Costing personal income tax changes: the role of the elasticity of taxable income

The Parliamentary Budget Officer (PBO) supports Parliament by providing economic and financial analysis for the purposes of raising the quality of parliamentary debate and promoting greater budget transparency and accountability.

When fulfilling its mandates, the Office of the Parliamentary Budget Officer is often required to estimate the impact proposed changes to personal income taxes will have on the Government of Canada's revenue. This report provides an overview of the concept of the elasticity of taxable income, which is used to capture behavioural responses to tax changes.

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Summary

When fulfilling its mandates, the Office of the Parliamentary Budget Officer (OPBO) is often required to estimate the impact proposed changes to personal income taxes will have on the Government of Canada's revenue. To capture taxpayers' behavioural responses to these proposed changes, Parliamentary Budget Officer (PBO) uses the concept of the elasticity of taxable income (ETI).

There is a wide range of ETI estimates in the economic literature. For its estimate, PBO uses three different values depending on where taxpayers are located in the income distribution (Table ES-1).

Table ES-1
PBO's ETI value, by federal income tax bracket

Percentile	ETI
Bottom three income tax brackets	0.1
Fourth tax bracket	0.2
Top tax bracket	0.38

Source:
Office of the Parliamentary Budget Officer.

The ETI values PBO chose for its analyses align with the literature and with other organizations that use ETIs to evaluate tax policy. These values may change in the future as new consensus in the literature emerges on the value of the ETI in Canada or important reforms to the personal income tax system lead to different behavioural responses.

Introduction

When fulfilling its mandates, the Office of the Parliamentary Budget Officer (OPBO) is often required to estimate the impact proposed changes to personal income taxes will have on the Government of Canada's revenue. An important step in preparing these estimates is PBO's assumptions on how individuals will change their behaviour in response to the proposed changes to their tax liability. Specifically, when the modifications to the tax system change the marginal tax rates some individuals will face, PBO relies on the concept of the elasticity of taxable income (ETI) to quantify how these same individuals will—in aggregate—adjust their taxable income in response to the tax change. Therefore, the concept of ETI plays a crucial role in evaluating the effect of personal income tax policy changes.

What does the ETI measure?

A simple model

The easiest way to conceptualize the ETI is to consider the simple case in which an individual chooses how many hours of work to supply (labour supply). This labour supply at a given wage will be their only source of income. We can make a further assumption that this choice of labour supply is determined only by the hourly wage and the marginal tax rate τ the individual faces. The marginal tax rate corresponds to the amount of additional tax an individual would face if they increased their income by one dollar, and it usually increases with income because of the progressive rate structure. Specifically, their choice is determined by the net-of-tax rate $1 - \tau$, as this is what is left in their pocket from earning the extra dollar. The choice of labour supply leads the individual to earn z in taxable income.

The concept of the ETI is defined as the percentage change in taxable income with respect to a 1 per cent change in the net-of-tax rate; algebraically, this can be written as

$$\varepsilon \equiv \frac{\Delta z}{\Delta(1 - \tau)} \frac{1 - \tau}{z},$$

where Δz represents the change in taxable income. The ETI may vary across individuals and by income and occupation. Furthermore, there is no reason why it would remain constant throughout one's life.

In this simple framework, the elasticity captures the change in income derived from the change in working hours the individual is willing to supply with respect to a change in the marginal tax rate.[1] Empirical estimates of the ETI are usually positive, meaning that a decrease in the net-of-tax rate—i.e., an increase in the marginal tax rate—will lead to a decrease in the number of hours supplied at a given wage and, as a result, a decrease in taxable income. However, the concept of the ETI generalizes the idea of responding to tax changes with a change in labour hours to incorporate additional responses that modify taxable income. There are many ways in which an individual could respond to a change in the tax system beyond reducing their working hours, which will impact taxable income reported. These responses will be captured in the estimates of the ETI.

How does PBO use the concept of ETI?

The concept of ETI is useful to PBO, as it allows us to quantify the response of Canadians to changes to the tax system.[2]

To illustrate how PBO applies the concept of ETI, consider the hypothetical case—in our simplified framework—where the federal government proposes a small tax increase $\Delta\tau$ for every individual earning more than \$500,000 from the original top federal tax bracket of τ^{Fed}.[3] The effect on income tax revenue R can be broken down into two parts: the mechanical effect ΔM and the behavioural effect ΔB. The mechanical effect is the amount the government would be able to collect if the individuals did not react to the tax change, i.e., the current tax base multiplied by the extra marginal tax on incomes above \$500,000. This results in the number of individuals N earning above \$500,000 (z^*) times the average amount of taxable income above \$500,000 multiplied by the change in tax $\Delta\tau$. The behavioural effect is the change in taxes collected as a result of individuals modifying their choices in response to the rate change, i.e., the average change in taxable income $\Delta\bar{z}$ of the N individuals who earn above \$500,000 multiplied by the new tax rate at the federal level $\tau^{Fed} + \Delta\tau$. The total change in income tax revenue ΔR can be expressed more succinctly with the following expression:

$$\Delta R = \underbrace{N \times [\bar{z} - z^*] \times \Delta\tau}_{\Delta M} + \underbrace{N \times (\tau^{Fed} + \Delta\tau) \times \Delta\bar{z}}_{\Delta B},$$

where $\bar{z} - z^*$ represents the average taxable earnings of those making over \$500,000, minus \$500,000, which is taxed at a different rate.

The ETI concept is useful because it gives a value to $\Delta\bar{z}$ by rearranging the ETI formula to obtain the behavioural effect of the tax change as a function of the ETI:

$$\Delta B = -N \times (\tau\^{}Fed + \Delta\tau) \times \varepsilon \times \bar{z} \times \Delta\tau/(1 - \tau).\text{[4,5]}$$

To demonstrate the importance of the magnitude of the ETI on the size of the behavioural effect, consider a stylized example of the same reform proposed above using Statistics Canada's Social Policy Simulation Database and Model (SPSD/M) for the year 2024. For simplicity, let the tax reform $\Delta\tau = 0.01$, which means it adds one percentage point to the top federal tax rate $\tau^{Fed} = 0.33$ in 2024. In SPSD/M, the number of individuals with taxable income over \$500,000 is roughly 106,000, and their average taxable income is about \$1.187 million. Because individuals consider the total marginal tax rate when making their labour decision, provincial taxes must also be included in the calculation. For this example, let the marginal tax rate for the individuals facing the tax reform be 50.5 per cent, implying a net-of-tax rate $(1 - \tau) = 0.495$.

Table 1
Impact of the magnitude of the ETI on revenue changes from a tax reform that creates a new tax bracket

Elasticity	Mechanical effect ($millions)	Behavioural effect ($millions)	Total revenue collected ($millions)
0	731	-	731
0.25	731	-212	519
0.5	731	-424	307
0.75	731	-635	95
1	731	-847	-116

Source:
Office of the Parliamentary Budget Officer.
PBO's own calculation using the data extracted from SPSDM 30.2 (rounded to the nearest million).

Note:
The results shown in this table were derived from an illustrative example that ignores many complications, including the use of the alternative minimum tax. Furthermore, SPSD/M does not have a representative dataset for very high earners. Therefore, the values in this table should not be viewed as a proper costing, as they could differ significantly from a costing exercise using all the provisions of the income tax and all available data.

Table 1 shows the results of using the values of the tax change example and inserting them into the above formulas, with each row presenting the result of a different value for the ETI.[6] As the table shows, a higher ETI reduces the total amount of revenue collected from the tax reform because of an ever-increasing behavioural response. In fact, the behavioural response—captured by the ETI value—can be high enough for a tax increase to lead to a loss in tax revenue.

There is a point—for a given set of circumstances captured by the ETI—at which increasing the marginal tax rate further would lead to a decrease in tax revenue. This point is the revenue-maximizing tax rate, and it is a function of the design of the tax and the ETI at the income threshold where the tax is applied.[7] Simply put, there will be a different revenue-maximizing tax rate depending on the ETI. For example, if the marginal tax rate is above this point, a tax increase will lead to a decrease in tax revenue, while a tax decrease will lead to an increase in tax revenue.[8] The revenue-maximizing rate increases as the ETI decreases and vice versa.

A tax reform targeting a lower tax bracket would work in a similar way. However, there is a difference between the two cases. When changing a tax rate in a lower tax bracket, the

change will also affect the tax burden of all individuals with a taxable income greater than the upper threshold of that tax bracket. For example, consider a tax reform where the tax rate of 20.5 per cent for the second bracket is lowered to 19.5 per cent. The change in revenue will again be composed of a mechanical effect and a behavioural effect. The behavioural effect is similar to that in the top tax reform example above, but only those earning income that places them in the second tax bracket would adjust their behaviour, as the decrease in the tax rate changes the incentive of earning a little bit more.[9] For those with taxable income above the upper threshold of the second bracket, there is no change in the incentive to earn one more dollar, as their marginal tax rate remains the same. The tax change leads only to a decrease in their total tax burden equal to the difference between the bottom and top thresholds of the second bracket multiplied by the decrease in the tax rate. This implies that, in 2024, this tax change would reduce the tax burden of everyone with a taxable income above $111,733 by about $559.

Table 2
Impact of the magnitude of the ETI on revenue changes from a tax reform targeting the second federal tax rate

Elasticity	Mechanical effect ($millions)	Behavioural effect ($millions)	Total revenue collected ($millions)
0	-3,407	-	-3,407
0.25	-3,407	514	-2,893
0.5	-3,407	1,027	-2,380
0.75	-3,407	1,541	-1,867
1	-3,407	2,054	-1,353

Source:
Office of the Parliamentary Budget Officer.
PBO's own calculation using SPSD/M 30.2 (rounded to nearest million).

Note:
The results shown in this table were derived from an illustrative example that ignores many complications. Therefore, the values in this table should not be viewed as a proper costing.

Even with large behavioural responses, the reform would be expected to lead to a loss in revenue. Despite the large number of taxpayers in the second bracket, the increase in income tax resulting from the behavioural response of these taxpayers is not enough to compensate for the reduction in the tax burden of $559 for the roughly 3 million taxpayers with a taxable income above $111,733.[10]

Lastly, it is important to note that the behavioural responses predicted using the ETI are useful when the proposed tax reforms are small. For larger reforms, they may overstate or understate the actual change in behaviour, which may not be well captured by the ETI.

Is this the whole story?

Other ways to respond to income tax changes

The model presented earlier makes the strong assumption that individuals react only through a change in their choice of working hours. This takes away from the fact that individuals can react to changes in the marginal tax rate they face in many ways.

In some cases, individuals can try avoiding income tax by shifting taxable salary to other types of compensation, untaxed fringe benefits or other schemes. Some can also shift assets to lower-tax jurisdictions or—in some cases—engage in outright tax evasion. This behaviour is not limited to assets, an individual may decide to move to a lower-tax jurisdiction. If tax increases are announced in advance, individuals can shift income forward. For example, individuals could accelerate the realization of capital gains before a tax increase, exercise their stock options or increase dividend payments from companies they control. Tax changes could also lead some individuals to use deductions they may not have used previously. Many of the possible responses to income tax changes are available primarily to wealthy individuals, which means the ETI for those taxpayers is usually higher than those with fewer options to adjust their income.

In many of these cases, the concept of ETI will capture the total behavioural response and can be used to estimate the revenue changes.[11] However, some responses can lead to fiscal externalities, i.e., some of the income shifted will be captured by other tax instruments. For example, some business owners may be able to shift income to their company where the income will be taxed through the corporate income tax. Therefore, when determining revenue changes, the analysis will need to rely on more than just the ETI. Furthermore, because revenue can be collected by other means— i.e., other tax instruments or tax audits—the calculation used to determine the cost to the government of raising an extra dollar must also be modified.

Long-term responses to a change in tax burden

The above examples of behavioural adjustments are relatively short-term responses. Income tax changes—especially large ones—could also lead to long-term responses that affect revenue generation further in the future. For example, an individual may decide to alter their career plans, not pursue promotions or change their educational choices. All these would impact their future ability to generate labour income. They could also impact savings and investment decisions, which would lead to a change in future investment income. A higher tax rate could discourage savings, leading to lower capital gains income in the future. If the tax system is not well integrated between the individual and corporate streams, a change to individual income tax rates may—for example—lead to more incorporations.

The impact of these behavioural changes to the income tax base could take years to manifest. If the interest is in the long-run viability of public finances, these long-run responses become important. Unfortunately, long-term responses are "challenging to estimate and there is no consensus on plausible magnitudes" (Kleven et al. 2024). As PBO's costings usually cover a projection period of only five years, long-term responses are generally not considered.

What ETI value should be used?

Estimates in the academic literature

There is now a large empirical literature devoted to estimating the elasticity of taxable income with respect to a change in the marginal tax rate. The literature varies in empirical approaches, countries and estimated ETIs. Given the large heterogeneity of tax rules at any given time in different countries, there is a wide range of estimates in the literature, even when using similar empirical methodologies.

However, the literature on the ETI in Canada is relatively limited. In its Tax Expenditures and Evaluations 2010 report, the Department of Finance found that the ETI is roughly 0.2 for taxpayers in the top 10 per cent of taxable income. This result is similar to the overall ETI of 0.2 in the Canadian studies surveyed in the same report. However, for taxpayers in higher-income groups, they find an ETI of roughly 0.3 for taxpayers in the top 5 per cent and from 0.62 to 0.72 for taxpayers in the top 1 per cent. Not everyone in the top 10 per cent has an ETI of 0.2, as this represents the average responsiveness of those in this income range. Therefore, those in the 91st percentile of the income distribution most likely have an ETI lower than 0.2.

Milligan and Smart (2015) examined the responsiveness to taxation of high earners in Canada and found a lower ETI— of roughly 0.02—for the top 10 per cent, although their estimate is not statistically significant, meaning that they cannot reject the hypothesis that the ETI is 0. For individuals in the top 5 per cent and 1 per cent, they found an ETI of about 0.2 and 0.69, respectively. It is important to note that Milligan and Smart (2015) used provincial-level variation to estimate the ETI, implying that interprovincial income shifting would be captured in the estimate. This would point toward a smaller ETI for any federal tax change, as interprovincial income shifting has no impact on the federal tax base.

Like the Department of Finance (2010), Milligan and Smart (2015) found that taxpayers higher up in the income distribution had higher ETIs. There are several factors that explain this finding, including the type of income high-income individuals receive (e.g., investment income vs. employment income), but also the means to enact tax-planning strategies.

In more recent work, Smart (2023) examined the responsiveness of high-income Canadian taxpayers to the introduction of a new federal top tax rate of 33 per cent for incomes over $200,000 in 2016. The paper's preferred approach measures the behavioural response in the third year after the tax change to better isolate the true response to the tax increase beyond the retiming of income in anticipation of the change as observed in 2015 and 2016. Smart (2023) found a medium-term ETI of 0.21 for the top 1 per cent of income, excluding capital gains. In a slightly different specification of the model, the ETI is roughly 0.24 for the top 0.9 per cent and roughly 0.8 for the top 0.1 per cent. Again, we see the ETI increases with income, even among those with very high incomes.

Because most of the recent evidence of the magnitude of the ETI in Canada is at the top of the income distribution, looking at international findings for the ETI in other countries and other parts of the income distribution may shed some light on the magnitude of the response to taxes for low- to middle-income taxpayers in Canada. Because most of the taxable income of individual taxpayers at the middle- to low-end of the distribution comes from employment income, their response to taxation could be viewed as coming from a change in their labour supply. When talking about the labour supply elasticity with respect to the marginal tax rate in an influential survey paper, Saez, Slemrod and Giertz (2012) state that "the [economics] profession has settled on a value for this elasticity close to zero." In accordance with this statement, a recent study by Jakobsen and Søgaard (2022) found an ETI of 0.1 in the middle of the income distribution using a Danish tax reform from 2009 to 2010.[12] Using a different tax reform in 2004 in Denmark, they found an ETI of 0 for the middle of the income distribution, although they caution about the validity of their method when applied to this particular reform.

Saez (2010), using discrete jumps in the marginal tax rate—also known as kink points—, induced by the Earned Income Tax Credit (EITC) in the United States, found that at the bottom of the income distribution the elasticity of reported income with respect to the net-of-tax rate is around 0.25. The behavioural response seems to stem primarily from self-employed workers for whom the paper finds a large elasticity, of around 1.[13] EITC recipients only earning wages have an elasticity of around 0. The author speculated that this points to an income reporting response rather than a labour supply response.[14]

ETI values used by other independent fiscal institutions

PBO is not the only independent fiscal institution (IFI) to use the ETI concept to capture individuals' behavioural response to tax reforms. Although not all IFIs incorporate

behavioural responses into their evaluations of proposed policies, many of them do. For example, the United States' Joint Committee on Taxation (JCT)—in their 2015 document explaining their Individual Tax Model—explained that they use a series of ETIs that vary by income group.[15] Although the JCT does not publish the magnitude of the ETIs used in their model, the Tax Policy Center of the Urban Institute and Brookings Institution (2022) found revenue estimates similar to those of the JCT when using an ETI that increases with income and reaches 0.2 to 0.25 in the top 0.1 per cent of the income distribution.

The Australian Parliamentary Budget Office (2020) uses an ETI of 0.2 for individuals in the top bracket ($180,000 AUD in 2020) and an ETI of 0 for individuals below this income threshold.[16]

In the Netherlands, the Centraal Planbureau (2024) incorporates behavioural responses only to tax reforms that target some individuals in the top tax bracket (taxable income above €120,000) by reducing the revenue raised by a tax increase by 50 per cent.[17] There were no behavioural responses applied to income tax reforms targeting taxpayers below that threshold.

In a published briefing paper (OBR 2014), the United Kingdom's Office for Budget Responsibility (OBR) exposed a more complex approach to behavioural impacts of tax reforms. They proposed an ETI of 0 for lower incomes, 0.03 for incomes higher up in the distribution and 0.45 for top earners. In a more recent costing of two measures in the 2024 Scottish Budget (OBR 2024), an ETI of 0.05 was used for taxable income between £50,000 and £60,000. The ETI slowly increased and reached 0.25 for taxable income between £100,000 and £124,000. Lastly, it increased more rapidly and ended with an ETI of 0.5 for individuals with taxable income above £150,000.

PBO's ETI values

When asked to estimate the impact changes to the federal personal income tax would have on federal revenue, PBO incorporates a behavioural response to the proposed reform. For example, PBO's Ready Reckoner tool will use an ETI to measure a response to taxation for all changes to marginal tax rates or tax-bracket thresholds. Table 2 reports the ETI values used in reports and in our tools (PBO 2016), with the addition of an ETI of 0.2 for the fourth bracket.[18] The ETIs used—as found in the literature—increase with taxable income to capture the ability of higher-income individuals to respond to tax reforms. The magnitude of PBO' ETIs and having the ETI increasing with income mirrors what is done in other countries.

Table 3
PBO's ETI value, by federal income tax bracket

Percentile	ETI
Bottom three income tax brackets	0.1
Fourth tax bracket	0.2
Top tax bracket	0.38

Source:
Office of the Parliamentary Budget Officer.

The ETI value for much of the taxable income distribution is 0.1, which reflects the empirical finding that most individuals appear to react very little to changes in the marginal income tax rate. Nonetheless, even with a low ETI, the behavioural impact of the tax reform can be substantial, as many individuals could be impacted. Furthermore, with high effective marginal tax rates—as observed in some provinces in particular parts of the distribution (Laurin and Dahir 2022)—tax reforms that lead to a decrease in the marginal tax rate for these individuals will have their budgetary impact mitigated by the behavioural response. This is because the behavioural effect (individuals increasing their taxable income) should be more significant the higher the prereform marginal tax rate is. In addition, at the lower end of the distribution, the decision to work or not could be the important margin of decision for many individuals. One of the key factors for this decision is the participation tax rate, or the fraction of earnings taxed when the individual goes from not working and earning zero to working and earning a certain level of income. This latter margin is not covered by the ETI concept but is sometimes taken into consideration in PBO analyses, e.g., PBO (2021).

Conclusion

As illustrated in this report, the ETI is a key concept used in evaluating the revenue impacts of changes to the personal income tax system. By capturing how individuals respond to tax changes, the ETI will determine the expected amount of tax revenue lost or gained from taxpayers' behavioural responses. There is unfortunately no consensus on the value of the ETI in Canada or even abroad. Empirical evidence seems to point to a low ETI for much of the income distribution. This changes at the top of the distribution as income types diversify, thereby giving taxpayers more options for responding to changes in taxation. Even among high earners, the ability to respond to taxation increases significantly at the very top of the distribution, leading to higher ETIs for the top 0.1 per cent of earners.

The ETI values PBO uses for its analyses reflect these findings. Their magnitudes align with the literature and with other organizations that use ETIs to evaluate tax policy. As more research into the behaviour of Canadians with respect to personal income tax becomes available and forms a new consensus on the magnitude of the ETI, PBO will adjust the values used in its analyses accordingly. Furthermore, personal income tax policy reforms or enforcement changes could lead PBO to adjust its ETI values in the future.

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Notes

[1] Individuals could decide to leave the labour force in reaction to a tax increase. This response is said to be on the extensive (participation) margin, where the choice is between working and not working.

[2] However, this concept can be useful for Parliamentarians beyond this application. In a simplified framework, it can be used to gain insight on the costs of raising revenue, for example, the marginal excess burden per dollar of extra taxes collected, in addition to determining at which point a tax increase would stop yielding additional tax revenue.

[3] This is like creating a new tax bracket for everyone earning over $500,000 of taxable income.

[4] This formula can be obtained by inverting the ETI formula to obtain $\Delta z = \varepsilon \cdot z \cdot \Delta(1 - \tau)/(1 - \tau)$, then using the fact that $\Delta(1 - \tau) = -\Delta\tau$ and replacing the $\Delta\bar{z}$ in the equation of the mechanical effect. It is important to note that this step requires assuming that the ETI used is the aggregate elasticity that is equal to the average of the individual elasticities weighted by individual income (Saez, Slemrod and Giertz 2012).

[5] Using these expressions, it is possible to obtain some other useful metrics, such as the percentage of tax revenue lost from the behavioural effects $-\Delta B/\Delta M$, but also the marginal excess burden per dollar of extra taxes collected $-\Delta B/\Delta R$. As explained in Saez, Slemrod and Giertz (2012), the marginal excess burden per dollar of extra taxes collected $(-\Delta B/\Delta R)$ can be viewed as the extra cost the government imposes for each extra dollar of taxes raised. It is important to note that the interpretation of the formula as the marginal excess burden is valid if the income effects are assumed away.

[6] This is not a costing of the measure used in the example. This exercise abstracts from factors that would need to be considered in a normal costing. These abstractions are made for demonstrative reasons, to make this complex subject more approachable.

[7] In a federal context, assuming a single province with a given marginal tax rate of τ^p imposed on the same bracket of income, the top bracket revenue-maximizing federal tax rate would be

$$\tau^{Fed*} = \frac{1 - \tau^p}{1 + \varepsilon \frac{\bar{z}}{\bar{z} - z^*}}.$$

This is the marginal tax rate that would maximize the federal income tax revenue of the top income bracket, which starts at z^*, given the existing provincial tax rate τ^p.

[8] When decreasing the tax rate, tax revenue will increase only up to a certain point. Depending on how high above the revenue-maximizing tax rate the rate was initially, reducing it below the revenue-maximizing rate may start reducing tax revenue.

[9] This is true when ignoring the income effect of the tax rate change, which is usually done in practice.

[10] The total revenue change to the government can be expressed—stylistically—by

$$\Delta R = \underbrace{(N \times [\bar{z} - z^L] \times \Delta\tau) + (\tilde{N} \times [z^U - z^L] \times \Delta\tau)}_{\Delta M} + \underbrace{N \times (\tau^{Fed} + \Delta\tau) \times \Delta\bar{z}}_{\Delta B},$$

where N is the number of taxpayers in the second bracket, $\bar{z}$ is the average taxable income of earners in the second bracket, $\tilde{N}$ is the number of taxpayers with taxable income above the second bracket's upper threshold z^U and z^L is the second bracket's lower-income threshold.

[11] The ETI does not capture the response to participate in the labour force or not.

[12] They also found an ETI of 0.5 for taxpayers at the top of the distribution using the same tax reform.

[13] Bertanha, McCallum and Seegert (2023)—using a similar but modified bunching methodology—revisited the bunching at the kinks the EITC created and found an ETI of around 0.3 for all taxpayers and of around 0.8 for the self-employed.

[14] There is quite a large body of literature on measuring the ETI in the United States. Saez (2010) focused on a specific area of the income distribution to infer their measure of the elasticity of reported earnings, which is not the ETI necessarily, but is indicative of the ETI's value. A more recent paper by Kumar and Liang (2020) that used a dataset for 1979 to 1990 found an estimated weighted average ETI of 0.57. The paper used all tax reforms both at the federal and state levels from 1979 to 1990 to obtain their estimate.

[15] The Joint Committee on Taxation (JCT) is not an independent fiscal institution per se, as it is the Congressional Budget Office (CBO) that serves in this capacity in the United

States. However, costings of tax measures are generally the responsibility of the JCT and not the CBO.

[16] In 2024, the threshold of $180,000 AUD of taxable income would be income that is above the 95th percentile of $169,151 AUD (Grattan 2024).

[17] In 2023 in the Netherlands, the top tax bracket for box 1 income (employment and self-employment income and deemed income from a primary residence) started at €73,031, so they do not apply behavioural responses to all individuals facing the top tax rate. Profits from a substantial shareholding are included in box 2 income, while deemed income from investments is included in box 3 income, both of which have different tax rates and for which they apply different behavioural responses.

[18] PBO (2019) reported an implicit ETI of 0.47 for individuals with taxable incomes between $45,282 and $90,563 and an implicit short-run ETI of 0 for individuals with taxable incomes over $197,000. These are nonstatistical derivations of the ETI with the aim of highlighting the potential impacts of the tax reforms that were announced in December 2015 and took effect on January 1, 2016. As mentioned in the report, the derived ETIs of the middle and top incomes were higher and lower, respectively, than what was assumed in PBO's 2016 report. Neither the middle nor the high income ETIs derived in this report were used to obtain behavioural responses to changes in tax policy.