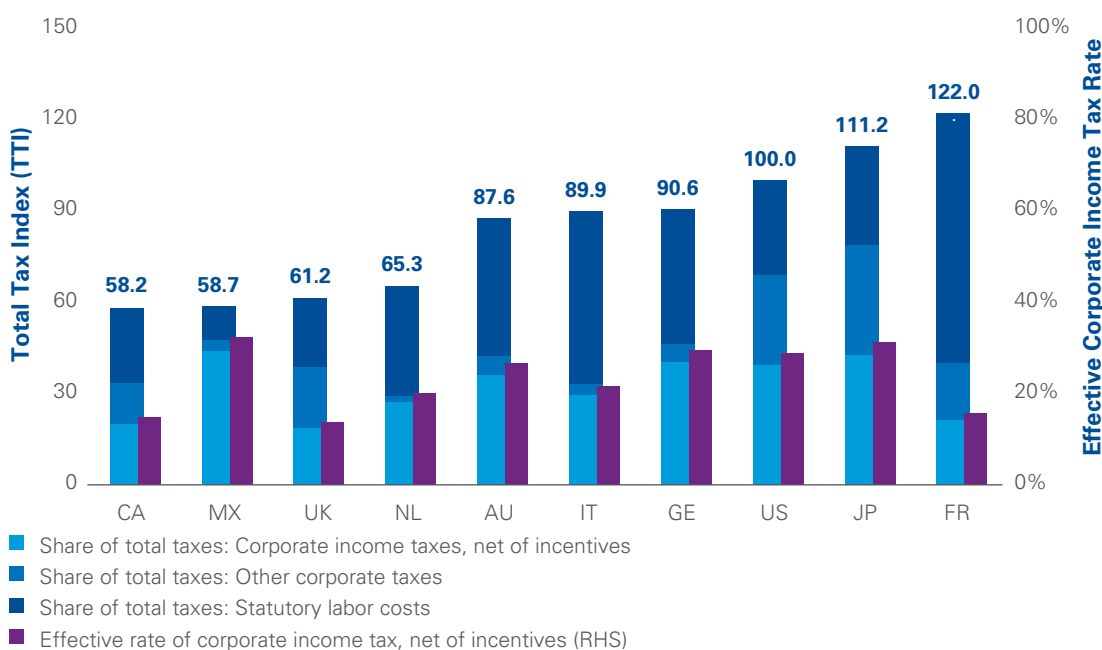
High tax costs in the US baseline cities, most notably in **New York City** and **Los Angeles**, result in the US placing behind Australia, Italy and Germany in the national rankings. However, many individual US cities hold strong tax advantages in the manufacturing sector, including the leading US cities: **Baltimore**, **Cincinnati** and **Atlanta**. To illustrate this issue, among the 31 US metro areas with populations over two million, at least 12 rank ahead of all the Australian, Italian and German cities, while 15 rank ahead of **Frankfurt** (the city with the highest tax costs among the Australian, Italian and German cities compared).

Rank	Major Cities	Total Tax Index
1	Vancouver, CA	50.5
2	Toronto, CA	53.0
3	Manchester, UK	53.8
4	Monterrey, MX	56.8
5	Mexico City, MX	60.5
6	Montreal, CA	63.4
7	Amsterdam, NL	65.2
8	Rotterdam, NL	65.4
9	London, UK	68.6
10	Baltimore, US	73.1
11	Cincinnati, US	74.7
12	Atlanta, US	79.4
13	Charlotte, US	80.0
14	Pittsburgh, US	80.3
15	Philadelphia, US	80.9
16	Cleveland, US	82.0
17	North Virginia, Metro DC, US	83.5

Rank	Major Cities	Total Tax Index
18	Orlando, US	85.5
19	Detroit, US	85.5
20	Boston, US	86.0
21	Tampa, US	86.3
22	Melbourne, AU	86.6
23	Minneapolis, US	86.7
24	Brisbane, AU	87.5
25	Sydney, AU	88.6
26	Milan, IT	88.9
27	Miami, US	89.3
28	Berlin, GE	89.9
29	Portland, US	90.5
30	Rome, IT	90.9
31	Frankfurt, GE	91.3
32	Chicago, US	92.5
33	Houston, US	94.1
34	Seattle, US	94.1

Rank	Major Cities	Total Tax Index
35	San Antonio, US	94.7
36	Dallas-Fort Worth, US	96.5
37	Las Vegas, US	96.8
38	Denver, US	97.9
39	San Diego, US	99.4
40	Phoenix, US	99.6
41	Riverside-San Bernardino, US	100.2
42	Sacramento, US	100.8
43	Kansas City, US	103.0
44	St. Louis, US	103.2
45	Osaka, JP	104.1
46	New York City, US	104.5
47	Los Angeles, US	106.6
48	San Francisco, US	110.3
49	Tokyo, JP	118.3
50	Marseille, FR	120.7
51	Paris, FR	123.3

### Total tax index by type of tax and effective corporate income tax rates — Manufacturing





Among the 51 cities international cities detailed in the table below, **Milan** and **Rome** see the greatest changes in their rankings for the manufacturing sector when compared to the overall results—moving up 21 and 18 places respectively, from 47<sup>th</sup> and 48<sup>th</sup> overall to 26<sup>th</sup> and 30<sup>th</sup> for manufacturing. This favorable change reflects the same tax advantages for the manufacturing as described for Italy on the previous page.

Meanwhile, the cities which see the largest drops in their rankings in this sector relative to the overall results are **Dallas-Fort Worth, Denver, Kansas City, Miami, San Antonio** and **St. Louis**. Each of these cities ranks either 10 or 11 places lower in the manufacturing sector than in the overall results. The common thread driving these results is taxation of machinery and equipment, which has a disproportionate negative impact in the capital intensive manufacturing sector.

### Impact of tax components

Manufacturing operations are typically characterized by relatively larger facilities and relatively high levels of investment in machinery, equipment and inventories. All of these items may be subject to property taxes in different jurisdictions. Manufacturers also tend to have higher costs related to materials, utilities and transportation, which may give rise to sales tax costs in some jurisdictions. Finally, wages and benefits are relatively less significant in the manufacturing sector than in other industry sectors, simply because the size of labor costs is diminished as a share of total costs due to process inputs and capital costs.

Other corporate taxes tend to be more significant in this sector than in the digital services or the corporate services sectors, due to factors such as property tax costs on industrial facilities, taxes on machinery and equipment and/or employed capital (in some locations) and the impact of non-refundable sales taxes (in some locations). These taxes generally still represent only a small portion of total tax costs in most countries, although in the United States, Japan and the United Kingdom other corporate taxes account for almost one third of total taxes.

Even though labor accounts for a smaller share of total costs in this sector than in the service sectors, statutory labor costs still represent a substantial tax cost in many countries. As illustrated in the chart above, in the five European countries, Australia and Canada statutory labor costs exceed corporate income taxes, while in Japan, Mexico and the United States, corporate income taxes exceed statutory labor costs.

# Appendix A – Detailed results

Detailed tables of results. CIT = Corporate Income Tax, OCT = Other Corporate Taxes, SLC = Statutory Labor Costs, TETR = Total Effective Tax Rate, TTI = Total Tax Index

## Detailed results by country

Rank	Country	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Overall</b>										
5	Australia	24.8%	3.9%	40.2%	68.9%	5	3	8	5	95.7
1	Canada	10.0%	8.4%	19.3%	37.7%	1	6	2	1	52.4
10	France	11.1%	14.5%	72.7%	98.4%	2	8	10	10	136.6
6	Germany	30.2%	3.9%	36.4%	70.5%	8	2	7	6	97.9
9	Italy	25.1%	4.5%	50.0%	79.6%	6	4	9	9	110.5
8	Japan	31.5%	18.2%	28.2%	77.9%	9	10	5	8	108.2
4	Mexico	33.8%	4.5%	11.0%	49.4%	10	5	1	4	68.5
3	Netherlands	17.7%	1.4%	30.0%	49.1%	4	1	6	3	68.2
2	United Kingdom	13.1%	12.1%	21.3%	46.5%	3	7	3	2	64.5
7	United States	29.3%	18.0%	24.7%	72.0%	7	9	4	7	100.0
<b>Digital services</b>										
8	Australia	26.2%	1.4%	37.3%	64.9%	5	3	8	8	109.9
1	Canada	-2.9%	2.8%	15.1%	15.0%	1	4	2	1	25.4
10	France	19.4%	11.2%	67.2%	97.8%	3	10	10	10	165.5
7	Germany	31.0%	1.3%	30.2%	62.5%	8	2	7	7	105.8
9	Italy	29.5%	3.0%	45.7%	78.2%	6	5	9	9	132.4
6	Japan	30.8%	3.3%	25.5%	59.7%	7	6	6	6	101.1
4	Mexico	34.5%	4.3%	11.6%	50.4%	10	8	1	4	85.4
3	Netherlands	20.0%	0.5%	25.4%	45.9%	4	1	5	3	77.7
2	United Kingdom	15.4%	3.7%	21.5%	40.5%	2	7	4	2	68.6
5	United States	31.7%	7.2%	20.1%	59.1%	9	9	3	5	100.0

Rank	Country	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>R&amp;D services</b>										
5	Australia	7.0%	7.0%	64.4%	78.4%	5	3	8	5	97.2
1	Canada	-1.7%	13.9%	27.2%	39.4%	3	5	2	1	48.8
7	France	-52.5%	22.5%	118.2%	88.2%	1	9	10	7	109.2
9	Germany	31.5%	6.6%	55.5%	93.6%	9	2	7	9	115.9
10	Italy	24.4%	15.1%	79.8%	119.2%	7	7	9	10	147.7
8	Japan	30.0%	15.0%	46.0%	91.0%	8	6	6	8	112.7
4	Mexico	37.7%	13.7%	20.5%	71.8%	10	4	1	4	89.0
2	Netherlands	-6.7%	2.8%	45.7%	41.8%	2	1	5	2	51.8
3	United Kingdom	-0.9%	18.6%	37.6%	55.4%	4	8	4	3	68.6
6	United States	19.1%	24.5%	37.1%	80.7%	6	10	3	6	100.0
<b>Corporate services</b>										
8	Australia	29.8%	3.3%	61.9%	95.0%	4	3	8	8	111.3
1	Canada	23.9%	7.3%	27.9%	59.0%	2	6	2	1	69.1
10	France	33.0%	18.1%	110.4%	161.5%	6	10	10	10	189.3
7	Germany	31.0%	3.2%	54.1%	88.3%	5	2	7	7	103.5
9	Italy	35.2%	6.9%	77.3%	119.4%	7	4	9	9	140.0
6	Japan	35.8%	8.1%	42.0%	85.9%	8	7	5	6	100.7
2	Mexico	36.6%	7.2%	16.4%	60.2%	9	5	1	2	70.5
4	Netherlands	24.9%	1.2%	45.3%	71.4%	3	1	6	4	83.7
3	United Kingdom	18.8%	9.5%	31.9%	60.2%	1	8	3	3	70.5
5	United States	36.9%	15.5%	32.9%	85.3%	10	9	4	5	100.0
<b>Manufacturing</b>										
5	Australia	26.6%	4.4%	33.1%	64.1%	6	4	8	5	87.6
1	Canada	14.7%	9.9%	18.0%	42.6%	2	6	3	1	58.2
10	France	15.6%	13.8%	59.9%	89.3%	3	7	10	10	122.0
7	Germany	29.5%	4.5%	32.3%	66.3%	8	5	7	7	90.6
6	Italy	21.6%	2.7%	41.5%	65.8%	5	3	9	6	89.9
9	Japan	31.3%	26.5%	23.6%	81.4%	9	10	5	9	111.2
2	Mexico	32.4%	2.4%	8.2%	42.9%	10	2	1	2	58.7
4	Netherlands	20.0%	1.5%	26.3%	47.8%	4	1	6	4	65.3
3	United Kingdom	13.8%	14.7%	16.4%	44.8%	1	8	2	3	61.2
8	United States	28.9%	21.6%	22.7%	73.2%	7	9	4	8	100.0

## Detailed results by city – Overall

The following table details the overall results for all 111 cities. Within each country, cities are sorted in order of ascending TTI. Rankings are relative to other cities within the same country.

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Overall</b>										
Australia	Adelaide	25.0%	3.8%	37.3%	66.1%	4	3	1	1	91.8
	Melbourne	24.8%	3.4%	39.9%	68.1%	2	1	2	2	94.5
	Brisbane	24.9%	3.6%	40.3%	68.8%	3	2	3	3	95.5
	Sydney	24.8%	4.3%	40.6%	69.7%	1	4	4	4	96.7
Canada	St. John's, NL	2.7%	7.9%	15.6%	26.2%	1	8	14	1	36.4
	Fredericton, NB	9.4%	8.2%	10.4%	28.1%	6	9	2	2	39.0
	Moncton, NB	9.4%	8.3%	10.4%	28.1%	7	11	1	3	39.1
	Edmonton, AB	14.2%	4.3%	10.8%	29.3%	14	1	5	4	40.6
	Calgary, AB	14.0%	5.2%	10.9%	30.1%	13	3	6	5	41.9
	Halifax, NS	12.1%	8.4%	11.0%	31.5%	10	12	7	6	43.8
	Charlottetown, PE	15.3%	5.3%	11.3%	31.8%	17	4	9	7	44.2
	Saskatoon, SK	12.0%	8.8%	11.1%	31.9%	9	13	8	8	44.2
	Barrie, ON	12.1%	4.6%	15.3%	32.1%	11	2	12	9	44.6
	Toronto, ON	11.9%	6.7%	15.5%	34.1%	8	6	13	10	47.4
	Kelowna, BC	14.3%	9.3%	10.7%	34.3%	16	14	3	11	47.7
	Vancouver, BC	14.3%	10.2%	10.8%	35.3%	15	15	4	12	49.0
	Sault Ste. Marie, ON	12.2%	8.2%	15.2%	35.7%	12	10	11	13	49.5
	Winnipeg, MB	7.0%	14.7%	14.6%	36.3%	2	17	10	14	50.4
	Gatineau (National Capital Region), QC	8.2%	5.9%	23.6%	37.7%	4	5	17	15	52.4
	Quebec City, QC	9.0%	7.4%	22.2%	38.6%	5	7	15	16	53.6
	Montreal, QC	8.1%	10.2%	23.0%	41.3%	3	16	16	17	57.4
France	Marseille	11.5%	14.4%	70.4%	96.3%	2	1	1	1	133.8
	Paris	10.8%	14.7%	75.0%	100.4%	1	2	2	2	139.5
Germany	Berlin	29.3%	4.0%	36.1%	69.4%	1	2	1	1	96.4
	Frankfurt	31.1%	3.7%	36.7%	71.6%	2	1	2	2	99.3
Italy	Milan	24.0%	4.6%	50.7%	79.3%	1	2	2	1	110.1
	Rome	26.1%	4.3%	49.4%	79.8%	2	1	1	2	110.8
Japan	Osaka	31.3%	14.4%	28.5%	74.2%	1	1	2	1	103.0
	Tokyo	31.7%	22.0%	27.9%	81.7%	2	2	1	2	113.4
Mexico	Monterrey	33.7%	3.2%	10.7%	47.6%	1	1	1	1	66.1
	Mexico City	34.0%	5.7%	11.4%	51.1%	2	2	2	2	70.9
Netherlands	Amsterdam	17.7%	1.4%	30.0%	49.1%	1	1	1	1	68.2
	Rotterdam	17.7%	1.4%	30.0%	49.1%	1	2	1	2	68.2
UK	Manchester	13.4%	7.6%	19.1%	40.1%	2	1	1	1	55.7
	London	12.8%	16.6%	23.5%	52.9%	1	2	2	2	73.4

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Overall</b>										
US	Baton Rouge, LA	18.5%	8.1%	20.2%	46.7%	2	9	17	1	64.9
	Shreveport, LA	18.5%	9.3%	19.5%	47.4%	3	15	8	2	65.8
	New Orleans, LA	18.2%	8.8%	20.7%	47.7%	1	14	32	3	66.2
	Youngstown, OH	24.4%	7.7%	19.3%	51.4%	7	7	2	4	71.4
	Omaha, NE	21.9%	10.3%	19.5%	51.8%	5	21	9	5	71.9
	Cincinnati, OH	24.4%	8.4%	19.8%	52.7%	8	11	13	6	73.2
	Cleveland, OH	24.6%	12.1%	20.0%	56.8%	9	35	15	7	78.8
	Richmond, VA	29.5%	6.8%	20.6%	56.8%	57	2	29	8	78.9
	Savannah, GA	26.0%	10.5%	20.4%	56.9%	16	22	25	9	79.0
	Fargo, ND	29.7%	8.5%	19.4%	57.5%	58	12	4	10	79.9
	Baltimore, MD	29.0%	7.8%	21.6%	58.3%	47	8	44	11	81.0
	Bangor, ME	29.9%	7.3%	21.3%	58.5%	59	5	40	12	81.2
	Cedar Rapids, IA	27.5%	11.1%	20.1%	58.7%	22	27	16	13	81.5
	Atlanta, GA	25.9%	11.4%	21.5%	58.7%	15	31	42	14	81.6
	Tampa, FL	25.6%	13.0%	20.2%	58.8%	13	42	19	15	81.6
	Indianapolis, IN	28.1%	11.3%	19.4%	58.8%	31	29	5	16	81.6
	Orlando, FL	25.6%	13.0%	20.2%	58.8%	14	43	18	17	81.6
	Lexington, KY	31.7%	7.6%	19.5%	58.9%	73	6	6	18	81.7
	Raleigh, NC	28.9%	9.8%	20.7%	59.4%	45	18	33	19	82.5
	Wilmington, DE	30.4%	5.0%	24.2%	59.6%	60	1	64	20	82.8
	Pittsburgh, PA	28.5%	10.5%	20.8%	59.8%	38	23	34	21	83.0
	Madison, WI	28.3%	8.8%	22.6%	59.8%	37	13	56	22	83.0
	Salt Lake City, UT	29.1%	10.6%	20.4%	60.2%	52	24	23	23	83.5
	Miami, FL	25.5%	14.7%	20.4%	60.6%	12	52	26	24	84.2
	Cheyenne, WY	28.1%	11.3%	21.4%	60.7%	29	30	41	25	84.3
	Manchester, NH	31.3%	7.2%	22.3%	60.7%	69	3	54	26	84.3
	Charlotte, NC	28.9%	11.0%	20.8%	60.7%	44	26	35	27	84.3
	Montgomery, AL	28.8%	11.4%	20.6%	60.8%	43	33	30	28	84.4
	Philadelphia, PA	28.5%	10.0%	22.4%	60.9%	39	20	55	29	84.6
	Saginaw, MI	28.3%	13.0%	19.7%	61.0%	36	41	10	30	84.7
	Wichita, KS	31.1%	9.8%	20.4%	61.2%	68	17	24	31	85.0
	Billings, MT	31.7%	7.2%	22.7%	61.6%	72	4	57	32	85.5
	Sioux Falls, SD	28.0%	14.3%	19.3%	61.7%	28	49	3	33	85.6
	Detroit, MI	28.2%	12.6%	20.9%	61.7%	34	38	37	34	85.7
	Little Rock, AR	29.0%	13.5%	19.3%	61.8%	46	45	1	35	85.8
	Nashville, TN	29.2%	12.6%	20.3%	62.1%	53	37	21	36	86.2
	Boise, ID	30.5%	11.4%	20.3%	62.2%	61	32	20	37	86.4
	Providence, RI	28.6%	9.9%	23.9%	62.5%	40	19	63	38	86.7



Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Overall</b>										
US	Burlington, VT	32.3%	8.4%	22.0%	62.7%	74	10	50	39	87.1
	Champaign-Urbana, IL	31.5%	11.2%	21.3%	63.9%	71	28	39	40	88.8
	Mobile, AL	28.7%	14.7%	20.6%	64.0%	42	51	31	41	88.9
	Minneapolis, MN	28.1%	12.3%	23.8%	64.3%	32	36	61	42	89.2
	North Virginia, Metro DC	29.3%	12.8%	22.1%	64.3%	54	40	53	43	89.3
	Albuquerque, NM	21.4%	21.1%	22.0%	64.5%	4	72	51	44	89.6
	Oklahoma City, OK	29.3%	13.6%	21.6%	64.5%	55	46	45	45	89.6
	Spokane, WA	28.1%	14.6%	22.0%	64.7%	30	50	48	46	89.8
	Gulfport-Biloxi, MS	29.0%	16.3%	19.9%	65.2%	49	55	14	47	90.5
	Beaumont, TX	27.3%	17.0%	21.0%	65.3%	19	58	38	48	90.7
	Boston, MA	30.8%	12.6%	22.8%	66.2%	65	39	58	49	92.0
	Portland, OR	32.9%	9.5%	23.9%	66.3%	75	16	62	50	92.0
	San Antonio, TX	27.3%	18.7%	20.4%	66.4%	21	67	22	51	92.2
	Austin, TX	27.3%	18.4%	20.9%	66.7%	20	62	36	52	92.6
	Hartford, CT	25.2%	16.6%	25.2%	67.1%	11	56	67	53	93.2
	Memphis, TN	29.1%	17.6%	20.6%	67.3%	51	59	27	54	93.4
	Dallas-Fort Worth, TX	27.2%	18.7%	21.5%	67.4%	18	66	43	55	93.6
	Houston, TX	27.1%	18.5%	22.0%	67.6%	17	64	49	56	93.9
	Denver, CO	27.9%	17.8%	21.8%	67.6%	25	60	47	57	93.9
	Seattle, WA	27.7%	15.9%	24.4%	68.0%	23	54	65	58	94.4
	Charleston, WV	29.1%	19.5%	19.5%	68.2%	50	68	7	59	94.6
	Phoenix, AZ	28.0%	20.6%	19.8%	68.4%	26	71	11	60	95.0
	Kansas City, MO	25.0%	22.2%	21.6%	68.8%	10	75	46	61	95.5
	St. Louis, MO	24.2%	23.1%	22.0%	69.3%	6	76	52	62	96.3
	Chicago, IL	31.3%	15.2%	23.1%	69.6%	70	53	59	63	96.7
	Jackson, MS	29.0%	21.2%	19.8%	70.0%	48	74	12	64	97.2
	Anchorage, AK	33.3%	10.7%	26.2%	70.2%	76	25	72	65	97.4
	San Diego, CA	30.8%	13.5%	26.0%	70.3%	64	44	70	66	97.5
	Spartanburg, SC	28.6%	21.1%	20.6%	70.3%	41	73	28	67	97.6
	Sacramento, CA	30.9%	13.8%	25.7%	70.4%	67	47	69	68	97.7
	Trenton, NJ	29.4%	11.9%	29.1%	70.4%	56	34	76	69	97.7
	Riverside-San Bernardino, CA	30.8%	14.0%	25.7%	70.5%	66	48	68	70	97.9
	Las Vegas, NV	27.9%	18.7%	24.8%	71.3%	24	65	66	71	99.1
	Rochester, NY	28.2%	19.8%	23.7%	71.7%	35	69	60	72	99.5
	Honolulu, HI	28.2%	18.5%	26.2%	72.9%	33	63	71	73	101.2
	New York City, NY	28.0%	19.9%	27.5%	75.4%	27	70	74	74	104.7
	Los Angeles, CA	30.7%	18.3%	26.6%	75.7%	63	61	73	75	105.1
	San Francisco, CA	30.5%	17.0%	29.0%	76.5%	62	57	75	76	106.3

## Detailed results by city – Digital services

The following table details the overall results for all 111 cities. Within each country, cities are sorted in order of ascending TTI. Rankings are relative to other cities within the same country.

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Digital services</b>										
Australia	Adelaide	26.5%	1.6%	34.1%	62.1%	4	3	1	1	105.2
	Brisbane	26.3%	1.6%	36.4%	64.2%	3	4	2	2	108.8
	Melbourne	26.2%	1.2%	36.8%	64.3%	2	1	3	3	108.8
	Sydney	26.2%	1.5%	37.8%	65.5%	1	2	4	4	110.9
Canada	Barrie, ON	1.0%	0.8%	11.6%	13.4%	5	1	13	1	22.7
	Gatineau (National Capital Region), QC	-7.0%	1.7%	18.9%	13.6%	1	6	17	2	23.1
	Toronto, ON	0.4%	1.8%	11.7%	13.8%	4	7	14	3	23.4
	Sault Ste. Marie, ON	1.4%	1.4%	11.5%	14.3%	6	5	12	4	24.2
	Quebec City, QC	-4.9%	1.2%	18.1%	14.5%	3	3	15	5	24.5
	Montreal, QC	-6.1%	3.7%	18.6%	16.2%	2	14	16	6	27.4
	St. John's, NL	2.3%	3.0%	11.2%	16.4%	7	12	10	7	27.8
	Halifax, NS	14.4%	3.2%	8.0%	25.5%	9	13	9	8	43.2
	Edmonton, AB	16.8%	1.2%	7.7%	25.7%	16	2	6	9	43.6
	Moncton, NB	16.5%	1.9%	7.7%	26.0%	14	9	4	10	44.1
	Fredericton, NB	16.5%	1.9%	7.7%	26.1%	13	10	4	11	44.1
	Calgary, AB	16.5%	1.9%	7.8%	26.2%	15	8	8	12	44.3
	Saskatoon, SK	15.8%	2.9%	7.7%	26.5%	12	11	7	13	44.8
	Kelowna, BC	14.7%	5.0%	7.6%	27.2%	11	15	1	14	46.1
	Vancouver, BC	14.7%	5.1%	7.6%	27.3%	10	16	2	15	46.3
	Charlottetown, PE	21.6%	1.4%	7.7%	30.7%	17	4	3	16	51.9
	Winnipeg, MB	14.2%	5.3%	11.5%	31.0%	8	17	11	17	52.5
France	Marseille	19.9%	10.4%	64.7%	94.9%	2	1	1	1	160.7
	Paris	19.0%	12.0%	69.6%	100.5%	1	2	2	2	170.2
Germany	Berlin	30.1%	1.2%	29.7%	61.0%	1	1	1	1	103.3
	Frankfurt	31.9%	1.4%	30.7%	64.0%	2	2	2	2	108.3
Italy	Rome	30.5%	2.9%	44.5%	77.9%	2	1	1	1	131.9
	Milan	28.6%	3.0%	46.8%	78.4%	1	2	2	2	132.8
Japan	Osaka	30.7%	2.8%	25.1%	58.6%	1	1	1	1	99.3
	Tokyo	30.9%	3.9%	25.9%	60.7%	2	2	2	2	102.8
Mexico	Monterrey	34.4%	3.3%	11.3%	49.0%	1	1	1	1	82.9
	Mexico City	34.7%	5.3%	11.9%	51.9%	2	2	2	2	87.9
Netherlands	Rotterdam	20.0%	0.5%	25.4%	45.9%	1	1	1	1	77.7
	Amsterdam	20.0%	0.5%	25.4%	45.9%	1	2	1	2	77.7
UK	Manchester	15.7%	1.5%	19.2%	36.4%	2	1	1	1	61.6
	London	15.1%	5.9%	23.8%	44.7%	1	2	2	2	75.7

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Digital services</b>										
US	Baton Rouge, LA	-0.4%	6.1%	17.5%	23.2%	2	57	18	1	39.3
	New Orleans, LA	-1.1%	6.6%	17.8%	23.3%	1	66	29	2	39.4
	Shreveport, LA	0.9%	6.7%	16.9%	24.6%	3	68	1	3	41.6
	Youngstown, OH	13.5%	3.4%	16.9%	33.8%	6	9	1	4	57.3
	Cincinnati, OH	13.2%	4.0%	17.4%	34.5%	5	13	13	5	58.4
	Cleveland, OH	13.1%	5.1%	17.6%	35.8%	4	37	23	6	60.7
	Albuquerque, NM	14.9%	5.5%	19.0%	39.4%	7	47	56	7	66.6
	Tampa, FL	18.3%	4.0%	17.6%	40.0%	10	15	23	8	67.7
	Orlando, FL	18.4%	4.4%	17.6%	40.4%	11	23	19	9	68.4
	Miami, FL	18.2%	4.6%	17.8%	40.6%	9	29	28	10	68.7
	Hartford, CT	16.8%	6.1%	20.4%	43.3%	8	61	66	11	73.4
	Omaha, NE	25.4%	5.5%	17.1%	47.9%	13	47	5	12	81.2
	Denver, CO	23.1%	6.2%	18.8%	48.1%	12	62	53	13	81.5
	Bangor, ME	27.1%	3.1%	18.2%	48.4%	15	6	36	14	81.9
	Beaumont, TX	28.1%	5.7%	17.8%	51.6%	20	52	32	15	87.4
	Kansas City, MO	27.4%	5.8%	18.5%	51.8%	16	53	47	16	87.7
	St. Louis, MO	26.6%	6.4%	18.8%	51.8%	14	63	52	17	87.7
	San Antonio, TX	28.2%	6.0%	17.7%	51.9%	21	55	25	18	87.9
	Dallas-Fort Worth, TX	27.8%	5.9%	18.5%	52.2%	18	54	45	19	88.4
	Savannah, GA	30.3%	4.6%	17.4%	52.4%	23	28	15	20	88.7
	Cheyenne, WY	31.9%	3.3%	17.6%	52.9%	39	7	21	21	89.5
	Little Rock, AR	30.8%	4.9%	17.2%	52.9%	24	36	8	22	89.5
	Atlanta, GA	30.1%	4.4%	18.4%	53.0%	22	25	43	23	89.7
	Cedar Rapids, IA	31.5%	4.2%	17.4%	53.1%	27	18	14	24	89.9
	Saginaw, MI	32.1%	4.1%	17.3%	53.4%	45	16	11	25	90.4
	Houston, TX	27.6%	6.9%	18.9%	53.4%	17	70	54	26	90.4
	Sioux Falls, SD	31.9%	4.5%	17.1%	53.5%	39	26	6	27	90.6
	Detroit, MI	31.9%	3.8%	18.3%	54.0%	38	10	39	28	91.4
	Pittsburgh, PA	32.2%	4.3%	17.8%	54.3%	46	21	32	29	92.0
	Madison, WI	31.9%	3.8%	18.8%	54.6%	39	10	51	30	92.4
	Indianapolis, IN	32.3%	4.8%	17.5%	54.6%	47	32	16	31	92.4
	Salt Lake City, UT	32.6%	4.2%	18.0%	54.8%	48	19	34	32	92.8
	Austin, TX	28.0%	8.6%	18.2%	54.8%	19	74	37	33	92.9
	Phoenix, AZ	31.8%	5.4%	17.8%	55.0%	35	45	31	34	93.2
	Fargo, ND	33.8%	4.1%	17.2%	55.1%	54	16	10	35	93.2
	Philadelphia, PA	31.9%	4.3%	19.1%	55.4%	39	21	57	36	93.8
	Rochester, NY	32.0%	5.1%	18.5%	55.6%	43	38	46	37	94.2
	Spokane, WA	31.9%	5.2%	18.6%	55.7%	37	40	49	38	94.3
	Gulfport-Biloxi, MS	33.8%	5.2%	17.1%	56.1%	55	42	4	39	95.0

Country	City	Effective tax rates				Ranks				
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	TTI
<b>Digital services</b>										
US	Billings, MT	36.4%	1.4%	18.6%	56.4%	72	1	48	40	95.5
	Providence, RI	31.8%	4.9%	20.0%	56.7%	34	34	63	41	96.0
	Minneapolis, MN	31.9%	5.3%	19.6%	56.7%	36	43	59	42	96.1
	Jackson, MS	33.8%	6.1%	17.0%	57.0%	56	60	3	43	96.4
	Raleigh, NC	34.0%	4.6%	18.4%	57.0%	57	30	40	44	96.5
	Montgomery, AL	33.7%	5.7%	17.8%	57.1%	52	50	30	45	96.7
	Oklahoma City, OK	34.6%	4.4%	18.2%	57.2%	61	23	38	46	96.9
	Wilmington, DE	35.2%	2.1%	20.0%	57.2%	62	2	62	47	96.9
	Boise, ID	35.7%	4.0%	17.6%	57.3%	66	14	19	48	97.0
	Charlotte, NC	34.0%	4.9%	18.4%	57.3%	57	35	41	49	97.0
	Nashville, TN	33.5%	6.5%	17.3%	57.3%	51	65	12	50	97.0
	Sacramento, CA	31.8%	5.3%	20.3%	57.4%	33	44	64	51	97.3
	Mobile, AL	33.7%	6.1%	17.7%	57.5%	53	57	25	52	97.3
	Manchester, NH	35.9%	2.9%	19.0%	57.7%	68	5	55	53	97.7
	Riverside-San Bernardino, CA	31.8%	5.7%	20.4%	57.9%	32	51	67	54	98.0
	Memphis, TN	33.4%	6.8%	17.7%	57.9%	50	69	25	55	98.0
	San Diego, CA	31.7%	5.5%	20.7%	58.0%	30	49	69	56	98.2
	Honolulu, HI	32.0%	4.3%	21.7%	58.0%	44	20	73	57	98.2
	Baltimore, MD	34.3%	5.1%	18.7%	58.1%	59	38	50	58	98.3
	Lexington, KY	37.6%	3.4%	17.2%	58.2%	76	8	7	59	98.5
	Seattle, WA	31.5%	6.0%	20.7%	58.2%	26	56	69	60	98.6
	Wichita, KS	35.9%	4.8%	17.5%	58.2%	70	32	17	60	98.6
	Spartanburg, SC	33.3%	7.4%	17.6%	58.3%	49	71	21	62	98.8
	Richmond, VA	35.5%	4.7%	18.4%	58.6%	65	31	42	63	99.3
	Burlington, VT	36.6%	3.9%	18.5%	58.9%	73	12	44	64	99.8
	Portland, OR	36.9%	2.1%	20.4%	59.4%	74	3	65	65	100.5
	Champaign-Urbana, IL	36.2%	5.2%	18.1%	59.4%	71	40	35	66	100.6
	North Virginia, Metro DC	35.4%	5.4%	19.4%	60.2%	64	46	58	67	102.0
	San Francisco, CA	31.3%	6.4%	22.8%	60.5%	25	64	75	68	102.5
	Charleston, WV	34.3%	9.2%	17.2%	60.7%	60	76	8	69	102.8
	New York City, NY	31.6%	8.0%	21.2%	60.8%	28	72	71	70	102.9
	Las Vegas, NV	31.7%	8.7%	20.6%	61.0%	31	75	68	71	103.3
	Los Angeles, CA	31.6%	8.3%	21.2%	61.2%	29	73	72	72	103.6
	Boston, MA	35.3%	6.1%	20.0%	61.4%	63	59	61	73	104.0
	Anchorage, AK	37.6%	2.2%	21.9%	61.7%	75	4	74	74	104.5
	Chicago, IL	35.8%	6.7%	19.6%	62.1%	67	67	60	75	105.2
	Trenton, NJ	35.9%	4.5%	22.8%	63.2%	68	27	76	76	107.0

## Detailed results by city – R&D services

The following table details the overall results for all 111 cities. Within each country, cities are sorted in order of ascending TTI. Rankings are relative to other cities within the same country.

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>R&amp;D services</b>										
Australia	Adelaide	7.9%	7.9%	59.2%	75.0%	4	3	1	1	93.0
	Melbourne	7.1%	6.3%	63.9%	77.2%	2	1	3	2	95.7
	Brisbane	7.3%	8.1%	63.8%	79.1%	3	4	2	3	98.0
	Sydney	6.9%	7.7%	65.0%	79.6%	1	2	4	4	98.6
Canada	Moncton, NB	-21.1%	9.5%	14.1%	2.6%	2	10	2	1	3.2
	Fredericton, NB	-21.1%	9.6%	14.1%	2.7%	2	11	2	2	3.3
	Winnipeg, MB	-30.2%	17.9%	21.0%	8.7%	1	16	14	3	10.8
	Edmonton, AB	-9.2%	6.1%	15.5%	12.4%	7	3	7	4	15.4
	St. John's, NL	-20.0%	15.2%	19.7%	14.9%	4	12	10	5	18.4
	Halifax, NS	-15.8%	16.2%	14.6%	15.1%	5	13	6	6	18.7
	Calgary, AB	-9.5%	9.5%	15.6%	15.6%	6	9	8	7	19.3
	Saskatoon, SK	0.0%	8.8%	14.3%	23.1%	11	7	5	8	28.7
	Barrie, ON	3.1%	4.1%	20.8%	28.0%	15	1	12	9	34.7
	Sault Ste. Marie, ON	3.2%	7.2%	20.7%	31.1%	16	5	11	10	38.5
	Kelowna, BC	0.0%	17.2%	14.0%	31.3%	11	14	1	11	38.7
	Vancouver, BC	0.0%	17.8%	14.1%	31.8%	11	15	2	12	39.4
	Toronto, ON	2.9%	9.0%	21.0%	32.9%	14	8	13	13	40.8
	Quebec City, QC	-5.4%	6.0%	32.5%	33.1%	10	2	15	14	41.0
	Gatineau (National Capital Region), QC	-7.0%	8.4%	34.1%	35.5%	8	6	17	15	43.9
	Charlottetown, PE	18.2%	6.7%	16.8%	41.6%	17	4	9	16	51.6
	Montreal, QC	-6.4%	18.8%	33.5%	45.9%	9	17	16	17	56.8
France	Marseille	-50.5%	20.7%	114.3%	84.5%	2	1	1	1	104.7
	Paris	-54.5%	24.2%	122.0%	91.8%	1	2	2	2	113.7
Germany	Berlin	30.5%	6.0%	54.8%	91.3%	1	1	1	1	113.1
	Frankfurt	32.5%	7.1%	56.2%	95.8%	2	2	2	2	118.7
Italy	Rome	25.6%	14.5%	78.0%	118.1%	2	1	1	1	146.3
	Milan	23.2%	15.5%	81.5%	120.1%	1	2	2	2	148.8
Japan	Osaka	29.6%	12.1%	45.6%	87.4%	1	1	1	1	108.3
	Tokyo	30.4%	17.8%	46.3%	94.4%	2	2	2	2	117.0
Mexico	Monterrey	37.5%	10.8%	19.9%	68.2%	1	1	1	1	84.4
	Mexico City	38.0%	16.4%	21.0%	75.4%	2	2	2	2	93.4
Netherlands	Rotterdam	-6.7%	2.7%	45.7%	41.7%	1	1	1	1	51.6
	Amsterdam	-6.7%	2.8%	45.7%	41.8%	1	2	1	2	51.8
UK	Manchester	0.5%	7.4%	34.0%	41.9%	2	1	1	1	51.9
	London	-2.2%	29.7%	41.2%	68.7%	1	2	2	2	85.1

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>R&amp;D services</b>										
US	Cedar Rapids, IA	16.5%	8.9%	31.9%	57.3%	7	6	14	1	71.0
	Youngstown, OH	20.9%	7.1%	31.1%	59.2%	48	3	1	2	73.3
	Omaha, NE	9.9%	18.6%	31.4%	59.9%	2	61	5	3	74.2
	Albuquerque, NM	10.9%	15.2%	34.8%	60.9%	3	45	55	4	75.4
	Bangor, ME	20.2%	7.8%	33.4%	61.4%	30	4	37	5	76.1
	Cheyenne, WY	20.3%	9.1%	32.2%	61.6%	35	7	19	6	76.3
	Savannah, GA	15.1%	15.0%	32.1%	62.2%	5	44	16	7	77.0
	Atlanta, GA	14.2%	14.3%	33.7%	62.2%	4	39	43	8	77.1
	Honolulu, HI	7.6%	14.3%	40.5%	62.4%	1	39	74	9	77.3
	Detroit, MI	19.6%	9.8%	33.2%	62.5%	22	11	33	10	77.5
	Cincinnati, OH	21.1%	9.7%	31.8%	62.6%	51	10	13	11	77.5
	Saginaw, MI	20.3%	10.9%	31.5%	62.8%	34	19	6	12	77.8
	Tampa, FL	20.5%	9.5%	32.7%	62.8%	40	8	24	12	77.8
	Salt Lake City, UT	20.1%	10.4%	32.7%	63.2%	28	13	24	14	78.3
	Billings, MT	22.8%	6.5%	34.2%	63.5%	72	1	49	15	78.6
	Pittsburgh, PA	20.5%	11.5%	32.2%	64.2%	39	24	17	16	79.5
	Fargo, ND	20.6%	12.6%	31.6%	64.8%	43	30	8	17	80.3
	Philadelphia, PA	19.4%	10.7%	34.7%	64.8%	19	16	54	17	80.3
	Sioux Falls, SD	20.5%	13.2%	31.3%	65.1%	40	32	2	19	80.6
	Orlando, FL	20.5%	11.9%	32.7%	65.1%	40	26	23	20	80.7
	Raleigh, NC	21.1%	10.9%	33.3%	65.2%	50	17	35	21	80.8
	Madison, WI	20.0%	10.9%	34.3%	65.2%	26	18	50	21	80.8
	Boise, ID	21.2%	11.1%	33.0%	65.3%	53	20	28	23	80.8
	Wilmington, DE	21.4%	7.1%	37.1%	65.5%	59	2	64	24	81.2
	Charlotte, NC	21.1%	11.3%	33.2%	65.6%	52	21	34	25	81.3
	Indianapolis, IN	20.1%	14.1%	31.6%	65.8%	29	36	8	26	81.5
	Spokane, WA	20.2%	11.5%	34.1%	65.8%	30	22	48	26	81.5
	Miami, FL	20.3%	12.5%	33.1%	65.9%	35	28	32	28	81.6
	Burlington, VT	21.9%	10.0%	34.1%	65.9%	64	12	46	29	81.7
	Manchester, NH	22.4%	8.8%	34.9%	66.1%	70	5	56	30	81.9
	Gulfport-Biloxi, MS	22.3%	12.2%	31.7%	66.2%	69	27	11	31	82.0
	Cleveland, OH	21.2%	13.5%	32.3%	66.9%	54	33	21	32	82.9
	Phoenix, AZ	19.8%	14.9%	32.2%	66.9%	24	43	20	32	82.9
	Baltimore, MD	21.7%	11.5%	33.9%	67.1%	61	22	44	34	83.1
	Lexington, KY	24.8%	10.6%	32.0%	67.3%	76	14	15	35	83.4
	Baton Rouge, LA	20.4%	14.2%	32.9%	67.4%	37	37	27	36	83.5
	Kansas City, MO	16.6%	17.3%	33.6%	67.5%	8	55	41	37	83.6
	Little Rock, AR	22.2%	14.2%	31.3%	67.7%	68	37	3	38	83.8

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>R&amp;D services</b>										
US	Rochester, NY	20.0%	13.7%	34.5%	68.3%	27	34	52	39	84.5
	Richmond, VA	23.1%	11.9%	33.5%	68.4%	74	25	38	40	84.7
	Jackson, MS	22.5%	14.8%	31.4%	68.7%	71	41	4	41	85.1
	Portland, OR	21.9%	9.6%	37.4%	68.9%	64	9	66	42	85.3
	Nashville, TN	21.9%	15.4%	31.6%	68.9%	62	46	8	43	85.3
	Shreveport, LA	20.9%	17.3%	31.7%	69.9%	47	56	12	44	86.6
	Wichita, KS	21.9%	16.0%	32.2%	70.0%	62	49	17	45	86.7
	Providence, RI	19.4%	13.2%	37.8%	70.3%	19	31	67	46	87.1
	St. Louis, MO	15.7%	20.6%	34.1%	70.4%	6	69	47	47	87.2
	New Orleans, LA	20.2%	16.8%	33.4%	70.4%	30	52	36	48	87.2
	Oklahoma City, OK	22.8%	13.8%	33.9%	70.5%	72	35	44	49	87.3
	Memphis, TN	21.5%	16.7%	32.4%	70.5%	60	51	22	50	87.3
	Sacramento, CA	19.1%	15.6%	36.4%	71.0%	16	47	62	51	88.0
	Minneapolis, MN	19.4%	16.6%	35.1%	71.1%	19	50	57	52	88.0
	Seattle, WA	18.5%	14.8%	37.8%	71.1%	13	41	67	53	88.0
	Montgomery, AL	21.2%	17.0%	33.0%	71.2%	57	54	28	54	88.2
	Champaign-Urbana, IL	21.2%	16.9%	33.6%	71.7%	57	53	40	55	88.8
	Beaumont, TX	20.4%	18.1%	33.5%	72.0%	38	59	39	56	89.2
	Mobile, AL	21.2%	18.3%	33.0%	72.5%	54	60	30	57	89.8
	Charleston, WV	21.2%	19.9%	31.5%	72.7%	56	67	6	58	90.0
	San Antonio, TX	20.8%	19.4%	33.0%	73.2%	45	66	30	59	90.7
	Dallas-Fort Worth, TX	20.3%	18.7%	34.5%	73.4%	33	62	51	60	91.0
	Riverside-San Bernardino, CA	18.9%	18.0%	36.8%	73.6%	15	58	63	61	91.2
	North Virginia, Metro DC	22.0%	15.9%	35.8%	73.7%	66	48	59	62	91.3
	Trenton, NJ	18.3%	12.5%	43.0%	73.8%	11	28	76	63	91.4
	San Diego, CA	18.7%	17.9%	37.3%	73.9%	14	57	65	64	91.5
	Anchorage, AK	24.5%	10.6%	40.5%	75.5%	75	14	73	65	93.6
	Denver, CO	22.1%	18.9%	34.6%	75.6%	67	63	53	66	93.7
	Boston, MA	19.3%	20.6%	36.0%	75.8%	17	68	60	67	93.9
	San Francisco, CA	16.9%	19.2%	41.2%	77.3%	9	65	75	68	95.8
	Hartford, CT	20.8%	19.2%	37.8%	77.8%	45	64	69	69	96.3
	Spartanburg, SC	21.0%	25.5%	32.8%	79.3%	49	73	26	70	98.2
	Houston, TX	19.7%	24.5%	35.6%	79.8%	23	70	58	71	98.9
	Chicago, IL	19.9%	25.2%	36.3%	81.4%	25	72	61	72	100.8
	Los Angeles, CA	18.5%	26.9%	37.9%	83.3%	12	74	70	73	103.2
	Las Vegas, NV	19.3%	25.1%	39.2%	83.6%	18	71	71	74	103.6
	New York City, NY	17.8%	27.4%	39.6%	84.8%	10	75	72	75	105.1
	Austin, TX	20.8%	33.1%	33.6%	87.5%	44	76	42	76	108.4

## Detailed results by city – Corporate services

The following table details the overall results for all 111 cities. Within each country, cities are sorted in order of ascending TTI. Rankings are relative to other cities within the same country.

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Corporate services</b>										
Australia	Adelaide	29.8%	3.1%	57.1%	90.0%	1	2	1	1	105.5
	Melbourne	29.8%	2.8%	61.2%	93.8%	1	1	2	2	110.0
	Brisbane	29.8%	3.5%	61.9%	95.2%	1	3	3	3	111.6
	Sydney	29.8%	3.8%	62.5%	96.1%	1	4	4	4	112.7
Canada	Edmonton, AB	26.7%	2.3%	15.7%	44.6%	9	2	8	1	52.3
	Moncton, NB	26.7%	3.6%	15.0%	45.2%	9	7	2	2	53.0
	Fredericton, NB	26.7%	3.6%	15.0%	45.3%	9	8	3	3	53.1
	Kelowna, BC	21.0%	9.6%	15.2%	45.7%	1	15	4	4	53.6
	Calgary, AB	26.7%	3.7%	15.7%	46.1%	9	9	9	5	54.1
	Vancouver, BC	21.0%	10.9%	15.4%	47.2%	1	17	5	6	55.4
	Saskatoon, SK	26.7%	5.7%	15.6%	47.9%	9	11	6	7	56.2
	Charlottetown, PE	30.6%	2.6%	14.9%	48.1%	16	4	1	8	56.3
	Barrie, ON	26.2%	1.6%	21.6%	49.3%	4	1	13	9	57.8
	Sault Ste. Marie, ON	26.2%	2.7%	21.3%	50.2%	4	5	12	10	58.8
	Halifax, NS	30.6%	5.7%	15.6%	51.9%	16	12	6	11	60.8
	Toronto, ON	26.2%	5.8%	22.1%	54.1%	4	13	14	12	63.4
	St. John's, NL	28.6%	5.2%	20.7%	54.5%	15	10	10	13	63.8
	Winnipeg, MB	26.7%	10.5%	21.2%	58.4%	9	16	11	14	68.4
	Quebec City, QC	26.2%	2.4%	32.0%	60.6%	7	3	15	15	71.1
	Gatineau (National Capital Region), QC	26.2%	3.2%	34.4%	63.8%	7	6	17	16	74.8
	Montreal, QC	21.5%	8.7%	33.6%	63.9%	3	14	16	17	74.9
France	Marseille	33.0%	16.9%	106.4%	156.3%	1	1	1	1	183.2
	Paris	33.0%	19.3%	114.4%	166.7%	1	2	2	2	195.4
Germany	Berlin	30.0%	2.6%	53.6%	86.2%	1	1	1	1	101.1
	Frankfurt	31.9%	3.8%	54.6%	90.4%	2	2	2	2	105.9
Italy	Milan	33.9%	6.9%	78.4%	119.2%	1	1	2	1	139.7
	Rome	36.6%	6.9%	76.2%	119.7%	2	1	1	2	140.3
Japan	Osaka	35.7%	6.0%	42.3%	84.1%	1	1	2	1	98.5
	Tokyo	35.9%	10.1%	41.8%	87.8%	2	2	1	2	102.9
Mexico	Monterrey	36.4%	5.4%	15.9%	57.6%	1	1	1	1	67.6
	Mexico City	36.8%	8.9%	16.9%	62.7%	2	2	2	2	73.4
Netherlands	Rotterdam	24.9%	1.1%	45.3%	71.3%	1	1	1	1	83.6
	Amsterdam	24.9%	1.2%	45.3%	71.5%	1	2	1	2	83.8
UK	Manchester	18.8%	3.5%	28.1%	50.3%	1	1	1	1	59.0
	London	18.8%	15.6%	35.6%	70.0%	1	2	2	2	82.0



Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Corporate services</b>										
US	Omaha, NE	29.5%	10.1%	27.3%	67.0%	1	43	4	1	78.5
	Savannah, GA	33.1%	8.7%	27.4%	69.2%	4	26	5	2	81.1
	Cheyenne, WY	34.6%	6.2%	28.6%	69.5%	7	7	27	3	81.5
	Youngstown, OH	35.9%	7.0%	26.6%	69.6%	33	9	1	4	81.6
	Sioux Falls, SD	34.6%	8.8%	27.2%	70.7%	7	28	2	5	82.9
	Kansas City, MO	30.3%	10.6%	30.0%	71.0%	3	50	48	6	83.2
	Bangor, ME	35.6%	6.0%	29.4%	71.0%	20	6	40	7	83.2
	Saginaw, MI	35.8%	7.6%	27.9%	71.4%	29	14	11	8	83.7
	Tampa, FL	35.5%	7.8%	28.2%	71.5%	16	16	22	9	83.8
	Atlanta, GA	33.1%	8.6%	29.8%	71.6%	4	25	43	10	83.9
	Billings, MT	39.0%	2.6%	30.2%	71.8%	66	1	49	11	84.2
	Orlando, FL	35.5%	8.3%	28.2%	71.9%	16	20	18	12	84.3
	Cedar Rapids, IA	35.7%	8.2%	28.2%	72.1%	28	18	20	13	84.5
	Cincinnati, OH	35.8%	8.1%	28.2%	72.1%	29	17	22	14	84.5
	St. Louis, MO	29.9%	11.7%	30.6%	72.1%	2	61	53	14	84.5
	Fargo, ND	37.4%	7.6%	27.8%	72.8%	46	14	10	16	85.3
	Indianapolis, IN	35.2%	9.3%	28.4%	72.9%	13	35	25	17	85.5
	Pittsburgh, PA	35.7%	8.2%	29.0%	73.0%	26	19	34	18	85.5
	Detroit, MI	36.0%	7.5%	29.6%	73.1%	37	11	42	19	85.6
	Miami, FL	35.5%	9.0%	28.8%	73.3%	16	29	31	20	85.9
	Salt Lake City, UT	35.9%	8.5%	29.0%	73.4%	31	24	33	21	86.0
	Madison, WI	35.5%	7.2%	31.0%	73.8%	19	10	56	22	86.5
	Manchester, NH	38.1%	4.9%	30.8%	73.9%	56	5	55	23	86.6
	Phoenix, AZ	35.2%	10.0%	28.8%	74.0%	12	42	30	24	86.8
	Lexington, KY	40.3%	6.4%	27.6%	74.3%	72	8	6	25	87.1
	Cleveland, OH	35.9%	10.0%	28.4%	74.4%	33	40	26	26	87.1
	Gulfport-Biloxi, MS	37.9%	9.3%	27.6%	74.8%	53	33	8	27	87.7
	Boise, ID	38.9%	7.6%	28.7%	75.1%	64	13	28	28	88.0
	Raleigh, NC	37.3%	8.4%	29.4%	75.1%	43	22	39	28	88.0
	Spokane, WA	34.6%	9.9%	30.6%	75.1%	7	38	53	30	88.0
	Little Rock, AR	37.7%	9.5%	28.1%	75.3%	51	36	16	31	88.2
	Rochester, NY	35.3%	10.1%	29.8%	75.3%	14	43	44	31	88.2
	San Antonio, TX	35.9%	11.4%	28.2%	75.5%	33	58	20	33	88.5
	Albuquerque, NM	34.5%	10.6%	30.5%	75.6%	6	49	51	34	88.6
	Beaumont, TX	35.9%	10.9%	28.8%	75.6%	32	53	29	34	88.6
	Oklahoma City, OK	37.5%	9.1%	29.2%	75.7%	47	32	35	36	88.8
	Charlotte, NC	37.3%	9.0%	29.5%	75.8%	43	29	41	37	88.8
	Richmond, VA	38.3%	8.5%	29.3%	76.1%	57	23	37	38	89.2
	Baton Rouge, LA	38.4%	10.0%	28.0%	76.3%	59	39	12	39	89.4

Country	City	Effective tax rates				Ranks				
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	TTI
<b>Corporate services</b>										
US	Wichita, KS	39.0%	9.3%	28.0%	76.3%	65	34	15	39	89.4
	Jackson, MS	37.9%	10.9%	27.6%	76.4%	53	53	6	41	89.6
	Montgomery, AL	37.6%	10.8%	28.2%	76.6%	49	51	18	42	89.7
	Dallas-Fort Worth, TX	35.9%	10.9%	29.9%	76.7%	33	53	45	43	89.9
	Memphis, TN	36.6%	11.9%	28.3%	76.8%	41	62	24	44	90.0
	Shreveport, LA	38.4%	11.2%	27.3%	76.8%	59	57	3	45	90.0
	Nashville, TN	36.6%	12.4%	28.1%	77.1%	41	64	17	46	90.3
	Mobile, AL	37.6%	11.5%	28.0%	77.1%	49	60	12	47	90.4
	Wilmington, DE	40.3%	4.5%	32.5%	77.2%	72	4	61	48	90.5
	Baltimore, MD	37.7%	9.8%	30.0%	77.5%	52	37	46	49	90.8
	Burlington, VT	40.2%	7.5%	30.0%	77.7%	71	12	47	50	91.1
	New Orleans, LA	38.4%	10.9%	28.9%	78.1%	59	56	32	51	91.6
	Providence, RI	35.4%	10.3%	32.7%	78.4%	15	45	62	52	91.9
	Minneapolis, MN	35.7%	10.5%	32.4%	78.6%	26	48	59	53	92.1
	Philadelphia, PA	38.1%	9.0%	31.5%	78.6%	55	31	57	53	92.1
	Champaign-Urbana, IL	39.7%	10.0%	29.3%	79.0%	68	40	37	55	92.6
	Sacramento, CA	35.6%	10.5%	33.0%	79.1%	20	47	63	56	92.7
	Spartanburg, SC	37.3%	14.0%	28.0%	79.3%	45	70	14	57	92.9
	Portland, OR	41.3%	3.9%	34.2%	79.4%	76	2	68	58	93.0
	Houston, TX	36.0%	13.2%	30.4%	79.6%	38	68	50	59	93.3
	Riverside-San Bernardino, CA	35.6%	10.8%	33.3%	79.7%	20	52	65	60	93.4
	San Diego, CA	35.6%	10.4%	33.7%	79.8%	20	46	66	61	93.5
	Denver, CO	37.6%	11.9%	30.5%	80.0%	48	62	51	62	93.8
	North Virginia, Metro DC	38.3%	11.5%	31.7%	81.5%	57	59	58	63	95.5
	Anchorage, AK	40.7%	4.2%	37.0%	81.8%	75	3	74	64	95.9
	Seattle, WA	34.6%	12.5%	34.7%	81.8%	7	67	71	65	95.9
	Charleston, WV	38.8%	16.1%	27.7%	82.7%	63	73	9	66	96.9
	Austin, TX	36.1%	17.4%	29.2%	82.7%	39	75	36	67	97.0
	Honolulu, HI	38.4%	8.3%	36.5%	83.2%	59	20	73	68	97.5
	Las Vegas, NV	34.6%	15.7%	33.9%	84.3%	7	72	67	69	98.8
	Chicago, IL	39.7%	13.3%	32.4%	85.3%	68	69	60	70	100.0
	Boston, MA	39.8%	12.5%	33.2%	85.5%	70	66	64	71	100.2
	Hartford, CT	39.0%	12.4%	34.2%	85.6%	67	65	68	72	100.3
	Los Angeles, CA	35.6%	16.7%	34.6%	86.9%	20	74	70	73	101.8
	Trenton, NJ	40.4%	8.7%	38.4%	87.5%	74	27	76	74	102.6
	San Francisco, CA	35.6%	15.0%	37.2%	87.9%	20	71	75	75	103.0
	New York City, NY	36.4%	21.1%	34.9%	92.3%	40	76	72	76	108.2

## Detailed results by city – Manufacturing

The following table details the overall results for all 111 cities. Within each country, cities are sorted in order of ascending TTI. Rankings are relative to other cities within the same country.

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Manufacturing</b>										
Australia	Adelaide	26.6%	4.1%	31.1%	61.7%	2	3	1	1	84.4
	Melbourne	26.6%	3.8%	32.9%	63.4%	3	2	2	2	86.6
	Brisbane	26.7%	3.5%	33.8%	64.0%	4	1	4	3	87.5
	Sydney	26.6%	4.9%	33.3%	64.8%	1	4	3	4	88.6
Canada	St. John's, NL	2.5%	9.1%	15.6%	27.2%	1	7	14	1	37.1
	Charlottetown, PE	9.6%	7.0%	11.0%	27.6%	5	4	9	2	37.8
	Fredericton, NB	9.1%	11.2%	10.0%	30.4%	3	12	2	3	41.6
	Moncton, NB	9.2%	11.4%	10.0%	30.6%	4	13	1	4	41.8
	Edmonton, AB	15.2%	5.5%	10.3%	31.0%	12	1	3	5	42.4
	Calgary, AB	15.1%	6.0%	10.4%	31.5%	11	2	4	6	43.1
	Saskatoon, SK	10.1%	11.7%	11.0%	32.7%	6	15	8	7	44.7
	Halifax, NS	12.9%	9.5%	10.8%	33.2%	7	8	7	8	45.4
	Kelowna, BC	15.6%	9.6%	10.5%	35.7%	15	9	5	9	48.8
	Vancouver, BC	15.6%	10.7%	10.6%	37.0%	13	10	6	10	50.5
	Barrie, ON	15.7%	6.8%	14.7%	37.1%	17	3	12	11	50.8
	Toronto, ON	15.6%	8.3%	14.9%	38.8%	14	6	13	12	53.0
	Winnipeg, MB	7.4%	18.6%	13.4%	39.4%	2	17	10	13	53.9
	Sault Ste. Marie, ON	15.7%	12.1%	14.6%	42.3%	16	16	11	14	57.9
	Gatineau (National Capital Region), QC	13.7%	7.7%	21.6%	43.0%	8	5	17	15	58.7
	Quebec City, QC	14.1%	10.9%	20.3%	45.2%	10	11	15	16	61.8
	Montreal, QC	13.9%	11.5%	21.0%	46.4%	9	14	16	17	63.4
France	Marseille	15.7%	14.4%	58.3%	88.4%	2	2	1	1	120.7
	Paris	15.4%	13.1%	61.6%	90.2%	1	1	2	2	123.3
Germany	Berlin	28.6%	5.0%	32.2%	65.8%	1	2	1	1	89.9
	Frankfurt	30.4%	4.0%	32.4%	66.8%	2	1	2	2	91.3
Italy	Milan	20.6%	2.8%	41.7%	65.1%	1	2	2	1	88.9
	Rome	22.7%	2.6%	41.3%	66.5%	2	1	1	2	90.9
Japan	Osaka	31.0%	20.9%	24.3%	76.2%	1	1	2	1	104.1
	Tokyo	31.5%	32.1%	23.0%	86.5%	2	2	1	2	118.3
Mexico	Monterrey	32.3%	1.4%	7.9%	41.6%	1	1	1	1	56.8
	Mexico City	32.5%	3.4%	8.4%	44.3%	2	2	2	2	60.5
Netherlands	Amsterdam	20.0%	1.4%	26.3%	47.7%	1	1	1	1	65.2
	Rotterdam	20.0%	1.5%	26.3%	47.8%	1	2	1	2	65.4
UK	Manchester	13.9%	10.7%	14.7%	39.4%	2	1	1	1	53.8
	London	13.6%	18.6%	18.0%	50.2%	1	2	2	2	68.6

Country	City	Effective tax rates				Ranks				TTI
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	
<b>Manufacturing</b>										
US	Baton Rouge, LA	22.0%	7.4%	17.5%	47.0%	4	3	16	1	64.2
	Shreveport, LA	21.6%	8.5%	16.9%	47.0%	2	6	9	2	64.2
	New Orleans, LA	21.8%	7.9%	18.1%	47.8%	3	5	29	3	65.3
	Omaha, NE	21.3%	10.8%	17.0%	49.1%	1	17	10	4	67.1
	Richmond, VA	26.7%	6.3%	17.6%	50.6%	18	2	22	5	69.1
	Baltimore, MD	26.7%	7.8%	19.0%	53.5%	19	4	44	6	73.1
	Youngstown, OH	27.3%	9.6%	16.8%	53.6%	45	10	7	7	73.3
	Fargo, ND	28.3%	9.6%	16.5%	54.4%	56	11	3	8	74.4
	Cincinnati, OH	27.5%	10.1%	17.1%	54.6%	46	12	12	9	74.7
	Lexington, KY	29.2%	9.0%	16.6%	54.8%	60	7	5	10	74.9
	Savannah, GA	25.1%	12.3%	18.2%	55.6%	8	20	32	11	75.9
	Wilmington, DE	28.4%	5.8%	22.1%	56.3%	57	1	65	12	77.0
	Raleigh, NC	26.8%	11.9%	17.9%	56.5%	32	19	25	13	77.2
	Indianapolis, IN	26.6%	13.7%	16.3%	56.6%	16	27	2	14	77.4
	Montgomery, AL	26.6%	12.8%	18.1%	57.6%	12	23	30	15	78.7
	Atlanta, GA	25.1%	14.0%	18.9%	58.1%	9	30	42	16	79.4
	Wichita, KS	29.4%	10.7%	18.0%	58.2%	62	15	27	17	79.5
	Madison, WI	27.2%	10.7%	20.5%	58.4%	43	16	58	18	79.8
	Charlotte, NC	26.8%	13.8%	18.0%	58.5%	28	28	26	19	80.0
	Manchester, NH	29.8%	9.0%	19.7%	58.6%	64	8	54	20	80.1
	Pittsburgh, PA	27.1%	13.2%	18.4%	58.7%	42	24	37	21	80.3
	Cedar Rapids, IA	26.5%	14.8%	17.5%	58.8%	10	33	16	22	80.4
	Philadelphia, PA	27.2%	12.3%	19.8%	59.2%	43	21	55	23	80.9
	Salt Lake City, UT	28.2%	13.6%	17.6%	59.4%	55	26	21	24	81.1
	Bangor, ME	31.7%	9.1%	18.9%	59.7%	69	9	41	25	81.6
	Cleveland, OH	27.7%	15.0%	17.3%	60.0%	52	34	13	26	82.0
	Nashville, TN	27.6%	14.5%	18.1%	60.1%	48	31	28	27	82.1
	Providence, RI	27.8%	11.3%	21.4%	60.5%	53	18	61	28	82.6
	Burlington, VT	31.1%	10.1%	19.8%	60.9%	68	13	56	29	83.3
	North Virginia, Metro DC	26.7%	15.5%	18.9%	61.1%	23	38	43	30	83.5
	Boise, ID	28.7%	15.1%	17.5%	61.3%	59	35	20	31	83.8
	Billings, MT	30.1%	10.5%	20.8%	61.5%	66	14	59	32	84.0
	Champaign-Urbana, IL	30.0%	12.7%	18.9%	61.6%	65	22	40	33	84.2
	Little Rock, AR	28.0%	17.5%	16.3%	61.8%	54	46	1	34	84.4
	Saginaw, MI	26.9%	17.8%	17.1%	61.8%	37	47	11	35	84.5
	Cheyenne, WY	26.8%	15.7%	19.6%	62.1%	29	39	50	36	84.8
	Orlando, FL	27.6%	17.4%	17.5%	62.6%	50	44	19	37	85.5
	Detroit, MI	26.9%	17.5%	18.2%	62.6%	36	45	34	38	85.5

Country	City	Effective tax rates				Ranks				
		CIT	OCT	SLC	TETR	CIT	OCT	SLC	TETR	TTI
<b>Manufacturing</b>										
US	Sioux Falls, SD	26.7%	19.4%	16.6%	62.6%	24	51	4	39	85.6
	Mobile, AL	26.6%	17.9%	18.3%	62.8%	11	48	36	40	85.8
	Boston, MA	29.5%	13.8%	19.7%	63.0%	63	29	53	41	86.0
	Tampa, FL	27.6%	18.1%	17.5%	63.2%	51	50	16	42	86.3
	Minneapolis, MN	26.9%	14.7%	21.9%	63.5%	34	32	63	43	86.7
	Oklahoma City, OK	27.0%	18.0%	19.4%	64.4%	41	49	48	44	88.0
	Austin, TX	26.7%	19.8%	18.2%	64.7%	22	53	33	45	88.4
	Miami, FL	27.6%	20.1%	17.7%	65.4%	49	54	23	46	89.3
	Spokane, WA	26.9%	19.7%	19.6%	66.1%	33	52	51	47	90.4
	Portland, OR	31.8%	13.4%	21.0%	66.2%	73	25	60	48	90.5
	Gulfport-Biloxi, MS	26.8%	22.6%	17.5%	66.9%	31	61	15	49	91.4
	Chicago, IL	30.2%	17.0%	20.5%	67.7%	67	41	57	50	92.5
	Beaumont, TX	26.6%	22.4%	18.6%	67.7%	17	60	38	51	92.5
	Charleston, WV	26.8%	24.2%	16.8%	67.7%	29	66	8	52	92.5
	Memphis, TN	27.5%	23.0%	18.2%	68.7%	47	63	31	53	93.9
	Houston, TX	26.6%	22.9%	19.3%	68.8%	13	62	47	54	94.1
	Seattle, WA	26.7%	20.5%	21.6%	68.9%	25	55	62	55	94.1
	San Antonio, TX	26.7%	24.9%	17.7%	69.3%	19	67	24	56	94.7
	Trenton, NJ	26.9%	15.4%	27.3%	69.6%	35	37	75	57	95.1
	Anchorage, AK	31.9%	15.2%	23.4%	70.5%	76	36	68	58	96.3
	Dallas-Fort Worth, TX	26.7%	25.1%	18.8%	70.6%	21	68	39	59	96.5
	Las Vegas, NV	26.8%	22.0%	22.1%	70.9%	27	59	64	60	96.8
	Hartford, CT	26.9%	21.1%	23.3%	71.3%	39	58	67	61	97.4
	Denver, CO	29.2%	23.3%	19.2%	71.6%	61	65	45	62	97.9
	Spartanburg, SC	26.6%	26.9%	18.2%	71.8%	13	70	34	63	98.1
	San Diego, CA	31.8%	16.3%	24.7%	72.7%	70	40	72	64	99.4
	Phoenix, AZ	26.6%	29.5%	16.7%	72.9%	15	72	6	65	99.6
	Albuquerque, NM	23.6%	30.1%	19.4%	73.2%	5	74	49	66	100.0
	Riverside-San Bernardino, CA	31.8%	17.2%	24.4%	73.3%	71	42	70	67	100.2
	Sacramento, CA	31.8%	17.3%	24.6%	73.8%	75	43	71	68	100.8
	Jackson, MS	26.7%	30.1%	17.5%	74.3%	26	73	14	69	101.5
	Kansas City, MO	24.6%	31.6%	19.2%	75.4%	7	75	46	70	103.0
	St. Louis, MO	23.7%	32.2%	19.6%	75.5%	6	76	52	71	103.2
	New York City, NY	27.0%	23.1%	26.4%	76.5%	40	64	74	72	104.5
	Rochester, NY	26.9%	28.4%	22.7%	78.0%	38	71	66	73	106.6
	Los Angeles, CA	31.8%	21.0%	25.2%	78.0%	72	56	73	74	106.6
	Honolulu, HI	28.6%	26.7%	23.5%	78.8%	58	69	69	75	107.7
	San Francisco, CA	31.8%	21.0%	27.8%	80.7%	74	57	76	76	110.3

# Appendix B – Our approach

## Calculation of total tax costs

This report uses two separate measures for total tax costs, with both measures incorporating all manner of taxes levied on corporations—broadly speaking, income taxes, capital taxes, sales taxes, property taxes, miscellaneous local business taxes and statutory labor costs (statutory plan costs and other wage-based taxes).

In calculating taxes, the study includes income taxes levied by all levels of government (national, regional and/or local), reflecting specific income tax rules for each jurisdiction (as discussed further in Chapter 3). Other taxes are also calculated according to specific local rules. Labor taxes and other taxes not based on income are calculated to reflect actual business costs in each location, using data on wage rates, real property values and other relevant business cost factors from KPMG's *Competitive Alternatives 2016* comparison of international business costs.

The calculated total tax costs are compared between countries and cities using a Total Tax Index (TTI) for each location. The TTI is a measure of the total taxes paid by corporations in a particular location, calculated as a percentage of total taxes paid by corporations in the US using the following formula:

$$\frac{\text{Total taxes paid by a corporation in this location and industry}}{\text{Total taxes paid by a similar corporation in the US}}$$

To further examine the results of the TTI and to explore the specific tax components that drive these results, this study defines a second measure of total taxes, which expresses tax costs as an effective rate, rather than an index of taxes actually paid. This measure is the Total Effective Tax Rate (TETR), which is calculated as follows.

$$\frac{\text{Total taxes paid by a corporation}}{\text{Standardized net income before income tax}}$$

In the TETR formula, the denominator is a fixed dollar amount for each business operation in all locations—standardized net income before income taxes. This allows income taxes paid to be compared in absolute dollar terms using the TTI. As explained in the Tax Components chapter, the TETR is the sum of the effective rates (net of incentives) for each of corporate income taxes, other corporate taxes and statutory labor costs. This formula produces the TETR, which allows other corporate taxes and statutory labor costs (which are not calculated based on income) to be compared in percentage terms. Rankings obtained using TETR are the same as the rankings for TTI.

Using the formula for TETR, it is possible for it to exceed 100 percent—sometimes by a wide margin. As the table on the following page shows, this does not mean that government taxes are forcing a company into a net loss situation. Because only income taxes are excluded from net income in the denominator, TETR can exceed 100 percent while the company still maintains a positive net income after tax. For example, in France, total tax costs are US\$2.47 million per year as compared to net income before income tax of US\$2.51 million, for a TETR of 98.4 percent. However, the company's net profit after tax is still US\$2.23M. This table also illustrates the calculation of the TTI, with total tax costs in the United States (\$1.81 million) being indexed to 100.0 and total tax costs in France (US\$2.47 million) being 36.6 percent higher, resulting in a TTI of 136.6.

## Interpretation of results

Our analysis is based on cost information collected primarily between July 2015 and January 2016. Taxes reflect tax rates in effect on January 1, 2016 and also incorporate any announced changes at that time to take effect at specified later dates. Tax rates and other tax-related information are also subject to further change as a result of new legislation, judicial decisions and administrative pronouncements. Of course, exchange rates and other cost factors will change over time.

## Additional background

*Competitive Alternatives* represents KPMG's guide to comparing business locations in the NAFTA marketplace, as well as leading mature market countries in Europe and Asia Pacific. With a primary focus on international business costs, the *Competitive Alternatives* report measures the combined impact of 26 significant cost components that are most likely to vary by location, as applied to specific industries and business operations. The *Competitive Alternatives* report also includes secondary comparisons of other factors that influence the competitiveness of international business locations.

The 6-month research program for *Competitive Alternatives* (July 2015 to January 2016) covered 133 cities in the same 10 countries as this report. More than 2,000 individual business scenarios were examined, analyzing more than 50,000 items of data. The basis for the business cost comparisons is the after-tax cost of startup and operation for representative business operations in 19 industries over a 10-year planning horizon. National results are based on the combined results for

two major business centers in each country (or, for the United States, the four largest business centers).

This Focus on Tax study complements the main *Competitive Alternatives* report and expands on the coverage of taxation issues in that study. This study shares much of the same methodology, modeling assumptions and data sources developed for *Competitive Alternatives 2016*. Further information on study methodology and scope, including key modeling assumptions, can be found in the Overview chapter of the *Competitive Alternatives 2016* study report.

Full details of the specific tax rates applied for corporate income tax and other corporate taxes for each jurisdiction can be found in Appendix B of the *Competitive Alternatives 2016* Volume II study report. Full details of data sources used for tax information and the broader business cost factors (such as local wages and property values) that impact this study can be found in Appendix C of the *Competitive Alternatives 2016* Volume II study report. All reports are available from the Downloads section of the study web site: [CompetitiveAlternatives.com](http://CompetitiveAlternatives.com).

Example calculation of total tax index and total effective tax rate based on overall average results <sup>1</sup>			USD\$'000 per annum	
			France	United States
Total revenue <sup>2</sup>			23,163	25,587
All non-tax operating expenses			18,470	22,011
Statutory labour costs	SLC		1,823	618
Other corporate taxes	OCT		364	452
Net income before income tax (standardized) <sup>3</sup>	NIBT		2,506	2,506
Corporate income taxes	CIT		279	735
Net profit after tax			2,227	1,771
Total tax cost	TTC = SLC + OCT + CIT		2,466	1,805
<b>Total tax index</b>	<b>TTI = TTC<sub>x</sub>/TTC<sub>US</sub> × 100</b>		<b>136.6</b>	<b>100.0</b>
Effective rates for:				
Corporate income taxes (net of incentives)	= CIT/NIBT		11.1%	29.3%
Other corporate taxes	= OCT/NIBT		14.5%	18.0%
Statutory labor costs	= SLC/NIBT		72.8%	24.7%
<b>Total effective tax rate</b>	<b>TETR = TTC/NIBT</b>		<b>98.4%</b>	<b>72.0%</b>

1 Average of services sector (7 business operations) and manufacturing sector (12 business operations).

2 Varies by location to maintain standard net income before income tax. This reflects companies being able to charge higher prices for goods and services when located in higher-cost regions. This assumption can be found in some real-world situations, such as higher prices in London, England and/or premium prices that can be obtained for German-made goods.

3 Standardized for all locations to provide a common denominator for measuring taxes not based on income.

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