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CHILE

TECHNICAL ASSISTANCE REPORT—ASSESSMENT OF TAX EXPENDITURES AND CORRECTIVE TAXES

November 2020

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CHILE

Tax Expenditures and Corrective Taxes in Chile: A joint IMF/OECD Assessment

Bert Brys, Ruud de Mooij, Gioia de Melo, Shafik Hebous, Sean Kennedy, Roberto Schatan, and Charles Vellutini

Technical Assistance Report
October 2020

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ACRONYMS

ABV	Alcohol by Volume
ASF	Ad Valorem with Specific Floor Taxation
CFC	Combined Federal Campaign
CHP	Chilean Peso
CIT	Corporate Income Tax
CNE	Comisión Nacional de Energía
CNG	Compressed Natural Gas
DFL2	Decreto con Fuerza de Ley 2
ENAP	Empresa Nacional de Petróleo
FAD	Fiscal Affairs Department
GDP	Gross Domestic Product
HED	Heavy Episodic Drinking
HTP	Heated Tobacco Products
IEA	International Energy Agency
IMF	International Monetary Fund
ITL	Income Tax Law
LPG	Liquified Petroleum Gas
OECD	Organisation for Economic Co-operation and Development
NPV	Net Present Value
PIT	Personal Income Tax
R&D	Research and Development
SII	Servicio de Impuestos Internos
SME	Small and Medium-Sized Enterprises
TE	Tax Expenditure
USEIA	United States Energy Information Administration
UF	Unidad de Fomento
UTA	Annual Tax Unit (1 UTA is approximately $608.088)
UTM	Unidad Tributaria Mensual
VAT	Value Added Tax
WHO	World Health Organization

PREFACE

In response to a request from Mr. Ignacio Briones Rojas, Minister of Finance of Chile, a remote mission was conducted by a joint team of staff from the International Monetary Fund (IMF) and the secretariat of the Organisation for Economic Co-operation and Development (OECD) during April – October 2020. The mission's main purpose was to assist the Minister of Finance with technical support to review Chile's tax expenditure methodology and its corrective excise taxes. The present report reflects the findings of the mission. This report was written jointly by the IMF and the OECD, with the IMF team leading the work assessing tax expenditures in the corporate income tax (CIT) and the analysis of excises, and the OECD team leading the work assessing tax expenditures in the personal income tax (PIT) and value added tax (VAT). A presentation of the main findings was given to the Minister of Finance on October 6, 2020. The report incorporates comments provided by the Ministry and the Chilean Revenue Administration.

The IMF-team was led by Mr. Ruud De Mooij, (Division Chief, Tax Policy Division, Fiscal Affairs Department (FAD)), and included Mr. Shafik Hebous, Mr. Roberto Schatan and Mr. Charles Vellutini (all Tax Policy Division, FAD). The OECD team was led by Mr. Bert Brys (Head of Country Tax Policy Team, Centre for Tax Policy and Administration (CTPA)) and included Ms. Gioia de Melo and Mr. Sean Kennedy (both CTPA).

The team is grateful for many productive remote meetings held with the staff of Ministry of Finance and the Revenue Administration, with special thanks to Mr. Manuel Alcalde, Mr. Claudio Agostini, Ms. María Luisa Marraccini, and Ms. Javiera Suazo (all Ministry of Finance), Ms. Danae Chandia, Mr. Francisco Henriquez, Ms. Sandra Luckeheide, Mr. Francisco Montes, and Mr. Carlos Recabarren, (all Revenue Administration).

The OECD team wishes to thank also Mr. Alastair Thomas (CTPA) for input on VAT exemptions as well as Mr. Piet Battiau, Mr. Stéphane Buydens, Ms. Dimitra Koulouri, and Mr. Eduardo Jimenez from the VAT unit (CTPA), and Ms. Luisa Dressler and Mr. Kurt Van Dender from the Tax and the Environment Unit (CTPA).

KEY FINDINGS AND RECOMMENDATIONS

Tax Expenditure Assessment

Chile follows international best practice in fiscal management by calculating the tax revenue foregone from a wide range of Tax Expenditures (TEs) and presenting these to Congress on an annual basis. Overall, the methodology applied by the tax administration (Servicio de Impuestos Internos, SII) to calculate TEs is aligned with practices in other OECD countries. Yet, the joint IMF-OECD mission has identified scope for improvement and recommends that Chile:

- ***Defines more explicitly a benchmark tax system*** against which to assess TEs. This report proposes a TE benchmark for the current tax regime (2020 onwards) that, for the income tax, combines a pure conceptual approach with a more pragmatic approach based on current tax law. The small business transparent regime and the partial dividend imputation regime are part of the benchmark, while the preferential regime for small firms is not.

- ***Improves the quality of data*** used in TE estimations. A lack of data has been identified as a key obstacle to appropriate TE measurement in, for example, Free Trade Zones, capital gains on shares listed on the Chilean stock market, business income taxed under the presumptive regimes, rental income from DFL2 property and life insurance policies, among others.

- ***Provides a complete list of TEs and strengthens the TE calculation methodology of certain items.*** The TE assessment could be gradually expanded beyond the scope of the corporate income tax (CIT), personal income tax (PIT) and value-added tax (VAT). While the TE methodology used by the SII was mostly found to be appropriate and accurate, some estimates could be enhanced—and a proposed methodology has been tested in preparing this report using an anonymized sample of tax returns of businesses and individuals in Chile.

- ***Forms a Working Group*** with members of the SII and Ministry of Finance (MOF) that continues developing and improving the TE calculation methodology over time.

A newly defined benchmark tax system proposed in this report will have implications for the TE assessment. For instance, some provisions would no longer qualify as TEs, whereas new items will be added. More specifically:

- All CIT TEs are estimated considering the partial dividend imputation regime as the benchmark. The reduced CIT rate and the full (rather than partial) imputation credit in the SME regime are qualified as TEs.

- In the PIT, items that no longer qualify as a TE include the deferral of tax liability due to retained business profits and the deduction of mandatory "social" contributions linked to pensions, health and unemployment. The deduction of voluntary pension contributions as well as the non-taxation of the return on voluntary savings that accumulate within the privately managed fund are qualified as TEs.

Qualifying a tax provision as a TE differs from an assessment of its desirability, which will require a more complete analysis of the costs and benefits. Moreover, discussions about tax policy reform go well beyond the list of TEs and include the structural features of the tax system, i.e. those that are part of the benchmark tax system. Such discussions go beyond the scope of this report.

Excises

The report finds that there is room in Chile for improvement in the design of excise taxes, and revenue could be expanded once the economic conditions permit. While each excise raises different policy challenges, the main recommendations are:

- When the economic conditions turn more stable, fuel excises can be strengthened by increasing tax rates (most notably on diesel), rationalizing tax credits to trucking companies, broadening the VAT base to include the excise tax, increasing the green tax on CO2 emissions, and including kerosene in the tax base (while addressing equity concerns through complementary measures).

- The structure of alcohol excises could be improved by introducing a specific (alcohol-content related) tax floor; rates on selected products could be increased as the circumstances allow.

- There is little scope to increase tobacco excises, although the base could be expanded to cover novel products (such as e-cigarettes) and administrative controls against contraband could be strengthened.

- Consideration could be given to explore an expansion of the current tax on sugary drinks to other products with high sugar content.

EXECUTIVE SUMMARY

The IMF and the OECD received a request from the Chilean Minister of Finance to provide an assessment of Chile's tax expenditure (TE) methodology and practice and its corrective excises. A team of IMF and OECD staff prepared this joint report and presented it to the Minister of Finance. The report concludes that Chile follows international best practice by calculating the tax revenue foregone from a wide range of TEs and presenting these to Congress on an annual basis. The methodology applied by the SII to calculate TEs is broadly aligned with international practice, although there remains scope for improvement. This report defines a more explicit TE benchmark for the income tax in Chile and uses it to provide an assessment on an item-by-item basis of corporate and personal income tax expenditures. It also recommends collecting more and better data to further improve the assessment. The report includes a brief section on TEs within the VAT. A separate chapter discusses excise duties in Chile and provides options to improve their design and enhance their revenue once economic conditions permit.

Tax Expenditure Assessment

Definitions and Purpose

- **Tax expenditures (TEs) are provisions in the tax legislation that modify the tax liability of specific groups of individuals or businesses.** They are used by governments to achieve a wide range of policy objectives, such as economic, social and equity objectives, or to simplify the tax system. TEs might have a significant cost for the budget, however, which makes it important that they are estimated on a regular basis. In this way, TE reports contribute to fiscal transparency and support informed decision making on the allocation of public resources.

- **A key issue for any TE analysis is to determine the reference point or so-called "benchmark" tax system against which to establish the nature and extent of any tax concession.** Once a benchmark tax system has been defined, TEs are identified in a relatively straightforward manner, namely as those tax provisions that deviate from the benchmark. However, benchmarks are defined differently both across countries and often even within countries over time. Therefore, TE estimates are usually not directly comparable across countries or years. Ultimately, the choice of the benchmark and the TEs that follow from it should be guided by the purpose for its users. We argue that the most important goal is to increase the transparency and accountability of tax policy, allowing TEs to undergo the same scrutiny and discussion on the costs and benefits as what is common for direct expenditures. Given the subjective definitional and methodological choices made to measure TEs, a country's TE report should be as transparent and complete as possible to serve its main purpose.

- **This report makes several recommendations for improving TE reporting in Chile.** Chile already follows good practice regarding TE reporting, including by integrating a TE report on an annual basis into the budgetary process compulsory by law, classifying provisions along different dimensions, and listing top-ranked TEs by size in order to improve clarity and guidance.

However, Chile could improve its TE reporting in several ways, for example by being more explicit about the choice of the applied TE benchmark, describing in more detail the TE estimation methodology in the TE report, listing all TEs, referencing their legal source, and providing information on the distributional impact of TEs. Also, better data are needed for an appropriate calculation of some TEs. Revisions are proposed that, compared to the previous reports by the SII, imply that some TEs will no longer be labeled as such, while others will be added. Proposals are also made to enhance the calculation of certain TEs.

A Benchmark Tax System for Chile

- **The report provides guidance on defining a TE benchmark for Chile's income tax for the period 2017 – 2019 and (more importantly) from 2020 onwards.** In doing so, a hybrid is proposed between a pure conceptual approach that follows the Schanz-Haig-Simons definition of "income" and a more pragmatic approach that considers the main general aspects of the current Chilean tax system. The benchmark is based upon realization-based taxation. This means that, for instance, capital gains once realized are taxable. Hence, deferral of an accrued gain does not constitute a TE.

- **The latest TE report of 2019 raises several concerns regarding the choice of the benchmark.** The income tax system in 2019 (i.e. before the reform of 2020) was comprised of two regimes, labelled regimes A and B. Regime A was an attribution regime that levied PIT on accrued income (irrespective of whether this income had been distributed) obtained by Chilean businesses. It provided a full credit to the PIT taxpayer for the underlying CIT paid, provided certain specific requirements were met (e.g. entities must have only final taxpayers among its owners, and must be a business other than a corporation). Under Regime B (partially integrated regime), owners of Chilean businesses were allowed to defer final taxes until such profits were effectively distributed, but it only allowed as a credit 65 percent of the CIT paid (unless profits were distributed to tax treaty partners in which case a full credit is available). In assessing TEs, the SII applied both regimes A and B as the benchmark at the CIT level. However, it only used regime A as the benchmark for the PIT. This approach is inconsistent. Also, the TEs calculated were not "actionable" in the sense that policy makers could not recoup the revenue foregone by reforming the TE. A preferred and consistent way of defining the benchmark for the period 2017-2019 would have been to incorporate regimes A and B within the benchmark system, both for the CIT and the PIT.

- **For the reformed tax system in 2020 (and onwards), the proposed TE income tax benchmark would apply the same rules for the CIT and the PIT in a consistent manner.** The new income tax has three important components for the treatment of business income: (i) an optional Transparent regime for small and medium-sized enterprises (SMEs), which taxes all profits only at the PIT level, irrespective of whether profits have been distributed (as long as shareholders are final taxpayers); (ii) a Partial Dividend Imputation regime for most (large) corporations, largely equivalent to regime B in the income regime of 2017-2019; (iii) an SME regime that applies to businesses with turnover below some threshold, and which taxes income

at a reduced CIT rate, with a full imputation credit under the PIT (taxed upon realization) and based on cash accounting. The report proposes to include both (i) and (ii) in the benchmark system, since these are structural elements of the income tax regime. However, we propose to exclude (iii) from the benchmark since this preferential treatment of some SMEs should be quantified in order to facilitate policy makers' decisions on its existence and extent –exactly serving the purpose of the TE assessment. These choices have implications for what is defined as a TE under the 2020 benchmark.

Data

- **To improve the estimation, the SII should aim at improving the scope and quality of the available data on some TEs**. For several TE items, lack of data is identified as a main obstacle to proper TE measurement. This is the case, for instance, for the TEs corresponding to the Free Trade Zones, capital gains on shares listed on the Chilean stock market, companies taxed under the presumptive regimes, exemptions of investment channeled through investment funds, rental income from DFL2 property, and life insurance policies, among others. Obtaining better data might require legal changes in order for the SII to collect them, or regular exchange arrangements with other government bodies that have access to them. In general, SII should receive tax returns, regardless of whether firms are subject to an exceptional regime, and income should be declared even if it is exempt from tax.

- **For the purpose of this report, a small representative sample of anonymized individual and business tax returns was shared with the IMF-OECD team to provide an indicative quantitative assessment**. The proposed TE methodology has been applied to this sample of tax returns, to infer an indication of the size of some TEs. The SII would be able to apply the same methods to the full set of tax returns to obtain a more accurate estimation. Based on this exercise, in many cases the TE methodology applied by the SII seems appropriate and accurate. For specific TEs, the report provides recommendations for further enhancing the estimation. The key findings are presented below.

Tax Expenditure Analysis in the Corporate Income Tax

- **Tax preferences for businesses choosing the SME regime should be measured as a TE**. The SME regime is characterized by several tax provisions that are not included in the benchmark system and which would therefore be TEs. The main differences are: (i) a reduced CIT rate of 25 percent (temporarily reduced to 10 percent until 2022 in light of COVID-19); (ii) a notional deduction from the tax base of up to 50 percent of reinvested profits up to a deduction cap; (iii) a full imputation credit instead of a partial credit under the PIT; and (iv) taxation on a cash basis instead of an accrual basis.

- **The optional presumptive regime offered to small taxpayers in agriculture, transports and mining also generates a TE**. For these businesses, taxable income is assessed by applying fixed ratios to sales (mining) or to the value of assets (other sectors). The appropriate benchmark for

these small taxpayers is the SME Transparent regime. Therefore, any TEs would best be categorized and measured under the PIT rather than under the CIT.

- **Leasing generates a TE by allowing for faster depreciation deductions than in the benchmark tax system.** However, in contrast to the current TE approach by the SII, which is based on approximated ratios of lessees' leased assets to total fixed assets, it is proposed to use exact data from both lessees and lessors (as a large share of the accelerated deduction happens at the time of the transfer of the leased assets from lessor to lessee).

- **The tax treatment of intangible assets gives rise to both positive and negative TEs.** In Chile, start-up costs are allowed for expensing in the year they are incurred. Intellectual property (IP) items, on the other hand, are neither allowed expensing nor depreciation. As the benchmark, following international practice, we consider a system that allows depreciation for IP items and most start-up costs (as per Chile's accounting standards). Hence, there is a positive TE for start-up costs and a negative TE for IP items. Like for leasing, the current TE estimates rely on approximate ratios based on fixed assets. It is recommended to use instead actual "adjustment" data for intangibles, which is the gap data between financial accounts (which follow international practice, and thus the benchmark) and the tax treatment of these items, as reported by taxpayers.

- **Cooperatives and universities receive preferential treatment, which constitutes a TE.** Cooperatives are exempt from CIT on the share of net income that is deemed to have been generated through transactions among the cooperative members. This directly generates a TE, which is not currently accounted for. It is proposed to have cooperatives report on their full net income (named "surplus") and compute TEs accordingly. Cooperatives currently only report the share of the surplus that is not exempted. Profits earned by universities are also exempt. They should be required to file full tax returns (Form 22) to improve the computation of this TE.

- **Computing TEs in the free trade zones requires additional data and a new computation method.** Businesses in these zones ideally should be required to file full tax returns. Meanwhile, it is recommended to undertake a new study that exploits other potentially useful sources of information—including VAT returns, business registry, and information from customs, employment office, mandatory pensions, and social security contributions—to estimate revenues and costs of companies operating in these zones.

- **The tax treatment of investment and mutual funds as pass-through entities, in principle, does not lead to TEs on the side of these funds, but under-taxation or no taxation of the investors in these funds lead to TEs.** This is because these funds are viewed as intermediaries that invest on behalf of their clients, and in return charge management fees. To the extent that these fees are taxed, there are no TEs arising from the funds as such. However, the benchmark foresees the taxation of distributed dividends and capital gains in the hands of these clients, and

thus any deviation from the taxation of dividends or capital gains ultimately constitutes either PIT expenditures—if the investors are individuals—or CIT expenditures—if the investors are legal entities.

- **Capital gains exemption under Section 107 of the income tax law leads to a TE under the CIT if the exempt gains are realized by a corporate entity.** Computing these TEs requires more information than is currently available, including by requesting taxpayers to report these gains in tax returns and acquiring data from the Financial Market Commission.

Tax Expenditure Analysis in the Personal Income Tax

- **The deduction of mandatory contributions linked to pensions, health and unemployment as well as the non-taxation of the returns to mandatory pension savings that accumulate within the pension fund should not be considered TEs.** This is because they do not reflect discretionary spending. Moreover, they are universal, i.e. provided to all taxpayers in the country. On the other hand, pension withdrawals that correspond to the mandatory pension contributions are taxed under the proposed tax benchmark, which implies that the corresponding tax is no longer a negative TE.

- **For voluntary retirement savings, the report follows a comprehensive income benchmark (i.e. a Tax-Tax-Exempt treatment of (i) pension contributions, (ii) returns to pension saving, and (iii) pension withdrawals).** Hence, preferential treatment to induce households to save for additional (private) pensions through an Exempt-Exempt-Taxed treatment – partly the present approach in the law – is considered under the new benchmark to be a TE, as is the case in most other OECD countries. The measurement of the TE associated with the exemption of pension contributions could be similar to other deductions. The exemption of the investment returns is best determined by a cash-flow method (a net present value method would require too many arbitrary assumptions). Finally, the taxation of pension withdrawals constitutes a negative TE based on the cash flow method. Pension funds need to provide more information on mandatory and voluntary contributions, savings and pension withdrawals to allow the SII to split up the revenue forgone from mandatory and voluntary contributions as well as determine the fraction of the taxation of the pension that is associated with voluntary savings.

- **The presumptive deduction for expenses by independent workers should not be considered a TE.** Independent workers can choose to deduct either actual expenses or, alternatively, a presumptive expense of 30 percent of gross fees. The approach followed by the SII was to consider these as TEs, which seemed appropriate for years prior to 2018 when SSCs for independent workers were not compulsory (so that a presumptive expense of 30 percent might have been excessive compared to actual business expenses). However, since 2018 these contributions have become compulsory (levied at a rate of 17 percent). This removes the reason for considering the presumptive 30 percent deduction as likely exceeding actual business expenses and thus a TE. It is common practice among OECD countries reviewed in the report to include simplifying presumptive deductions in the benchmark system.

- **The additional imputation credit from which businesses under the special SME regime can benefit compared to the partial dividend imputation credit under the TE benchmark gives rise to a TE.** This TE interacts with other tax provisions of the SME regime, including the CIT reduced rate mentioned above.

- **For mortgage interest deductions, the methodology and data used by the SII is adequate.** Under the proposed TE benchmark, imputed rent from owner-occupied housing is not included in income while mortgage interest is not deductible. Hence, this relief for income tax and the deduction of property taxes are TEs.

- **With respect to capital gains from the sales of real estate, both the exemption (up to UF 8000 per person for a lifetime), and the reduced taxation of capital gains in excess of 8000 UF should be included as a TE.**

- **Tax privileges for DFL2 property are a TE, including the grandfathering rule granted to DFL2 property acquired before 2010, from which both individuals and entities can benefit.**

- **Better microdata are needed (captured through either the tax administration or the financial markets regulator) to estimate the TEs with regard to exempt capital gains on the sale or transfer of shares in publicly traded companies, quotas of publicly traded investment funds and quotas of mutual funds.** The exemption has wide coverage due in part to a relatively limited set of eligibility requirements for market presence, applicable shares and investor types. Moreover, there is no cap on this exemption. Capital gains exemptions are available in some cases even when market presence is not met. The current methodology used by SII is out-of-date and was prepared before the financial market was developed in Chile. Data on exempt capital gains is available and is self-reported as part of the tax return. Complementing this with third party reporting would improve the measurement.

- **TEs associated with the exemption of capital gains for individuals that invest in any type of shares up to 10 UTA (Unidad Tributaria Anual) should be estimated.** Such an estimate can be calculated using information on capital gains reported in the annual tax return.

- **Tax exemptions of proceeds from life insurances should not be a TE for the income tax but should be for the inheritance tax.** These proceeds are currently considered as non-taxable both under the inheritance tax and the income tax. However, if proceeds are received by a beneficiary (upon the death of the insured person), this transfer to the beneficiary is commonly taxable under an inheritance tax. The exemption of that transfer would therefore give rise to a TE.

- **Special withholding tax rates that differ from the standard rate are considered a TE.** However, the proposed benchmark reflects standard rates listed in double tax treaties. If these treaty rates differ from the standard rate specified in the domestic law, as is commonly the case, they do not constitute a TE since they reflect tax treaty obligations.

- **The foregone revenue associated with the deduction of the basic tax allowance from**

personal income is typically not considered a TE. However, there is merit in calculating the revenue foregone of the basic tax allowance to inform policy makers about its revenue impact, even though it is not qualified as a TE.

Tax Expenditure Analysis in the VAT

- **The common benchmark for the VAT is a uniform consumption tax on all final sales based on the destination principle.** Exemptions and reduced rates on domestic supplies would thus qualify as TEs. The zero-rating of exports is not a TE.

- **The current approach by the SII to measure the TE related to VAT exemptions is broadly consistent with international good practice.** Whether scope exists to improve the Chilean TE estimation method has not been identified and would require a more detailed review of Chile's input-output modelling. The IMF's VAT gap analysis conducted for Chile provides a good starting point for an assessment of TEs.

- **Unlike most other OECD countries, Chile levies VAT only to a restricted list of services (i.e. those listed in art 20 numbers 3 and 4 of the ITL).** In most OECD countries VAT is applied broadly to all services unless the service is explicitly exempt or subject to a different treatment. In particular, professional services are generally subject to VAT with only very specific exemptions, which most often apply to health services. In Chile, the VAT exemption of professional services provided to final consumers is expected to give rise to a large TE.

- **The special housing construction credit is a TE under the VAT**. However, this does not mean that the buyers of the property do benefit from the tax reduction. Whether the buyer, seller or both the buyer and the seller share the tax reduction is a matter of tax incidence.

Excise Duties

There is room for improvement in the design of excise taxes in Chile, including to expand their revenue as economic circumstances permit, i.e. when the economy has become more stable after the initial recovery from COVID. Generally, Chile has an above average consumption of products that are well known health hazards. Smoking prevalence is the second highest of the world, while alcohol consumption is also high by international standards, especially when considering binge drinking by teenagers. Likewise, sugar consumption is above World Health Organization recommended levels and Chile ranks close to the top in child overweight ratios. Fuel consumption comes along with significant external costs on society at large and Chile's taxation is far from adequate to reflect these costs in the price. Of special concern are the tax breaks to diesel fuel, which exhibits in Chile a disproportionate per capita consumption, the largest in Latin America and twice the regional average. Taxes in Chile can do more to address these public concerns, particularly in the case of fuels. Recommendations for each excise are as follows.

Fuel

Fuel taxation includes an overly generous treatment of motor diesel. The tax rate on diesel is only a ¼ of that on gasoline, although environmental costs—the carbon emissions but especially the local air pollution—are in fact higher for diesel than gasoline. The efficient tax for motor diesel has been estimated in 2017 at US$2.80 per gallon, which is almost seven times higher than its current level. The difference for gasoline is smaller, but still nearly 80 percent. Considering the corresponding price elasticities of demand, the revenue impact of increasing fuels excise to their efficient level would be about US$ 3.8 billion, or 1.5 percent of GDP.

- **The low tax rate on diesel is further reduced with a system of tax credits**, which introduces more distortions. Trucking companies obtain a credit of up to 80 percent on the diesel excise, while industrial (stationary) users of diesel get a full credit. The aggregate cost of these credits is nearly US$630 million, 14 percent of which benefits the trucking industry, which is duly recorded as a TE.

- **Since 2017 industrial users and vehicle emissions have been subject to a green tax.** The green tax is low compared to estimates of the external cost from fuel use. For instance, the global carbon price necessary to achieve the goal of the Paris Agreement on Climate Change is estimated at US$ 75 per ton of CO2 emissions by 2030. Chile's green tax prices carbon at only US$5 per ton. A gradual increase could be implemented to support a green recovery, as economic conditions permit.

- **A phased approach can be planned to enhance the structure of fuel taxes.** It could, build on partial corrections, such as including excises in the base of the VAT, phasing out the credit to trucking companies, and gradually reducing the difference between gasoline a diesel tax rates. The green tax could be gradually raised and include kerosene, which is now tax free. However, the latter policy should mind low-income households that use kerosene for heating and may require complementary measures to offset distributional effects.

Alcohol

- **The structure of alcohol excises can be made more effective.** For different classes of alcoholic drinks (beer, wine and liquors), an international comparison of tax burdens indicates that excises in Chile are relatively low, especially on the cheaper brands of beer and liquors. This is directly related to the structure of the tax, which is entirely an ad valorem excise. Few counties have such a structure, because an ad valorem tax does less to discourage drinking, but rather provides an incentive to consume cheaper alcohol, i.e. more alcohol in lower quality drinks. So, not only are the current rates low, but a greater share of the excise in the form of a specific tax – a levy per alcohol by volume of drink – would be more effective in targeting consumption behavior.

Tobacco

- **There is some scope to improve the design of tobacco excises, but the main challenge is its enforcement.** The tax on tobacco products comprises both a specific and an ad valorem component, where the former has the largest weight (55/45) in revenue. This structure is somewhere between the European and Latin American averages. Tax rates have gone up considerably since 2010, and consumption has modestly trended downward, at a similar pace as world consumption. The larger concern is that, despite a heavy tax burden on cigarettes (over 80 percent, including VAT), consumption is still high. According to estimates prior to the latest increase in rate in 2014, the tax burden on cigarettes in Chile (including VAT) was very close to the top of the Laffer curve. Since 2016 revenues have fallen in nominal terms. Illegal consumption may explain this trend, as there are indications that it has become very significant in the last 6-8 years. A recent survey finds that approximately 25 percent of all cigarette consumption in Chile is illicit, that is, smuggled from abroad without paying any tax. This report finds that in the case of tobacco, aside from taxing novel smoking devices which are currently exempt (E-cigarettes and heated tobacco products), the greater concern is administrative. Some important measures have been taken already (marking cigarette packs), but steeper penalties for smuggling excisable goods have failed to pass Congress.

Sugar

- **Chile is a pioneer in adopting an excise on sugary drinks, which have negative effects on public health by inducing high obesity rates and diabetes.** Presently, the structure of the tax in Chile is simple: an additional rate to the general VAT on non-alcoholic drinks above a certain content of added sugar per volume. While it has been shown that the effect of the tax is to reduce the intake of sugary drinks, this does not necessarily translate into an overall decrease in the consumption of sugars. Various studies show consumers substitute the source of their sugar intake, especially from sugary foods, which may imply the consumption of additional unhealthy nutrients (fat and salt). Thus, the emerging consensus is that taxing nutritional content is more effective in inducing changes in nutritional habits. Also, the ad valorem excise can be an incentive for consumers to opt for cheaper variants of the taxed good. So, although there is no single international approach to this tax, a specific excise the consumption of sugar contents of drinks and food, and at an equal rate, seems preferable. However, this requires again some pioneering tax policy work and may raise implementation challenges that will need to be explored.

I. INTRODUCTION

Tax expenditure reporting is common practice in most OECD countries, as well as in Latin-America. For instance, Redonda and Neubig (2018) review tax expenditure practices in 43 countries around the world, while CIAT keeps track of tax expenditure assessments in 17 Latin-American countries. The primary aim of these tax expenditure reports is to inform decision makers about the revenue foregone from special provisions in the tax code, i.e. in deviation from some benchmark tax system. It thus contributes to informed decision making about tax design and improves the fiscal management of tax policies by enhancing transparency and accountability of government. Tax expenditure reports can also be used to identify options for revenue mobilization through base broadening. Chapter 2 of this report discusses in more detail what role tax expenditure reporting plays in fiscal management and presents some country experiences.

In Chile, an annual tax expenditure report has been published since 2003, covering the corporate income tax, the personal income tax, VAT, and excises. The analysis is conducted by the Chilean Revenue Administration (Servicio de Impuestos Internos, SII), which prepares the report each year as part of the budget. In 2019, tax expenditures added up to almost 3 percent of GDP. Given the evolving nature of Chile's tax system, the authorities wish to review and update the conceptual basis of the report and their methodology, as needed. In this report, Chapter 3 presents such an evaluation, carried out by teams of IMF staff and the OECD secretariat in close collaboration with the SII and the Ministry of Finance.

Chapter 4 of this report provides an analysis of various corrective taxes in Chile, such as excises on fuels, alcohol, tobacco, and sugary drinks. These products cause health and environmental concerns and taxes are commonly used to discourage their consumption. The consumption of these goods is relatively high in Chile compared to other countries in Latin America and the rest of the world. Some excises imposed in Chile to discourage the consumption of these goods are relatively low or are weakly designed, leaving scope for improvement. At the same time, revenue from these excises in Chile can be strengthened. To illustrate, total revenue is around 1.5 percent of GDP, which is more than 1 percent of GDP lower than the average in the OECD (2.6 percent of GDP). Section 4 of this report elaborates in more detail on the design issues and the comparative level of excises.

II. GENERAL INTRODUCTION TO TAX EXPENDITURES

A. What Are Tax Expenditures?[1]

Tax expenditures are provisions in the tax legislation that reduce the tax liability of specific groups of individuals or businesses. Tax expenditures (hereafter TEs) are deviations from a benchmark tax system in which such specific provisions are absent. They may take the form of tax exemptions, allowances, credits, reduced rates or tax deferrals.[2] TEs are widely used as a tax policy instrument in countries around the world, both in number of provisions that are implemented and in terms of scale.

TEs are used by governments to achieve a wide range of policy objectives. This includes incentivising behavioural change to attain economic, equity, social or cultural objectives or simplifying the tax system. Tax provisions aimed at stimulating behavioural change to attain economic change may target labour supply or demand, investment, innovation, consumption, or savings behaviour. Tax reliefs for education expenses and donations to charity are examples of provisions whose objective could be classified as to change behaviour for social or cultural objectives. Some countries use TEs to align the design of the tax system with individuals' ability to pay. Finally, provisions that aim at reducing administrative and compliance costs are also sometimes viewed as TEs.

The term tax "expenditure" arises from the fact that they are equivalent to public expenditure implemented through the tax system. Despite the equivalence, TEs can be preferable to direct expenditures under certain circumstances. TEs may be preferable to direct spending when the tax administration has a comparative advantage in terms of administrative economies of scale and capability of verifying data. Indeed, as TEs consist of a reduction of tax that would otherwise be paid directly, providing tax relief may be administratively less costly than developing and delivering new spending programmes. For this reason, TEs have a comparative advantage when the priority is to maximize the number of eligible individuals or businesses or when eligibility criteria is linked to data already reported on tax returns (Toder, 2000). On the other hand, TEs are less likely to fall under scrutiny than direct spending programmes, which might also explain why they are widely used. Measuring TEs allows for a complete view of public expenditure (CIAT, 2011).

TEs often come at a significant tax revenue cost which feeds into a broader cost-benefit assessment of tax provisions. In principle, TEs are justified if the social benefits exceed the associated social costs. In the case of investment tax incentives, for instance, social benefits would typically involve net increases in investment, employment or wages as well as productivity spillovers.

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[1] This section builds on OECD (2010ab) and Heady and Mansour (2019).

[2] A negative tax expenditure arises where a taxpayer is treated disadvantageously by comparison to the benchmark tax system.

Social costs would include net public revenue losses, administrative and compliance costs as well as distorted resource allocation among other costs (IMF et al, 2015a).[3] Moreover, TEs may open opportunities for tax avoidance and evasion and might lower both horizontal and vertical equity. Evaluating whether TEs pass the cost-benefit test will inform decision-makers on whether it is a desirable policy—as should be the case with other forms of public spending. As this exercise is demanding in terms of data needs, it should primarily be implemented for large TEs. When assessing the welfare implications of changes in government revenue (e.g. the increases in tax rates that are necessary to compensate for the introduction of the TE), the analysis should also take into account that a public dollar is worth more than a private dollar, i.e. the marginal cost of public funds is generally larger than one. This could be because the taxes required to generate public revenue are distortionary and/or because there are administrative and compliance costs related to revenue mobilization (IMF et al., 2015b).

TEs should come under scrutiny in the same way as direct expenditures. Like direct expenditures, TEs affect the allocation of governments' limited resources and thereby entail an opportunity cost that implies that other taxes have to be higher than otherwise. In addition, TEs should be assessed in order to determine whether they achieve their objectives in a cost-effective and fair manner.

TEs may also raise distributional concerns. Some TEs aim to steer the distributional effect of taxation, such as exemptions that target the less affluent or households most in need, such as families with young children. However, other TEs that aim at different objectives can have important distributional implications as well. In fact, richer individuals tend to benefit more from some TEs than poorer ones. This is partly because tax reliefs are frequently granted in the form of allowances the value of which increases with the taxpayer's marginal tax rate. Moreover, lower income households may not have sufficient taxable income to benefit from specific tax provisions. In other words, the take-up rate of TEs will vary across the income distribution. For example, higher income households tend to benefit more from mortgage interest deduction because they have both larger mortgages and higher marginal tax rates (Poterba and Sinai, 2008). Similarly, in the absence of limits on the amount of relief available, taxpayers with higher incomes benefit relatively more from the preferential tax treatment of retirement savings (Brys et al., 2016).

B. The Benchmark Tax System

A key issue for any TE analysis is to determine the reference point or the so-called "benchmark" tax system against which to establish the nature and extent of any tax concession. Once a benchmark tax system has been defined, the TEs are identified in a relatively straightforward manner, namely as those tax provisions that deviate from the benchmark. However,

[3] Investment tax incentives might subsidise redundant investment (that would have taken place anyway), thereby providing a windfall gain to capital owners rather than stimulating new investment. They might also distort the choice of type of investment, source of finance and the way the profits are used generating a reduction in other investment.

benchmarks are defined differently both across and within countries over time, which explains why TE comparison across countries, and possibly even within countries over time, is challenging.

A benchmark tax system is typically defined using one, or some combination, of the following three approaches:

1. **Conceptual approach.** This approach defines a normative benchmark tax system based on an 'external' or theoretical concept of comprehensive income or consumption that provides guidance on how tax policy should be defined, irrespective of whether this benchmark accurately reflects existing tax law. Under this approach, the benchmark tax base could be defined as a comprehensive income tax base or a broad-based consumption tax base (see Box 1).

2. **Reference tax law approach.** Under this 'internal' approach, a country's existing tax system forms the starting point for defining the benchmark. A TE is an explicit concession that departs from what is considered a generally applicable tax provision under the existing tax law. This approach provides more flexibility in defining TEs and will generally provide a narrower list of TEs than the conceptual approach.

3. **Expenditure subsidy approach.** This approach seeks to cost only those concessions that are clearly analogous to an expenditure subsidy. This method is rarely used in practice and it would likely result in a narrower list of TEs than under the other two approaches.

Combinations of these approaches are possible. A hybrid approach would take a conceptual benchmark as the starting point but modify it by taking into account certain structural features of the actual tax system of a country. Compared to the conceptual approach, such hybrid is more pragmatic by incorporating certain constraints within the benchmark, for instance, tax elements that would be difficult to implement in a theoretically pure benchmark system.

The choice of the benchmark (and the TEs that follow from that benchmark) requires some judgement and should be guided by the purpose of the TE reporting for its users. A conceptual approach provides more normative guidance to the user if there is a common view about the most desirable tax system. This can facilitate a transparent discussion on how existing tax provisions reduce revenue compared to that norm. However, even if a conceptual benchmark is chosen (see Box 1 for a description of the most widely used conceptual benchmarks), this should not necessarily be interpreted as an indication of the way taxpayers should be taxed (this is the approach followed by Australia and Canada). Indeed, the reference law approach might be a reflection of what society views as a desirable system, and TEs are indicative of the revenue foregone from special provisions relative to that system. This would also provide a better sense to policy makers about the revenue impact of eliminating such provisions, as its reference is the existing tax system, rather than some theoretical concept that may deviate from that in various ways.

The choice of the benchmark tax system should thus be linked to the objective of the TE report that policy makers have in mind. In general, most policy makers intend to use a TE report

as an input into the evaluation of TEs to put them under the same scrutiny as ordinary public expenditures in terms of revenue costs, efficiency, effectiveness and equity as well as transparency and fiscal accountability. While it might have some appeal to define a benchmark that follows as closely as possible a well-established conceptual tax system, if the implementation of this benchmark is not feasible within the current tax architecture, the arguments to apply that ideal as the TE benchmark are weakened. Incorporating elements of the reference tax law is therefore a common approach in TE assessments.

Given the importance of the benchmark tax system for TE analysis, we develop a set of criteria to guide its choice:

- **Well-defined and transparent**. The benchmark should be well-defined and transparent such that policymakers and the public at large understand the underlying assumptions that have been made and can verify the calculations.

- **No discrimination**. The benchmark should represent the standard taxation treatment that applies to similar taxpayers or types of activity (reflecting horizontal equity). Discriminatory elements in the tax code will be qualified as TEs. This does not apply to the progressive structure of the personal income tax, which typically is included as part of the benchmark (to support vertical equity).

- **Avoid negative TEs.** Tax provisions that increase the tax burden do not constitute a tax reduction (i.e. an "expenditure") but rather result in a tax increase. TE assessments should try to avoid negative TEs as much as possible, by making these provisions part of the benchmark. However, there might be cases where negative TEs are informative. For instance, this can be the case if the government disallows certain deductions that would be common in a benchmark tax system.

- **Consistent**. The benchmark should be consistent across taxes and make explicit reference to how it treats measures that relieve double taxation (integration). For example, if there is integration of corporate and personal taxation, the benchmark system should be consistently applied to both the assessment of TEs in the CIT and in the PIT.

- **Actionable.** The benchmark should be defined in a way that the resulting list of TEs informs policy makers about possible reform options. At least, the TE list provides a starting point for an evaluation of tax concessions.

- **Aligned with international obligations.** The benchmark should align with the international tax rules that a country has committed to. For instance, if a country has concluded double tax treaties that restrict the use of certain taxes, this should be part of the benchmark tax system.

- **Facilitate international comparability.** The benchmark may be chosen such that it follows the approaches in other countries, although these may vary in various dimensions and details. By using a similar benchmark used elsewhere, the TEs might be compared with those other countries, although caution remains important in doing so.

Box 1. Comprehensive Income Versus Broad-Based Consumption Tax Benchmarks

The two main conceptual tax bases used as benchmarks are the comprehensive income tax and the consumption tax. Under the Schanz-Haig-Simons definition, comprehensive income is conceptually equal to the sum of the market value of consumption and the changes in net wealth. Under a comprehensive income tax, income is taxed when it is accrued. Savings are made out of taxed earnings and the return on these savings (irrespective of whether the assets are owned directly or through a savings fund) is part of the benchmark and subject to income tax on an accrual basis. In return, the withdrawal of assets from such saving vehicles is fully exempted from tax; i.e. savings are taxed under a "taxed-taxed-exempt" regime.
In contrast, a broad-based consumption tax is conceptually equal to a comprehensive income tax net of the deduction of net savings. This implies that under a comprehensive income tax benchmark any concessional taxation of income derived from capital is a TE. In contrast, under a consumption benchmark any taxation of income from capital that is reinvested (i.e. that is not used to finance consumption) constitutes a negative TE.

More specifically, under a comprehensive income tax base:

- All income from salaries, entrepreneurial activities and investments, including dividends, interest, rents, capital gains and royalties is taxed upon accrual; this income is included in the benchmark.
- Any employment related benefits that are exempt from tax (e.g. bonuses, remuneration for extra time worked, fringe benefits, etc.) are a TE.
- The deductibility of pension savings from income tax or the exemption or partial taxation of the return earned on these pension savings, including the deferral of the taxation of the return, are TEs (i.e. under an exempt-exempt-taxed pension system). In contrast, the exemption from income tax of the pension is not a TE.
- Deductions or credits for personal consumption expenditure (i.e. cost of food, cars or medical expenses incurred, etc.) are TEs.
- Housing is an investment good. Hence, a comprehensive income tax allows deductions from home mortgage interest and, possibly, for property taxes on owner-occupied housing but also includes in the tax base imputed gross rental income.

A pure consumption tax is equivalent to an exempt-exempt-taxed (EET) regime. For instance, when applied to pensions, the EET enables the deferral of tax payments until retirement. In practice, the income that is contributed to a given pension scheme is exempted, the income accruing by the savings scheme is also exempted, and then the capital is taxed when is paid-out at retirement. In this way, the taxpayer faces the same present value of post-tax income to consume in the first period or later at retirement (under the assumption that savings grow at a rate that is equal to the discount rate, and the tax rate is flat and constant over time).

Reconciling these different criteria in choosing an appropriate benchmark system involves an element of judgment. For instance, following a more conceptual approach can be most clear and transparent, but might not produce actionable TEs. The ultimate choice of the benchmark should

depend on the main purpose of the TE reporting for the users. As will become clear below, different countries have made different choices regarding similar elements of their tax systems to include or exclude them from the benchmark. What would be the right choice for Chile will be discussed in the next chapter.

C. Measuring Tax Expenditures

Once a benchmark has been specified, different methods can be applied to measure TEs. TEs are distinct from standard expenditures since the amounts "spent" are notional as their estimated value is based on assumptions and estimates as to how taxpayers would behave under particular conditions. Ideally, TE calculations are made using administrative tax return data, which is preferred over other data sources such as survey data. Nevertheless, other data sources can complement tax administrative tax return data in certain cases.

There are three main methods for measuring TEs:

Tax revenue foregone. This method quantifies the direct ex-post revenue loss associated with the provision relative to the benchmark system (holding other factors constant). For this reason, it is the most common and straightforward estimation method. The method calculates the tax liability the taxpayer would face in the absence of the particular TE and subtracts the taxpayer's tax liability in the presence of the TE; the difference is the tax revenue foregone from the TE. This method has the following characteristics:

- *No dynamic tax effects*. The method provides a static calculation that does not capture changes in behaviour that the provision induces. Therefore, the TE estimate may differ from the expected revenue effect from the removal of the specific provision. For instance, if a tax relief for one specific type of saving (a tax provision that yields a TE) is withdrawn, individuals may switch to other tax-privileged forms of saving. The TE estimate can then differ from the revenue effect from removing the specific relief measure.

- *No interdependence*. A TE estimate for one provision is typically based on the assumption that other TE provisions remain intact and that their value is not recalculated when one TE is taken away. Hence, each TE is estimated in isolation; that is without taking into account interaction effects between different TEs or between the TE and the tax system in general. However, in practice the removal of one TE may alter the revenue forgone from other TEs. For instance, the removal of a TE may increase taxable income and the marginal tax rate the taxpayer faces, thereby increasing the revenue foregone of other TEs. Thus, under the revenue forgone method, individual TE estimates cannot be aggregated to arrive at an estimate of the overall revenue consequences if all TEs were simultaneously removed.

- *Dependent on take up*. Revenue forgone estimates are based on the actual take up of a relief (under the assumption that TE calculations are made using administrative tax return data).

- *Constant compliance and enforcement.* TE estimates assume that tax compliance and enforcement efforts remain constant at their current level. However, taxpayers could become more or less aggressive in their tax evasion strategies upon the removal of a TE. Removal of TEs can also simplify the tax system and facilitate enforcement.

Tax revenue gain. This method provides an ex-ante estimate of the additional revenue that would take place from eliminating a given TE when behavioral responses are taken into account. This method would provide a more comprehensive estimation than that of the revenue forgone method but for this reason requires a good understanding of taxpayers' behavior and data on elasticities which are not always available and/or reliable. Differences between estimates calculated using the revenue gain and revenue forgone methods often vary across types of tax provisions because of differences in elasticities (own-price and cross-price elasticities), availability of substitutes (goods/services, investment/saving options, etc.) and the type of model used to assess the impact (e.g. which general equilibrium effects are taken into account). Results may be more contentious due to uncertainty regarding the assumptions made in the simulations. Given the information requirements of this method (such as comprehensive models for simulating revenue effects), countries may consider including revenue gain estimates for selected TEs.

Outlay equivalent method. This method estimates TEs associated with a given provision as the expenditure that would be required if the subsidy was provided outside the tax system. The main difference is that the outlay equivalent method does not take into account the other factors that determine the actual tax liability that an agent faces. The following example might clarify the difference. Consider a R&D allowance that allows firms to deduct 150 percent (rather than 100 percent) of current R&D expenses. If a firm spends EUR 100 on eligible R&D but can only deduct EUR 120 because it has insufficient taxable income to claim the full EUR 150, the revenue forgone method would compute a tax expenditure of EUR 10, assuming a 50 percent corporate income tax rate (50 percent of EUR 20). The outlay equivalent method would ignore the firms "taxable capacity" and compute a cash equivalent of EUR 25 (that is, 50 percent of the full EUR 50 in additional allowance) if the cash outlay is non-taxable (EUR 50 if the cash outlay is taxable).

The value of TEs cannot be adequately compared across countries, even when they use the same method. International comparability of TE estimates is especially problematic due to the differences in definition of the benchmark tax system. Furthermore, countries also vary in the coverage of taxes in TE reports. For instance, while some countries report TE estimates for all levels of governments, others only report those related to central government. In addition, as many tax provisions are formulated as tax allowances, the value of tax expenditures typically depends on the level of the marginal tax rates. Hence, TE values across countries may also differ because of differences in statutory tax rates rather than differences in the number and extent of provisions. The value of the TEs reported will also vary with the take-up of a specific tax provision, which may vary across countries for reasons outside of the tax system. For these reasons, international comparisons of TE values should be avoided. While TE values cannot be compared across countries, this does not apply to TE methodologies and the TE benchmarks that are chosen. Here, comparing country

practices can be useful for peer learning and guide choices for countries' methodology, as presented in this report.

C.1 How to Compute TEs Associated with Tax Deferral?

Within the tax revenue foregone method, there are two complementary methods of calculating the value of the TE when dealing with deferrals: the cash-flow calculation method that focuses on the current year's revenue effects and the method that calculates net present value (NPV) effects.

The cash-flow calculation method focuses on the revenue effects of a particular TE in the current fiscal year. On that basis, deferred income taxes from current-year activities represent a cost to the government while income taxes on prior-year activities for which the deferral has been completed are a revenue gain. Thus, if the level of activity in question were constant from year to year—that is, in a steady state—the two amounts would cancel each other out and the TE would be zero. However, this line of reasoning is an over-simplification in case of pensions as households typically deduct pension contributions at a higher PIT rate than the PIT rate that is levied on their pension, which is typically lower than the income they earned in the labour market. An increase over time in the level of activity would tend to produce a positive TE, while a decrease would tend to produce a negative TE. By focusing on the current year, the calculation method combines the revenue effects of transactions that have been taken at different moments in time. Note also that the cash-flow approach, by focusing only on the current fiscal year, would typically ignore the future drop in tax revenues if taxpayers who have insufficient taxable income to benefit fully from the TE in the current fiscal year can carry forward the unclaimed TE and enjoy a tax reduction in the following years.

The NPV approach, on the other hand, provides the discounted present-value estimates of the foregone revenue of a TE by taking into account the effects in current as well as in future fiscal years of transactions that take place in the current fiscal year. For instance, a tax provision that lowers tax liability today but results in an increased tax liability tomorrow would yield a larger value for the TE under the cash-flow accounting method (which, as pointed out, might be offset by the revenues from taxes deferred in the past). In contrast, the value of the TE under the NPV method would be significantly lower as the foregone tax revenue in the first year would be reduced by the NPV of the tax liability in the following year. In the case of a newly enacted deferral provision, a cash-based estimate can overstate the overall effect on tax revenues over time because the newly deferred taxes will ultimately be received.

The Canadian TE report provides examples that clarify the difference in the two calculation methods:

"The cost of timing preferences could also be presented on a net present-value basis to emphasize the cost to the government that relates to the time value of money. There can be a cost to the government and a benefit to the taxpayer when tax deferrals are considered on a present-value basis, even when

the cash-flow basis of measurement suggests that, in a steady state, there is no overall cost to the government. Because of the time value of money, a reduction in tax of a given amount today more than offsets a tax increase of the same nominal amount in a future period. This can be demonstrated with a calculation of the value of the implicit interest-free loan that is provided to the taxpayer when taxes are deferred to a later year. For example, if a taxpayer is able to defer $100 in income tax for one year, and the discount rate is 8 percent, then the present value of the future obligation is $92.59 and the taxpayer has received a benefit of $7.41 in today's dollars. There is an equivalent implicit interest cost to the government. On a present-value basis, unlike the cash-flow basis, a tax deferral would result in a positive tax expenditure in the steady state. The net present value of the tax expenditure associated with a tax deferral can also be affected by tax rates, for instance when a deduction is accelerated while tax rates are decreasing.

Estimating the net present value of the tax expenditure associated with a tax deferral with a reasonable degree of accuracy is very challenging when activities are not in a steady state and when precise projections cannot be derived over a relatively long horizon. For instance, estimating the net present value of the tax expenditures associated with the accelerated deductibility of capital costs and flow-through share deductions would require estimating future business cycles and economic conditions in the mining and oil and gas sectors, while estimating the net present value of the tax expenditures associated with Registered Pension Plans and Registered Retirement Savings Plans would require robust long-term projections of contributions and withdrawals" (Department of Finance Canada, 2020, p.23).

Another example of the two approaches can be provided for the TE for retirement savings. Under the cash-flow basis, the cost of retirement savings in a given year is the revenue forgone associated with the deductibility of contributions to the plans made during the year and the non-taxation of investment income earned within these plans during the year, minus the taxes collected on withdrawals from these plans made in the year. The cost of these plans on a net present-value basis would be a measure of the net revenue forgone in today's dollars due to the contributions made in a given year, taking into account the fact that the deferred tax will be collected in the future when the contributions and investment income earned on them are withdrawn."

The NPV accounting method is a more complex method, as it has to make several assumptions on the decisions and the taxes in the future. For instance, the method needs to make an assumption of the tax rate that the taxpayer will face in the future (e.g. the tax rate at which private pension savings can be deducted today might differ from the tax rate the pensioner will face in 20 years from now) as well as of the profitability of the savings invested within the fund. The method allows taking into account that tax provisions that are not claimed in the current year because of insufficient taxable income or tax liability to fully benefit from the TE, can be carried forward and lower tax liability in future years. The method needs to take into account that taxes can be deferred for a varying number of years, which will have an impact on the estimation. Indeed, the number of years that the taxpayer decides to defer the taxes due may depend on the tax system itself (i.e. the higher the taxes levied, the larger the tax-induced incentive to defer the tax liability). This not only concerns

savings through an investment or pension fund, but also for the distribution by businesses of previously retained profits and the realisation of capital gains when individual shareholders sell their shares. In fact, this raises possible double counting challenges, as profits retained by the business will increase the value of the shares of that business. The TE that measures the deferral of the distribution of profits and the TE that measures the taxation of capital gains upon realisation (rather than upon accrual) are closely connected, as both TEs measure the deferral of taxes in relation to the same undistributed profits.

Moreover, the fact that tax liability has been deferred might have an impact on total tax liability in the future. For instance, the deferral of the taxes levied on the return earned on savings invested in an investment fund might allow households to save more and, possibly, pay more taxes in the future. In fact, it might eventually lead to a tax liability that more than offsets the deferred taxes in net present value terms (in particular if the deferred taxes accumulate at a return that exceeds the discount rate used to calculate the net present value). Moreover, the impact will depend on the rate at which funds accumulate over time and the discount rate that is applied. This raises the question of whether the TE in relation to the deductibility of savings from taxable income and the eventual taxation when the savings are received (e.g. in the form of a pension) should be considered jointly with the TE of the concessional tax treatment of the return on savings earned by the intermediary (e.g. investment or pension fund). Ideally, different TEs should be estimated separately, if feasible.

This analysis shows that there are varying degrees of complexity that can be incorporated in the NPV calculation method. Countries that apply this method should therefore explicitly provide information in their TE report on the elements that have been incorporated in the NPV calculation and the assumptions that have been made.

The use of the NPV method to calculate TEs varies across countries. Section 2.6 reviews TE reports from five selected OECD countries (Australia, Canada, France, Italy and the United States) and finds that only the United States TE report includes a table with NPV estimates, which are reported separately for each provision without including a grand total. Instead, Australia and Canada only measure TEs associated with tax deferrals on a net cash flow basis.

D. Tax Expenditure Reporting

The main goal of TE reports is to increase transparency and accountability and, in this way, contribute to well-informed choices on allocation of resources. Compared to direct expenditures, TEs are easier to enact and have traditionally been less likely to undergo rigorous review. Increased transparency through TE reporting can improve fiscal governance and help reduce the scope for rent seeking. TE reports also provide information for cost-benefit assessment and thus contribute to well-informed decision making. Indeed, TE reports are a useful starting point when considering the advantages and disadvantages of broadening tax bases by reducing or removing tax reliefs. TE analysis can also facilitate distributional analysis, i.e. an analysis of the allocation of tax relief across different taxpayer groups, which can help to improve the fairness of the tax system.

Given the challenges of measuring TEs, a country's TE report should be as transparent as possible about definitions and methodology. Unlike the reporting of direct expenditures, TE reporting requires additional definitions (e.g. of the benchmark tax system) and meets limitations of measurement methods (Altshuler and Dietz, 2011).

D.1 Best Practices in TE Reporting

Best practices in TE reporting include:[4]

- **Publication of TE reports should be integrated into the budgetary process compulsory by law**. Bringing TEs into the budgetary process should increase transparency by subjecting them to a similar level of scrutiny as direct expenditures (Polackova et al., 2004).
- **Reporting should ideally be on an annual basis, which is practice in most countries.**
- **The benchmark should be clearly defined and documented**. The report should include a clear description of the benchmark tax system. Ideally, the TE report (or an accompanying methodological annex or background document) should include a discussion and justification for the choice of that benchmark.
- **The TE estimation method should be described in detail on an item-by-item basis within the TE report,** either as part of the main body of the report or as an annex within the report**.** This will provide transparency and clarity to the reader of the underlying calculations and TE estimates.
- **TE reports should classify provisions along different dimensions.** Ideally, TEs should be classified by tax base (PIT, CIT, VAT, excise taxes, etc.), type of TE (credit, allowance, exemption, reduced rate), the function to which they are attributable (education, fuel and energy, health, defense, etc.), their policy objective (employment, R&D and innovation, housing, reducing poverty, etc.) as well as the targeted beneficiary group (corporations, individuals, SMEs, self-employed, etc.).
- **Including the legal reference for each TE** is good practice for clarity and transparency.
- **Despite having significant drawbacks, the total sum of all TEs expressed as a share of GDP and/or as a percentage of total tax revenues might be included.** As indicated before, summing up TEs can be misleading as it ignores the joint impact on the revenue foregone from the various interactions between provisions. While the sum of TEs can thus not be interpreted as a revenue loss, it does provide an indication of the overall magnitude of TEs in the country's tax system, which can be reviewed over time. Indeed, the development of the sum of TEs in a given country can be informative if the benchmark is kept the same for a number of years. However,

[4] This list draws heavily from Kassim and Mansour (2018), Redonda and Neubig (2018) and Heady and Mansour (2019).

readers of the TE report should be warned of the limitations of this overall estimate, as pointed out above. Countries differ in their approach; for instance, Australia, Canada, Italy and the United States do not include an overall TE figure in their TE report, but other countries such as France do.

- **Ranking all TEs by their value or otherwise list the top TEs can improve clarity and guide users to the main provisions in terms of revenue foregone.** While the United States ranks all TEs by total value, France, Germany and Australia provide a non-exhaustive list of the top ten or fifteen TEs.

- **All TEs should be listed**. The cost of certain TEs may not be reported because of lack of data or disproportionate estimation costs among other factors (Redonda and Neubig, 2018). TE reports should nonetheless list all TEs identified, irrespective of whether they are measured or not (see for example the Australian, Canadian, French and Italian TE reports).

- **Provide information, if possible, on the distributional impact of TEs.** A distributional incidence analysis of the TEs (including take-up rate and value of the TE across the income distribution) will inform decision makers on a different aspect that is important for assessing its benefits.

- **Assessment of the reliability of estimates**. Grading the estimation reliability of each TE estimate can help the reader better interpret the figures (see for example the Australian and French TE reports). A possible grading would be "high", "medium-high", "medium-low", "low".

There is no unique format across countries for TE reports. Redonda and Neubig (2018) identify nine countries that publish a detailed and comprehensive TE report, namely: Australia, Austria, Canada, France, Germany, Italy, Netherlands, Korea and Sweden.

E. Impact Evaluation

TE reports typically provide a starting point for an assessment of the costs and benefits of tax provisions. Such an assessment will also require information about the number of beneficiaries and their characteristics (income distribution, industrial sector) and information about effectiveness, efficiency, distributional impact and simplicity (administrative and compliance costs). This will enable policy makers to make informed decisions on these tax provisions, based on weighting the costs and benefits. Thereby, it is important to note that even when tax concessions have justified social or economic policy objectives, they involve an opportunity cost in terms of revenue foregone that the TE analysis quantifies.[5] The TE should ultimately be weighed against alternatives, e.g. other taxes will have to be higher to compensate for the revenue forgone or direct expenditures will have to be

[5] Note that revenue foregone is not a welfare loss as such, since each dollar lost for the public sector is a gain for the private sector. Yet, the revenue loss does create welfare loss to the extent that public funds are scarcer than private funds due to distortions imposed by tax.

lower. For this reason, it is advisable to periodically evaluate whether tax concessions are cost-effective. Even where the existing provision is confirmed to be the best option to meet the objectives, the evaluation process may provide information that can improve its effectiveness.

Evaluation studies often take into account only direct effects of TEs, for instance by comparing the additional effect on investment or jobs created (i.e. the additional investment that would not have happened had the TE not been in place) with the revenue forgone.[6] Such an approach takes into account only the direct effects of tax incentives. However, indirect effects of TEs (crowding out effects, spillover effects) can be inferred from general equilibrium models, which capture linkages and feedback effects through other markets. Furthermore, the revenue forgone only partly covers the "cost" element of such assessments. In fact, tax concessions not only imply revenue losses but also higher compliance and administrative costs which are generally not included in cost-benefit evaluations.

Tax concessions should also be evaluated in terms of their distributional impact, i.e. an analysis of the allocation of the most relevant tax reliefs across taxpayers and economic sectors This includes the impact on the vertical and horizontal equity of the tax system.

Incidence analysis can be helpful to determine whether TEs are benefiting the intended population. For instance, if TEs are granted through consumption tax provisions it is relevant to analyze whether the beneficiaries are indeed the intended target group. This will depend on the pass through of such concessions into consumer prices. Some studies suggest that the pass through of tax cuts to prices is limited. For example, Kosonen (2015) performs an incidence analysis of a VAT cut on hairdresser services in Finland concluding that prices were reduced only by half of what a complete pass-through would have implied and that there were hardly any changes in the quantity of services provided. Similarly, Benzarti and Carloni (2019) carry out an incidence analysis of a large VAT reduction for meals consumed in sit-down restaurants in France. They find that restaurant owners were the main beneficiaries of the tax cut while a more limited benefit was shared between employees, consumers and suppliers. Benedek, de Mooij, Keen and Wingender (2019) exploit a panel of VAT reforms in Eurozone countries to estimate pass through of alternative VAT rate changes. They find that the theoretical presumption of full pass through into consumer prices is generally confirmed for changes in the standard rate. However, pass through is less than full for changes in reduced VAT rates and reclassifications from the standard into a reduced rate.

[6] In order to determine the additional effects of TEs, impact evaluation methodologies generally use difference in difference and matching techniques. Some studies may use a combination of both if there are differences a priori between the treatment and control groups.

F. Tax Expenditure Definitions Across Selected OECD Countries

The aim of this section is to compare the benchmark and TEs identified by a selection of OECD countries. This analysis provides an indication of the frequency of certain provisions being viewed as TEs among the selected OECD countries.

Different countries implement different approaches; a preliminary analysis shows that:

- **Australia** follows a conceptual approach although the report clarifies that this benchmark should not be interpreted as reflecting the country's "optimal" tax system. The report uses a comprehensive income tax benchmark.
- **Canada** defines its benchmark tax structure on what it considers to be the most fundamental aspects of the tax system. The report argues that this approach is less subject to interpretation than a "normative" tax system that is considered optimal from a tax policy perspective.
- **France** and **Italy** follow a reference law approach.
- **The United States** uses both the conceptual and reference tax law approach, as part of separate measurements but both based on a comprehensive income tax base. The benchmark allows for personal exemptions, a standard deduction, and deduction of expenses incurred in earning income.

Appendix 1 and Appendix 2 include a more detailed analysis of provisions that could be of particular interest for the Chilean case.

The taxes covered vary across TE reports. The Canadian TE report covers personal and corporate income tax TEs as well as the goods and services tax TEs while the TE report from the United States focuses exclusively on TEs linked to PIT and CIT as sales taxes are levied at the state level. In addition to income tax TEs and VAT/GST TEs the Australian, French and Italian TE reports also include information on TEs related to other direct and indirect taxes.

The choice between a practical variant of the conceptual approach and a reference law approach has an impact on the scope and type of TEs identified in the TE reports, particularly whether deferrals are considered TEs or not. Indeed, the approach used to define the benchmark determines most of the differences in the TEs that are identified across countries. All countries consider accelerated and enhanced depreciation as TEs. Instead, while France and Italy do not identify any tax deferrals on profits as TEs, Australia, Canada and the United States do. The method for measuring the cost of timing preferences is presented on a nominal cash-flow basis in the

Australian and Canadian reports while the United States report includes both cash flow and NPV estimates.[7]

Countries that adopt some practical variant of the conceptual approach make different departures from the SHS definition of comprehensive income. For instance, in the US and Australian benchmarks, income is taxable only when it is realized. Thus, the deferral of tax on unrealized capital gains is not regarded as a TE while it is in Canada.[8]

Australia, Canada and the United States identify TEs related to pension savings following a Tax-Tax-Exempt rule while France does not identify any TE in this regard and Italy identifies fewer TEs. Consistent with a comprehensive income tax benchmark, the benchmark for voluntary pension savings (including pension contributions, return on savings and pension withdrawals) in Canada and the United States is aligned with a "Tax-Tax-Exempt" benchmark.[9] The concessional treatment of both mandatory employer contributions and voluntary contributions to superannuation funds is considered a TE in Australia. Furthermore, the concessional tax rate or the deferral of taxation of the return earned on the voluntary pension savings within the pension fund is also considered a TE. Finally, the taxation of voluntary pension savings upon withdrawal generates a negative TE. On the contrary, the TE report from France does not identify TEs associated with the deduction or concessional treatment of pension contributions but does identify the reduced taxation of income earned within the pension fund as a TE although this is not measured. Instead, in Italy tax exemptions to earnings for a maximum of 10 percent of the assets in pension funds are not considered a TE and only the deduction of voluntary contributions is viewed as a TE. Neither the French nor the Italian TE reports identify a negative TE associated to the taxation of retirement saving withdrawals.

Voluntary health insurance contributions are generally viewed as TEs. The deduction of contributions to health savings accounts are a TE in the United States. Australia does not identify TEs regarding the deductibility of health insurance premiums but does measure TEs regarding life and disability insurance premiums. The deductibility of complementary private health insurance is also viewed as a TE in Italy. The exclusion of medical insurance premiums from employee gross income and the deduction of self-employed medical insurance premium are viewed as a TE in Canada and

[7] TE estimates for accelerated deductibility provisions are not included in the Canadian report. The report argues that adequate data are not generally available to calculate these TEs with a reasonable degree of accuracy, and many simplifying assumptions would be required to model the pattern of deductions that would be claimed in the absence of these provisions.

[8] See for example the description of the following TE items: "Deferral for asset transfers to a corporation and corporate reorganizations" and "Tax treatment of active business income of foreign affiliates of Canadian corporations and deductibility of expenses incurred to invest in foreign affiliates".

[9] In Canada and the United States, contributions to pension funds are voluntary for workers in the private sector (OECD, 2019b).

the United States. Finally, there are no TEs associated to contributions to health in the French TE reports.

Housing-related TEs vary considerably across countries. A comprehensive income tax would allow the deduction of mortgage interest expenses and property taxes, but it would also include in the tax base imputed gross rental income. The United States allows the deduction of mortgage interest expense on owner-occupied residences and provides a measure of both this deduction, the deduction of property taxes and the exclusion of net imputed rental income in its TE report. Instead, in Australia and Canada, mortgage interest expenses are not deductible, and the exclusion of net imputed rent is considered as part of the benchmark. France views the deductibility of mortgage interest expense on owner-occupied residences as a TE but not the exclusion of net imputed rental income. Finally, Italy allows for both the deduction of mortgage interest expense on owner-occupied residences and imputed income of the main residence and provides a measure of these two TEs in its report.

The zero-rate bracket or the basic tax allowance are considered as part of the benchmark in all the countries reviewed. The Canadian TE report includes a measure of the revenue forgone associated to the Basic Personal Amount (a tax credit that can be claimed by all individuals) but states that this measure is considered part of the benchmark tax system, and therefore is not a tax expenditure. Instead, provisions such as the EITC, dependency tax offsets and credits for childcare expenses are generally considered as TEs.

Tax provisions to achieve simplification objectives if included in the TE report are generally listed but not measured due to lack of data availability. Presumptive tax regimes are uncommon among the countries reviewed: France and Italy are the only countries that have presumptive tax regimes in place. France does not view these regimes as TEs while the Italian TE report lists them as TEs and measures them.[10] Cash basis accounting in Canada and simplified trading stock rules for small businesses are listed (though not measured) as TEs in Canada and Australia, respectively.

Countries differ in the extent to which international taxation provisions give rise to TEs. None of the countries reviewed consider preferential withholding tax rates due to double taxation treaties as TEs. Both Australia and Canada measure exemptions or preferential non-resident withholding tax rates relative to the respective domestic withholding rates (if a tax treaty does not apply) and relative to the highest rate specified in the treaty for each withholding tax if a treaty exists. The Australian TE report explicitly mentions that CFCs rules, transfer pricing and thin capitalisation are considered as part of the benchmark. The United States measures the TE associated to preferential taxation of active income of U.S. controlled foreign corporations and Canada lists (but does not measure) the exemption of active business income of foreign affiliates of Canadian corporations and deductibility of expenses incurred to invest in foreign affiliates. Australia lists a few TEs associated to controlled

[10] These include a turnover tax for the self-employed with turnover up to a cap and a lump sum tax for very specific activities

foreign companies but does not measure them.[11] The French and Italian TE reports do not identify any TEs related to international taxation.

III. AN ASSESSMENT OF TAX EXPENDITURES IN CHILE

In Chile, a tax expenditure report is prepared annually as part of the budget by the Sub-directorate of Strategic Management and Tax Studies of the Internal Revenue Service. This follows good practice in several other OECD and Latin-American countries (see e.g. CIAT 2018). TE reports generally include estimates for past years as well as projections. Table 1 assesses the Chilean TE report relative to some of the criteria identified in Chapter 2 for best practice of TE reporting. It appears that TE reporting in Chile is consistent with many of these practices. However, there also seems room for improvement. For instance, a clearly defined and documented benchmark tax system and a description of the TE methodology are missing as well as a list of TEs that are identified although not measured because of a lack of data.

Table 1. Assessment of the Chilean TE Report in Terms of Best Practices

Publication of TE reports integrated into the budgetary process compulsory by law	√
Reporting on annual basis	√
Clearly defined and documented benchmark	X
Description of methodology used in TE estimates	X
Classify provisions along different dimensions	√
Include legal reference for each TE	X
Sum of all TEs expressed as a share of GDP	√
Include an explanation that summing TEs is misleading and does not reflect an accurate measure of tax revenue foregone	X
Rank all TEs by their value or list top TEs	√
List all TEs	X
Provide information on the distributional impact of TEs	X
Assessment of the reliability of the estimates	X

Note: √ stands for practices that the Chile TE report follows while X stands for practices that are currently absent.

This chapter aims to contribute to improving TE reporting in Chile in three important ways. First, it proposes an explicitly defined benchmark tax system for the income tax. This guides the decision whether a particular item is labelled a TE or not. Second, the chapter reviews a number of TEs and proposes a way to calculate them. Thereby, the focus is on the corporate income tax and the personal income tax – although a brief discussion is also provided on VAT. Where possible, the

[11] The TEs listed are the following: threshold exemption for thin capitalisation, exemption for foreign branch profits from income tax, exemption from accruals taxation system for CFCs and concession for non-portfolio interests in foreign companies with active businesses.

report provides some illustrative calculations, based on a representative sample of anonymized and randomly selected data provided by the authorities. A full quantitative assessment is beyond the scope of this report. Finally, where data are not available, the report discusses a way forward, either in collecting the relevant data or using alternative data to approximate certain TEs. This chapter starts with a discussion of the benchmark tax system for Chile. It then discusses TEs in the corporate income tax, the personal income tax and VAT, respectively.

A. Defining the Benchmark Tax System for Chile

This section provides guidance for defining the TE benchmark in Chile for the period 2017-2019 and from 2020 onwards, i.e. after the reform of February 2020 in the income tax regime had been enacted. Defining the TE benchmark for 2020 and future years is considered more important than a retrospective analysis for the period 2017-2019 (or earlier). Nevertheless, to facilitate comparability across time, the aim is to align the benchmark across the different periods as much as possible.

In defining the benchmark tax system for Chile, a hybrid between a pure conceptual and a pragmatic reference law approach is proposed. A reference tax law approach would require several discretionary and sometimes subjective decisions on what is included in the benchmark system and thus whether a tax provision is a TE or not. The pure conceptual approach has a clearer definition of the benchmark, but is more remote from the actual system and, therefore, would include many non-actionable TEs. The joint IMF-OECD team therefore proposes a TE benchmark that would be a hybrid between the two approaches: it stays as close as possible to a genuine comprehensive income tax base (see Box 1) as the TE benchmark; at the same time, it includes several actual provisions in the Chilean tax system as part of the benchmark. For instance, it recognises that businesses in Chile prior to the 2020 Tax Reform had the choice to be taxed under different regimes, which are then both included in the benchmark regime. The joint IMF-OECD team also suggests that the Chilean TE report should include a policy rationale for any deviation from a comprehensive income tax base.

This hybrid approach aims to provide clear guidance for deciding whether a tax provision is a TE or not, as for instance in the following cases:

- Irrespective of the choice for a partial or full dividend imputation system, the benchmark for the CIT should be established based upon accruals accounting standards.
- Irrespective of the integration regime for distributed dividends, capital gains are taxable in the benchmark system once realised. Hence, any under-taxation or absence of final tax on realised capital gains should be identified as a TE. Dividends are taxed under the PIT upon distribution as part of the TE benchmark. It is taken that also capital gains should be taxed when they are

realised (not when they accrue) as part of the benchmark.[12]

- Under the benchmark, all interest income is taxable. Hence, any preferential tax treatment at the household level on interest income (e.g. interest earned on bank accounts) – would be identified as a TE.

- Fringe benefits in the benchmark system are taxed in the same way as labour income. Under-taxation would therefore be a TE.

A.1 TE benchmark in the Period 2017-2019

The Dual TE Benchmark That the SII Applied From 2017-2019 Raises Concerns

The TE benchmark that Chile applied during the 2017-2019 period in their TE assessment could be referred to as a dual approach. At the CIT level, the benchmark consisted of regimes A and B following a reference tax law approach; at the PIT level, the benchmark was a fully integrated accruals regime, following a conceptual and, in particular, a comprehensive income approach. Such a dual approach raises several concerns:

- **The approaches followed under the CIT and PIT were inconsistent.** Both Regime A and the TE benchmark applied at the PIT level followed a comprehensive income tax regime that taxed income upon accrual. But only for the CIT did the benchmark system allow Regime B to be part of the benchmark, not for the PIT.

- **The corresponding TEs were not "actionable", i.e. they did not inform users on the impact of reform options.** The deferral of tax on retained business earnings by firms opting for Regime B was a TE within the PIT (and the largest item reported by the SII). However, there was limited possibility for the authorities to reform or reduce this TE at the PIT level, as undistributed profits (and the corresponding deferral of TE) arise from firms that have chosen Regime B at the CIT level. As the deferral TE under the PIT was driven by the choices of firms rather than the design of the PIT, this raises the question of why it was classified as a TE. Indeed, the tax system allows profits to be taxed on a realization basis (under the dividend imputation regime) rather than on an accruals basis (under the attributed income regime A), which supports the argument that tax deferral of retained profits should not be considered as a TE at the PIT level.

[12] Our choice resembles a comprehensive income tax approach, without integration of CIT and PIT for capital gains. Alternative choices of the benchmark are feasible too. For instance, another benchmark would be to exclude the imputation credit for dividends as well; or it could be equal taxation of capital gains vs dividends under the integration system. Each choice has its own merits and demerits, which reflects an important policy discussion. While interesting and important, these are best discussed outside of the context of a TE report.

A single benchmark under both the CIT and PIT is not a preferred option.

The use of a single tax regime as TE benchmark for the period 2017-2019 and applying it consistently at the CIT and PIT level would raise major challenges.

- ***If the attributed income regime (regime A) would be the benchmark system for both the CIT and PIT***, this would raise significant challenges in calculating TEs at the corporate level. This is because any tax reduction at the corporate level would result in a corresponding increase in tax liability at the personal level on an accruals basis. This approach would make the distinction between the corporate and personal level for the calculation of TEs largely irrelevant. Moreover, this tax regime is not well aligned with international practice and deviates from the tax treatment of income under Chilean tax treaties. For this reason, measuring the deferral TE associated to undistributed profits is highly unusual.

- ***If the (full or partial) dividend imputation system would be the benchmark for the CIT and PIT,*** the denial of the deferral under the attributed income regime would be a negative TE. This is generally hard to explain and can undermine the usefulness of TE reporting.

A consistent, dual TE benchmark approach at the CIT and PIT level is preferred

The preferred TE benchmark that is consistent and actionable incorporates the core elements of both regimes A and B at both the CIT and PIT level. It allows for realization based taxation for businesses that have chosen to be taxed under regime B and accruals based taxation for businesses under regime A. Including regimes A and B in the TE benchmark in a consistent and actionable manner (so for both CIT and PIT) would imply foregoing the measurement of tax deferral of retained profits as a TE. This has appeal, as the choice to tax capital income on a realization basis is more a matter of fundamental tax design than a TE, which reflects a deviation from that design.

A choice will have to be made between a full or partial dividend imputation system as the TE benchmark under regime B. Of course, under regime A, the full dividend imputation system would apply.

- ***If the TE benchmark for businesses that are taxed under regime B would be a full dividend imputation system,*** then the partial dividend imputation credit that is available under regime B would result in a negative TE, which should be avoided as much as possible.

- ***If the TE benchmark would be the partial dividend imputation system,*** then the benchmark would change over time if and when the authorities change the imputation credit (e.g. by returning to the full imputation system). A benchmark that changes regularly over time is undesirable in that it undermines the comparability of TEs over time and it adds to administrative costs for the authorities by having to adjust the TE estimation method. On the other hand, any tax rate change will have an impact of the TEs and will result in a lack of comparability of the TEs over time. Countries change tax rates regularly and this does not constitute a major issue regarding TE estimations. In that sense, if Chile would decide at one point in time to change the

level it its imputation tax credit, it would be straightforward to adjust the TE benchmark accordingly, so it does not require including a full dividend imputation system as the TE benchmark for the moment. As we will argue below, the choice for the partial dividend imputation system would also be well-aligned with the TE benchmark choice for the period 2020 onwards.

A.2 TE Benchmark in 2020 and Future Years

A Partial Dividend Imputation Regime for the TE Benchmark

After the 2020 tax reform, the partial dividend imputation regime is proposed as the TE benchmark (rather than the full dividend imputation system) for the following reasons:

- **From 2020 onwards, the turnover—rather than the legal form—of a business has been used as a criterion to assign businesses to the partial dividend imputation regime.** In this sense, it is a size-based deviation of the tax treatment from a more general regime. Thus, under this interpretation, the full dividend imputation system (i.e. the SME regime) would be considered as providing a preferential tax treatment targeted at SMEs below a certain threshold, thereby constituting TEs because of the reduced CIT rate and the full (rather than the partial) dividend imputation credit).

- **If the full imputation regime would be chosen as the benchmark, the higher CIT rate and the partial dividend imputation credit would be negative TEs.** Negative TEs are generally undesirable because their unclear interpretation that can undermine the transparency objectives of TE reporting more generally.

An argument in favour of the full dividend imputation system as the TE benchmark arises if policymakers would agree that the full dividend imputation system (instead of the partial dividend imputation system) is the most preferred tax system. In Chile, the partial dividend imputation credit (under regime B) was introduced in 2014 to induce businesses to choose for the attributed income tax (regime A) where tax deferral is absent. By abolishing regime "A" in the 2020 reform, Chile could have re-installed its full dividend imputation system, perhaps combined with an increase in the top PIT rate. Such a reform would also align the tax burden between taxpayers that fall under the SME regime and under the standard regime. Such a choice, however, would be primarily guided by the desire to change the system, rather than to make transparent the revenue foregone from special provisions for certain taxpayers. That discussion might therefore be better placed as a standalone policy issue, and not be part of the TE report. If Chile would re-introduce a full dividend imputation system in the future, this would then require a change in the TE benchmark from the current partial towards the full imputation system.

Another (less preferred) option would be to include both the partial and full dividend imputation systems in the TE benchmark. The tax reduction targeted at SMEs could still be presented as a TE. However, this would imply that the preferential tax treatment for SMEs would not

be reported as a TE as a whole. However, regularly reporting the revenue foregone from special tax treatments is precisely the aim of a TE report. Therefore, preference is given to excluding the SME regime from the TE benchmark (except for the SME Transparent regime, see below).

Whether the 25 percent or the 27 percent CIT rate will be included in the TE benchmark does not seem to be a choice that should be made in isolation from the choice for the partial or full dividend imputation system. If the full dividend imputation system were to be included in the TE benchmark, this should imply that the TE benchmark CIT rate is 25 percent. The TE benchmark CIT rate will be 27 percent if the partial dividend imputation system is part of the TE benchmark.

The "SME Transparent Regime" is Part of the 2020 TE Benchmark

The new "SME Transparent regime" taxes personal business income under the PIT irrespective of whether profits are distributed. The regime is designed such that in practice only low-income businesses face a tax-incentive to choose for this regime, as will be explained below. A low-income business can either choose to be taxed under the SME regime (with full integration) or the SME Transparent regime. Under the SME regime, 100 percent of the CIT paid is creditable against Final Taxes. While shareholders benefit from this credit with delay, under the SME Transparent regime taxation the owner will be taxed directly with final taxes (i.e. is spared from paying CIT first and then getting a credit for what was originally paid). Tax rules that define how personal business income of the self-employed is taxed are an integral (i.e. structural) element of the tax system and are therefore commonly included as part of the benchmark tax system. Indeed, because the personal business income is taxed only under the PIT and not under both the CIT and PIT (with an integration of the taxes paid at both levels), there are strong arguments to include this regime separately within the TE benchmark. This report therefore suggests including the SME Transparent regime in the TE benchmark for Chile as from 2020 onwards.

The SME Transparent regime applies only to small businesses who have shareholders that are liable for PIT. The extent to which businesses will choose for the SME Transparent regime remains an open (empirical) question and the precise number will not be available until the tax returns are filed. However, an estimate could be made based on simulations using the regime eligibility criteria and current tax record data. In particular, one may expect that only taxpayers with taxable personal business income below 90 UTA (about USD 63,000) face a tax-induced incentive to prefer the "SME Transparent regime" to the standard "SME regime". Taxpayers with taxable personal business income up to 90 UTA face a marginal PIT rate of 23 percent, which is below the 25 percent CIT rate under the "SME regime" (the CIT rate was temporarily reduced to 10 percent for SMEs until 2022). A low-income taxpayer who would choose for the "SME regime" (rather than the "SME Transparent regime") would pay the higher 25 percent CIT rate on its profits. The entrepreneur would be able to obtain a refund for the excess tax paid (the extent to which effective CIT rate exceeds the marginal PIT rate) but only when the profits are distributed as dividends. Profits that are reinvested in the corporation would bear the higher CIT rate instead of the lower PIT rate (until the firm's assets are sold and the profits are distributed as dividends). All other businesses, i.e. all businesses with taxable personal business income above 90 UTA would prefer the "SME regime" to the "SME Transparent

regime", as this would allow them to defer the higher PIT rate until dividends are distributed. Moreover, the temporary reduction in the CIT rate for SMEs from 25 percent to 10 percent until the end of 2022 has further increased the tax-induced incentives to prefer the "SME regime" rather than the "SME Transparent regime".

B. Tax Expenditure Analysis in the Corporate Income Tax

This section presents an assessment, on an item-by-item basis of selected CIT expenditures in Chile, according to the proposed definition of the benchmark.

B.1 The SME Regime

The SME regime after 2020

A first implication of the proposed benchmark is that from 2020 onwards, a direct CIT TE should be computed on the SME regime, stemming directly from the 2 percent rate difference with the general regime in the benchmark. This TE is computed by applying 2 percent to the reported taxable income.

Before 2020, because both Regimes A and B are in the benchmark, no direct CIT TEs are to be computed for either regime.

Interaction with individual CIT exemptions

The proposed benchmark also implies that the CIT rate to be used for all individual CIT TEs reviewed below in this section should be as follows:

- Before 2020, the actual CIT rate (25 or 27 percent) applying to each taxpayer should be used, as both regimes A and B are in the benchmark;

- From 2020 onwards, the benchmark CIT rate of 27 percent of the general regime should be used. For those taxpayers under the SME regime (25 percent), the 2-point difference in the CIT rate should be isolated as a TE resulting from using this benchmark. A simple example illustrates the calculation of TEs for SMEs:

    - A taxpayer in the SME regime without any extra CIT exemptions benefits from the direct TE owed to the 2-point CIT rate difference with respect to the general regime. For example, for a taxable income of 100, an SME benefits from a TE of 2.

    - The same SME now with an extra CIT preferential treatment (such as any of the CIT treatments listed below) reducing its taxable income from 100 to 80 benefits from 1) a TE directly attributable to that preferential treatment, computed as 20 x 25 percent = 5; 2) the TE due to the SME regime, computed as 100 x 2 percent = 2. The total TE is 7.

Cash-basis vs accruals

Description. After 2020, taxable income under the SME regime is assessed on a cash-basis (including immediate expensing of assets), as opposed to the accrual basis used in the general regime.

Discussion. TEs could in principle be computed on the accelerated depreciation implied by asset expensing in the SME regime, using standard depreciation rules under the general regime as the benchmark. In practice, however, two considerations must be borne in mind: (i) in steady state, a cash-basis taxable income would be close to its accruals equivalent, including for asset expensing;[13] (ii) such TE computation would involve requiring information on assets from SMEs, which would defeat the purpose of the simplified cash-basis accounting system.

Any practical approach to this TE computation would therefore involve using 2019, pre-reform asset depreciation data. That computation, for which we know of no example internationally, would seem to be overly complex given point (i) just noted and is not recommended.

B.2 Capital Gains – Item 8.17 (Section 107 of the ITL)

Description

Tax regime. Under certain conditions, capital gains derived from the disposal or redemption of shares of publicly traded corporations, or quotas of publicly traded investment funds or mutual funds with "market presence" are deemed to be non-taxable income.[14]

Current TE estimation. Consistently with the arguments in Section 2.3, the absence of a final tax on realized capital gains are identified as a TE and computed under item 8.17. However, the computation methodology for item 8.17 is unclear, based on a procedure dating to 2001.

Discussion

There are two particular features that characterize this TE. First, a salient transaction or arrangement that benefits from the exemption under Section 107 of the ITL in a particular year can draw significant public attention to the corresponding TE. Second, the nature of this exemption inevitably makes this TE relatively volatile as it can be greatly influenced by a few exceptional transactions.

The tax exemption under Section 107 constitutes a TE under the CIT if the exempt capital gains are realized by a corporation, but not a mutual fund or an investment fund since in these cases, as discussed above, the benchmark is taxation at the PIT side. Similarly, if the final taxpayer who

[13] Differences between cash-based and accruals in revenue and expenses can be favourable or unfavourable to the taxpayer and can offset one another.

[14] At the time of determining market presence, securities should have an adjusted presence greater than or equal to 25 percent or have a market maker. To calculate the adjusted presence, only the days with transactions greater than or equal to UF 1,000 (approx. USS 33,650), over the last 180 trading days are considered.

benefits from the capital gains exemption is an individual then the TE will also be classified as a PIT TE (Section III. C.).

Item 8.17 has typically indicated a relatively small TE amount below one percent (around 0.5 percent) of total TEs. However, there are two important caveats. First, as discussed in Section III. C (the item on exemption on capital gains under Section 107 of the ITL), the computation methodology for item 8.17 should be revised in light of the latest changes to the tax system as well as making the best use of available data sources. Ideally, the current estimation of this TE should be dismissed and replaced by a new method. To maximize the use of accurate up-to-date information, corporate taxpayers should be required to separately report in the tax return all realized capital gains that are exempt under Section 107. This should not constitute additional compliance costs since this information is readily available in corporate financial accounts. Moreover, this information should be complemented and verified, to the extent possible, by additional data from the responsible regulators (such as the Financial Market Commission—La Comisión para el Mercado Financiero—and other relevant sources). Second, since the exemption under Section 107 can be attributed to the PIT or the CIT, this TE should be decomposed into a PIT and a CIT component both in terms of computation and reporting the outcome.

B.3 Investment and Mutual Funds

Description

Tax regime. In line with most countries, investment and mutual funds in Chile are not taxed at the entity level but are treated as pass-throughs. They are required, however, to maintain relevant tax information on their distributions of dividends, which are generally subjected to the PIT and capital gains taxes for resident individuals (subject to some exceptions). While, in principle as a general rule, distribution by resident entities is subject to the CIT and capital gains taxes whereas non-residents are subjected to WHTs, there are exceptions for these entities that lead to under- or no taxation including CIT exemption and reduced WHTs.

Current TE estimation. No TEs are computed in this regard.

Discussion

Viewing investment and mutual funds as indirect investment vehicles provides a rationale for considering their tax treatment (as a pass-through entity) as the benchmark. This implies that i) to the extent that management fees charged by these funds are taxed, there are no TEs on the side of these funds; and ii) as long as distributions and capital gains are taxed in the hands of the investors there will be no TEs. However, under- or no taxation of dividends and capital gains of the investors lead to TEs under the CIT or PIT depending on whether the investor is an individual or entity.

Examples of CIT TEs include:

- Capitals gains of resident legal entities under Section 108 of the ITL from the disposal of shares

in mutual or public investment funds.

- Capitals gains of legal entities from the disposal of shares in mutual and/or public investment funds that are acquired or sold in the stock exchange market (and are deemed to have "a market presence"; Section 107 of the ITL).

These TEs should be computed. Note, however, that these TEs arise on the side of the investor and would be computed under the classification of the corresponding section in the ITL. For example, as discussed above, *all* capital gains exemptions under Section 107 of the ITL should be computed including those from the disposal of shares in mutual and/or public investment.

Examples of PIT TEs in this context (see also Section III.C.) include:

- Resident individuals' capitals gains of below 10 UTA (USD 7,000) from the disposal of shares in investment funds.

- Capitals gains of resident and non-resident individuals from the disposal of shares in mutual and/or public investment funds that are acquired or sold in the stock exchange market (and are deemed to have "a market presence"; Section 107 of the ITL).

B.4 Presumptive Regimes – Items 1.1 to 1.4

Description

Tax regimes. Small taxpayers in agriculture, transports and mining can use a presumptive tax base (subject to maximum sales thresholds).[15] In agriculture and transports, the tax base is estimated as a percentage of the fiscal value of land or vehicles;[16] in mining, as a percentage of sales (see page 54).

Current TE estimation. The benchmark is the standard CIT regime. For agriculture, freight transport and mining, cash flow is used as an approximation of the true CIT tax base, as estimated on the basis of VAT and labor cost data (VAT minus labor cost providing an approximation of cash flow). An average cash flow/taxable income ratio is then computed for taxpayers in the standard regime for a given economic branch, where both true cash flow and taxable income are observed. That ratio is then applied to taxpayers in the presumptive regime in the same economic branch to approximate their taxable income on the basis of their estimated cash flow.[17] The TE is the difference between the corresponding estimated CIT and the presumptive tax actually paid.

[15] Agriculture: UF 9,000 (approx. 300,000 USD); Transports: UF 5,000 (approx. 164,000 USD); Mining UF 17,000 (approx. 566,670 USD).

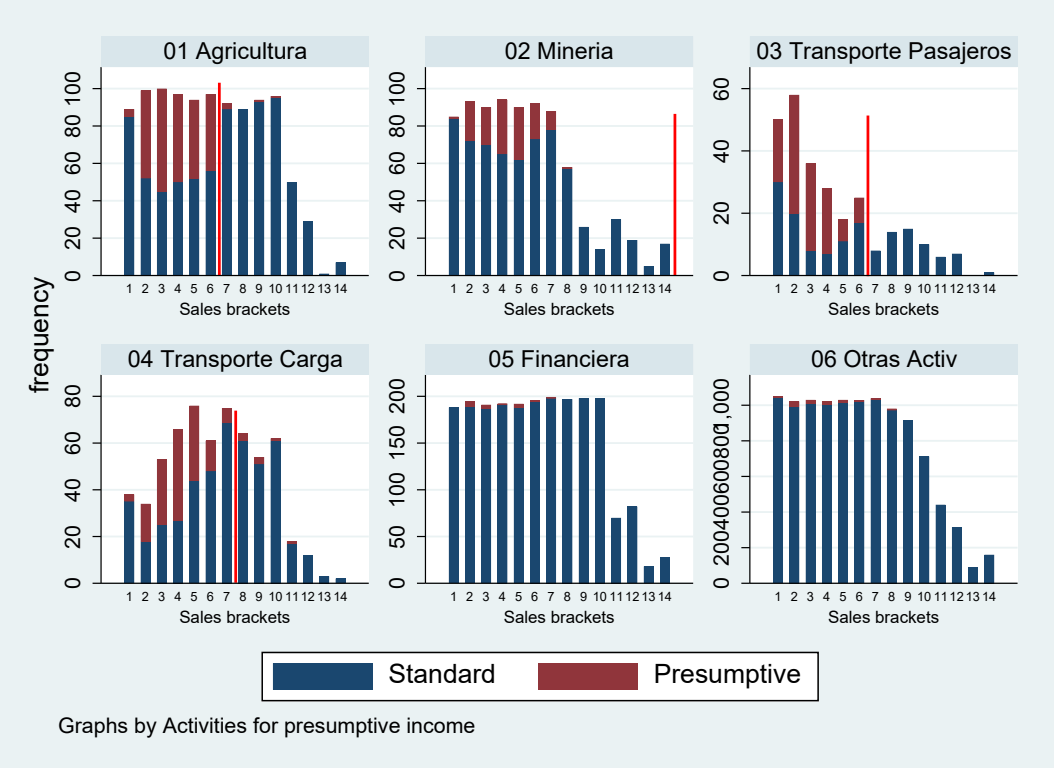
[16] Assessed value of land or trucks, which is usually lower than their market value.

[17] A different average ratio is computed for taxpayers with mixed presumptive/standard activities, as cash flow data cover all activities for a given taxpayer. Also, because passenger transport is a VAT- exempt activity, there is no VAT data available for estimating the cash flow. The declared presumptive tax base is used instead (value of vehicles).

Figure 1 shows the number of taxpayers under respectively the presumptive and the standard regime, by sales brackets and activities. Interestingly, there are a relatively large number of taxpayers under the standard regime in the lowest sales brackets, where they could have opted for the presumptive regime. Consistent with information reported by the SII, this suggests that small taxpayers in those sectors may determine their CIT regime as a function of the expected tax burden in each regime, not because the compliance cost of the standard regime may be too high relative to their size of operations.[18]

Finally, Appendix 2 reports that among the 5 OECD countries surveyed only Italy reports TEs for its presumptive regimes (the methodology used is not specified).

Figure 1. Number of Taxpayers by Increasing Sales Brackets and Activities (2019)



Source: IMF staff calculations.
Note: the thresholds are shown as vertical red lines.

Discussion

It is acknowledged that using a cash flow approximation is likely to generate relatively precise estimates of the true taxable income. In addition, because cash flow is not the variable reported by

[18] Beyond the issue of TE estimation, these statistics suggest that the justification for a presumptive regime in those sectors should be reviewed.

taxpayers to assess taxable income under the presumptive regime (e.g. assets or sales), it is less susceptible to underreporting and is therefore likely to provide more robust information.

However, the average ratio is computed on the entire universe of a given activity, whereas Figure 1 reports that there are standard regime taxpayers regime in each of the lowest sales brackets – that is, below the presumptive regime thresholds; because cash-flow to income ratios may vary considerably with sales, computing them for each of those brackets would improve the precision of the estimates.

Suggested adjustments. The periods before and after the 2020 reform need to be distinguished. For the period before 2020, where the benchmark is either Regimes A and B, it is suggested to simply improve on the current cash-flow based estimates by computing those within each sales bracket in each sector, data permitting, and not at the sector level.

For the period after 2020, the appropriate benchmark for the presumptive regime is arguably the SME Transparent regime (see page 54), which has no CIT. From 2020 onwards, CIT TEs would consequently be negative, in the exact amount of the CIT effectively paid. It is recommended to consider these negative CIT TEs in conjunction with the positive PIT TEs estimated for these regimes (see below). However, a special situation (still after 2020) arises when a taxpayer maintains both a presumptive and an effective regime, in which case it can be argued that a more realistic benchmark is the general regime. The TE should then be computed using the same approach as for the period before 2020, but with the post-2020 general regime as the benchmark.

B.5 Free Trade Zones

Description

Tax regime. Profits of businesses located in free trade zones (FTZs) of Iquique and Punta Arenas are exempted from the CIT on profits generated in these zones.

Current TE estimation. The benchmark is a non-exemption from the CIT, but the computation is complicated by the lack of information on net income of businesses in FTZs.[19] The SII extrapolates TEs estimates for 1999 computed by Jadresic (2000). However, the methodology and detailed computation of this study are unclear—and appears to be not readily available to the SII.

Discussion

Computation. To improve the accuracy of estimating TEs arising from FTZs, it is critical to revisit the methodology and maintain up-to-date information on all corresponding taxpayers.

Suggested adjustments. Verify information from tax returns of *all* taxpayers in the FTZs and enrich the database by exploiting other potentially useful sources of information—such as VAT returns,

[19] Only taxpayers that have operations inside and outside the free trade zones file Form 22.

business registry, and information from customs, employment office, mandatory pensions, and social security contributions—to accurately estimate revenues and costs in the FTZs.[20]

Note that for computing TEs, the applicable tax rate should be 27 percent for all firms in the FTZs—even for those with a turnover below UF 75,000. However, to compute that TE resulting from the interaction between the SME regime and FTZs, exempt profits of SMEs in FTZs should be multiplied by 2 percent.

B.6 Cooperatives

Description

Tax regime. Cooperatives are associations which, in accordance with the principle of mutual assistance, have the purpose of improving the living conditions of their members. They are legal persons and provide limited liability to their members. Their shares are transferrable. Cooperatives could not opt for Regime A before the 2020 reform and are either in the general regime or the SME regime as a function of their turnover after the reform. Importantly, cooperatives are exempted from CIT on the portion of their "surplus"[21] that is generated through transactions carried-out with their members.[22] Other preferential treatments include:

- Transactions between a cooperative and its members are not subject to VAT;
- Stamp taxes are exempt;
- 50 percent of municipal taxes except those related to alcohol and tobacco are exempt;
- The capital gain derived from the disposal of the cooperative shares is exempt;
- 50 percent of the immovable property tax is exempt.

Current TE estimation. No TE is currently computed on cooperatives.

Discussion

Suggested adjustments. TEs should be estimated on these exemptions. We focus here on the CIT exemption, arguably the most important, which should be based on the portion of surplus deemed to have originated from transactions with members. The main issue on implementing this estimation is data availability. Cooperatives only report the portion of their surplus that is CIT taxable to the SII –

[20] The mission could not verify whether there is sufficient information to assess all TEs related to the FTZs.

[21] The surplus is determined following the accepted deductions used to determine the CIT tax base.

[22] This criterion applies only to transactions on (procurement of) inputs, not sales. A cooperative procuring all its inputs from its members would be CIT exempted, irrespective of whether it sells its production to non-members.

but not total surplus including the portion originating from transactions with members. That total surplus is however reported to the Ministry of Economy (Department of Cooperatives).

While that information could be used for an initial approximation of the TE on cooperatives, it is nevertheless recommended to make it compulsory for cooperatives to report their total surplus to the SII.

The recommended computation for this TE would be as follows:

- The basis for the TE should be the difference between the total surplus and the current CIT basis.

The table below provides sample estimates for 4 cooperatives for which partial data from the Ministry of Economy is available,[23] showing that at least for one of them (in the financial sector) the TE is very significant at an estimated 15 billion pesos. These estimates were produced using data spanning two years (2018 and 2019) and are for illustrative purposes only. They nevertheless confirm that estimating TEs on cooperatives is important.

Table 2. Sample TE Estimates for Four Cooperatives (Amounts in Peso Millions)

Branch	CIT rate	Surplus 2018	Taxable income 2019	CIT 2019	TE	TE/CIT
OTRAS ACTIVIDADES DE SERVICIOS	.27	295	5	1	78	61.0
ACTIVIDADES FINANCIERAS Y DE SEGUROS	.27	294	14	4	75	19.7
ACTIVIDADES FINANCIERAS Y DE SEGUROS	.27	60,637	4,999	1,350	15,022	11.1
AGRICULTURA, GANADERIA, SILVICULTURA Y PESCA	.27	2,344	918	234	399	1.7

Sources: SII, Ministry of Economy

B.7 Universities – Item 2.3

Description

Tax regime. Profits from educational activities of recognized universities are exempt from the CIT.

Current TE estimation. The benchmark, thus far, is taxing those profits at 25 percent. Computation is based on financial statements and information from the Ministry of Education, but it faces difficulties as filing Form 22 is not required and information on wages is lacking.

[23] These 4 cooperatives were selected based on data availability only.

Discussion

Benchmark. As the SME regime has not been deemed to be part of the benchmark, it becomes important to compute TEs of item 2.3 by applying a tax rate of 27 percent on profits from educational activities.[24]

Box 2. Maximizing the Use of Data for Improving the Accuracy of TE Estimates

Improving the computation of TEs—as proposed in this report and more generally as a part of the continuous methodological advancement process—requires strengthening the utilization of available data sources (other than existing income tax returns) and potentially recording new information. A high-level summary of suggested areas for strengthening data sources for estimating TEs in Chile, as identified in this report, include:

Leasing

- Lessor data on declared loss following transfer of financed assets
- Lessee F1026 adjustment data

Intangibles

- F1026 adjustment data

Cooperatives

Data on total cooperative surplus, to be reported to the SII

Free Tarde Zones (and other areas subject to preferential tax treatments)

- Fully enforce the filing of tax returns by *all* taxpayers in the FTZs and verify and enrich this database using third-party information such as data from the employment office, mandatory pensions, and social security contributions

Capital gains under Section 107 of the ITL

- Data from the Financial Market Commission and other related regulatory agencies as well as commercial sources of transactions of shares of publicly traded corporations and quotas of investment funds or mutual funds

Universities

Requiring universities to file Form 22

Suggested adjustments. Ideally, all universities should be required to file form 22. Meanwhile, information from the Ministry of Education can be complemented by information form the mandatory pension system and social security contributions to estimate wages and labor costs attributed to profits from educational activities.

[24] Generally, the rate of 27 percent should be applied to other similar deductions beyond this particular item.

B.8 Leasing – Item 5.2

Description

Tax regime. A leasing arrangement is a financing mechanism for tangible goods (for instance machinery, vehicles and land) whereby the lessor leases the goods to the lessee, with an optional ownership transfer at the specified date. Importantly, that date is typically prior to the end of the normal depreciation period of the assets, as leasing instalments include principal repayments on a shorter schedule than the normal depreciation schedule. Land, which is not authorized for tax depreciation, can also be funded through leasing. Chile's tax treatment of leasing is best understood considering its two typical phases, before and after ownership transfer:

- During the first phase, the lessor retains ownership of the asset and depreciates it for CIT purposes; the lessee pays leasing instalments to the lessor, which are, for CIT purposes, deducted from their income and accrued to the lessor's. The instalments are significantly larger than the depreciations on the lessor's books, because they include financing costs, risk premium, insurance but also, and critically, implicit principal repayments on the value of the assets on a shorter repayment schedule than the depreciation schedule.[25] For instance, if a car with initial value $10,000 is leased to a car rental company, its tax depreciation schedule may be five years, but its implicit repayment period up to the transfer date may be three years, resulting in a low, and possibly zero, residual transfer payment.

    - The second phase starts after the transfer of ownership from the lessor to the lessee. Because the leasing installments have included principal repayment, the transfer payment is typically significantly less than the undepreciated balance of the asset for tax purposes, the transfer generates a loss for the lessor for CIT purposes. In our example, the car's undepreciated balance would be $4,000 after three years, with the $2000 transfer payment generating a lessor's "loss" of $2,000 for CIT purposes. That loss for CIT purposes is analogous to accelerated depreciation at the time of transfer. After the transfer, the asset is owned and depreciated by the lessee for the amount of the transfer payment, i.e. $1,000 per year for two years.

Current TE estimation. The benchmark is, correctly, a situation where the lessee acquires the asset, owns it all along and depreciates it accordingly.[26] Against that benchmark, no TE exists during the initial phase because leasing instalments (which reduces the lessee's CIT liability) are offset by the lessor's equivalent additional income (which increases the lessor's CIT liability) – only the standard depreciation on the lessor's side are deducted for CIT purposes and these are equal to the benchmark's. At the time of the ownership transfer, a TE manifests itself because of the loss on the lessor's side. That loss shows up because there is still a typically significant residual value on the lessor's books at the time of the transfer whereas the asset has in fact been already repaid partially or totally through leasing installments during the initial phase, resulting in a low or zero transfer

[25] This is especially true for land, which is not allowed for depreciation at all.

[26] No depreciation in the case of land.

payment from the lessee to the lessor. Because such loss does not exist under the benchmark, there is a TE at the time of the transfer. In that sense, the leasing arrangement is similar to accelerated depreciation. In the second phase, once the asset is transferred to the lessee, because residual depreciations on the lessee's books are smaller than they would be under the benchmark, a negative TE appears each year, but the sum of those negative TEs is smaller than the TE generated by the transfer loss. In other words, the NPV of the tax savings is positive.

The detailed implementation of the current TE estimation makes use of the fact that under Chile's accounting standards leased assets are treated as if they were owned and depreciated by the lessee all along, just like in the benchmark. The lessee consequently needs to report "adjustments" under Form 1926 for CIT purposes. Such adjustments are the source of information used to compute the TEs. During the initial period, TEs are therefore overestimated; at the time of the ownership transfer they are underestimated; in the second period, they are again overestimated. A cash-flow approach is used (no NPV computation).

Discussion

Leasing, because it allows for faster depreciation with respect to a benchmark where the asset is acquired and depreciated by the lessee, generates a TE – just like accelerated depreciation. The general logic of the current TE estimation thus appears justified. However, because it uses only lessee information from Form 1926 adjustments, the current computation is an approximation in terms of the actual timing of the TEs. Given the size of this TE, a more precise computation reflecting the fact that the negative TE shows up only at the time of the asset transfer may be warranted.

On the other hand, it is suggested to retain a cash-flow approach, as an NVP computation would obscure the fact that during the initial period no TEs are generated by leasing.

The proposed steps and data sources for a revised TE estimation on leasing are as follows:

- Ascertain that no TEs is recorded during the initial period. In practice, when leasing installments are higher that the depreciations as per the lessee's financial accounts, as observed through F1926 adjustment data, no TE should be recorded.
- Lessor side data on the declared loss for CIT should be the basis of the TE at the time of the transfer.
- During the period after the transfer, lessee side F1926 adjustments should be the basis of (negative) TEs estimates.

B.9 Intangibles – Item 5.3

Description

Tax regime. There are two categories of TEs under the current TE estimate "Amortisation of intangibles and others" (Item 5.3). *Start-up costs* incurred before income-generating activity starts (market studies, legal costs, advertising, etc.) can be fully deducted for tax purposes the year they are incurred, whether such items are acquired externally or self-produced. *Intellectual Property (IP) items* acquired externally, such as copyrights, patents and trademarks, are not normally allowed for expensing or depreciation in Chile. However, a recent temporary measure (2020) allows for amortization of intellectual and industrial property and some protected vegetal varietals, up until 2022.

Current TE estimation. For both categories, the benchmark follows Chile's accepted accounting standards, as recorded in the taxpayer's financial accounts. For start-up costs, that benchmark assumes that such items can be either expensed or depreciated over time. For IP items, the benchmark assumes that they are depreciated over time.

For those start-up costs which are expensed, as losses are carried forward indefinitely according to Chile's tax rules, a TE is recorded in the initial period after the start-up turns a profit. For IP items, the TEs are negative as a result of the no-amortization rule up until 2020.

The detailed current TE computation is as follows: (1) the basis of the TE estimates are the adjustments from Form 1926, which are the differences between the treatment of these assets in financial accounts and their tax treatment; (2) because before 2020 such adjustments were only provided to taxpayers under the partially integrated regime, an extrapolation was needed for other taxpayers; that extrapolation used total fixed assets as a basis.

Discussion

Start-up costs. As the most observed international practice would be to amortize these costs,[27] which are investments intended to generate revenue over time, the rationale for computing a TE on their expensing is well-founded (when they are amortized in financial accounts, an acceptable benchmark in that regard).

IP items wear off over time and it is customary to amortize them (footnote 2), as there are investments generating revenue over time. Here again the current (negative) TEs are justified. Following the recent measure allowing amortization of these assets, these negative TEs should be reduced in the future.

[27] Jacek Warda, *Tax Treatment of Business Investments in Intellectual Assets: An International Comparison*, OECD, OECD Science, Technology and Industry Working Papers, 2006/04, 2006.

However, the extrapolation used in the actual TE computation appears to be overly imprecise, with no clear logic why total fixed assets should be an appropriate extrapolation basis.[28] In addition, if no adjustments are provided by a given taxpayer, it is not clear what the origin of the TE would be, as it is understood that there would then be no difference between respectively the tax and the financial treatment (the benchmark). This seems to give rise to the possibility of systematic over estimation of the TE.

Suggested adjustments. It is recommended to use actual adjustments data from respectively financial to tax treatment, for all taxpayers and for both start-up costs and IP items.

B.10 Donations for Cultural Purposes

Description

Tax regime. The ITL provides tax benefits for various kinds of donations. The item "donations for cultural purposes" has been chosen as one example. The ITL provides for the deduction of 50 percent of the qualified donated amount for cultural purposes and a tax credit for the remaining 50 percent. Since the 2020 reform, loss-making firms can carry forward of unused deductions.

Current TE estimation. The benchmark is a rejected expense that is subjected to a penalty leading to a tax rate of 40 percent. The amount of donations is readily available in tax Form 22 enabling a straightforward computation of TEs for each taxpayer.

Discussion

Benchmark. For a business, a charitable donation cannot constitute an expense incurred in order to earn income or else it would not be "charitable"—i.e., it is not a necessary business expense"— and thus is considered in many countries as TEs. The foregone revenue is the amount donated multiplied by the penalty rate.

Suggested adjustments. Applying a penalty leads to a misleading aggregate TEs figure. To compute the total TE for this item, apply the CIT rate of 27 percent to the donated amount for each firm—irrespective of whether it is in the general regime (partially integrated regime) or the effective-distribution SME regime. However, to compute that TE resulting from the interaction between the SME regime and donations for cultural purposes, the donated amount should be multiplied by 2 percent. TEs for this item should be computed on a cash basis. Additional NPV calculations for loss-making firms could be considered in the medium-term.

[28] Fixed assets would be an appropriate extrapolation basis if fixed assets / intangible assets ratios where sufficiently similar across taxpayers, for each type of intangible assets.

C. Tax Expenditure Analysis in the Personal Income Tax

This section presents an assessment, on an item-by-item basis of selected PIT expenditures in Chile, according to the proposed definition of the benchmark and following a set template.

C.1 Full Dividend Imputation System Under the SME Regime

For companies that are taxed under the SME regime, the partial dividend imputation regime is the TE benchmark. The proposed TE benchmark includes the SME Transparent regime in the TE benchmark, but the SME regime is not. Companies that qualify for the SME Transparent regime do have the option to be taxed under the SME regime. When calculating TEs, the proposed approach is to respect the choice of the tax system that has been made by SMEs. This means that the TE benchmark is the partial dividend imputation regime for SMEs that have chosen to be taxed under the SME regime irrespective of whether its shareholders are all final taxpayers or not (i.e. irrespective of the fact that the SME could have chosen to be taxed under the SME Transparent regime).

Businesses that are taxed under the SME regime benefit from a full dividend imputation system. Rather than the 65 percent imputation credit, they receive a 100 percent dividend imputation credit. This 35 percent additional dividend imputation credit is considered a TE under the proposed TE benchmark. However, the TE calculation needs to take into account that the partial dividend imputation regime has a 27 percent CIT rate, in comparison to the 25 percent CIT rate under the SME regime. The difference in the amount that is creditable against PIT should then be measured as a positive TE for those shareholders in companies that have chosen to be taxed under the SME regime.

The proposed formula to be calculated at the individual taxpayer level is as follows:

$$PIT\ TE_{SME_{regime}} = 0.0745 * individual's\ share\ of\ corporate\ taxable\ income\_t$$

Where 0.0745 = (0.25-0.27*0.65); 0.25 SME CIT rate; 0.27 general regime CIT rate; 0.65 percentage of CIT paid that is credited against PIT in the general regime.

To clarify this point, table 3 measures the CIT TE due to the 2 percentage point rate difference between the SME regime and the Partial Imputation Regime as well as the PIT TE under a standard case in which the share of corporate taxable income that belongs to taxpayer i is 100.

Table 3. Reduced CIT Rate and Full Dividend Imputation TE

	SME	General Regime (Benchmark)	difference
Profits	100	100	
Taxable income	100	100	
Tax rate	0.25	0.27	
CIT paid	25	27	**2**
Dividends distributed	75	73	-2
CIT TE = CIT liability general regime - CIT liability SME regime **= 2**			
grossed up dividends taxed at PIT level	100	100	
Net income x PIT rate (35%)	35	35	
Credit	25	17.55	-7.45
PIT due	10	17.45	**7.45**
PIT TE = PIT liability general regime - PIT liability SME regime **= 7.45**			
Total TE = CIT TE + PIT TE= **9.45**			

C.2 Exemption on Capital Gains (item 8.17 of the TE report)

Description of the Provision

Under section No. 107 of the Chilean ITL, capital gains are exempt from tax on the sale or transfer of shares in publicly traded companies, quotas of publicly traded investment funds and quotas of mutual funds provided the shares are regularly traded on the stock exchange or have a substantial 'market presence' (*presencia bursátil)*. The exemption is available to resident individuals, resident companies and non-Chilean residents and was introduced in 2001 to stimulate the development of the financial market in Chile.

To meet the definition of 'market presence', securities must have an adjusted presence greater than or equal to 25 percent[29] or have a 'market maker'.[30] When 'market presence' is met exclusively under a market maker agreement, the capital gain is exempt only for a period of one-year (from the first public offering of the securities). Further requirements must also be met for each of the three aforementioned investment options (i.e. publicly traded companies, quotas of public investment funds and quotas of mutual funds). Shares must be acquired and/or disposed of in a stock exchange (the Santiago stock exchange, Bolsa Electrónica de Chile or Bolsa de Corredores de Valparaiso) authorised by the Commission for the Financial Market, among other requirements. In the case of the sale of quotas of investment funds, the exemption also applies even when 'market presence' is not met provided the investment policy of the fund is to invest at least 90 percent of its portfolio in shares with a stock market presence and the management company is obliged to distribute among contributors all the dividends and interest received between the date of acquisition of the quotas and their sales.

Measurement and Data used by the SII

The current methodology estimates the TE associated with the capital gain exemption on mutual and public investment funds where the gains are derived from the stock market. The current methodology draws on an ex-ante estimate produced by the Budget Department financial report in the year 2001. That estimate is then updated to the current period using the consumer price index and an adjustment for the average PIT rate.

Is this Provision a TE under the Proposed TE Benchmark? Yes. Under the proposed benchmark the non-taxation of realised capital gains gives rise to a TE.

Assessment

The exemption has wide coverage due in part to a relatively limited set of eligibility requirements for market presence, applicable shares and investor types and it has no cap. Exemptions to capital gains arising from the disposal of shares are very rare across OECD countries. The exemption granted by Chile has wide coverage for the following five reasons. First, the exemption is available to a broad range of investor types including resident individuals, resident companies or non-Chilean residents. Second, the exemption covers both PIT and CIT. Third, the exemption has no cap. Fourth, the market presence requirement is not particular restrictive. Data are available on the extent to which securities on the stock exchange have market presence or were under contract with a market maker. According to data on the Santiago Stock Exchange, 39 percent of stocks, 25.3 percent of investment funds and 4.9 percent of mutual funds meet these criteria. Additionally, the top 20 companies on the Chilean stock exchange with a high market presence (50

[29] Adjusted presence is calculated based on the percentage of days with transactions greater than or equal to UF 1,000 (~ US $33,650) in the past 180 trading days.

[30] A security is considered to have a "market maker" if the issuer of the respective security has entered into an agreement with at least one stock broker that meets certain requirements including a minimum duration of 180 days.

percent or above) comprised more than half of the market (52.05 percent) in the first half of 2020. Thus, the market presence requirement is not particularly restrictive in that a significant number of securities are available that meet the necessary criteria. Fifth, the set of eligibility requirements applicable to shares of publicly traded companies and quotas for both investment and mutual funds are also not especially restrictive beyond that the shares are acquired and disposed of in a stock exchange authorised by the Commission for the Financial Market (the requirements are however relatively more stringent in the case of quotas on mutual funds).

Capital gains exemptions are available in some cases even when the requirements (market presence) are not met. For the sale of quotas of investment funds, the exemption applies even when the securities do not have 'market presence' if the fund meets certain criteria (see the description of the provision section above for details). In this case, the exemption for investors in the quotas of investment funds (and the owners of the investment fund) is also available when the investment fund realises a gain regardless of whether the underlying assets are realised. This represents an additional exemption on top of the exemption available for the sale of quotas of investment funds.

The current methodology applied to measure this TE is weak and should be phased-out. The current methodology used by the SII to measure the TE draws on an estimate produced by the Budget Department financial report in the year 2001, which makes it out-of-date. This original capital gains estimate is updated to the current period by applying the consumer price index and an adjustment for the average PIT rate, which is unlikely to accurately follow the growth of exempt capital gains over time thus compounding an already uncertain estimate. At the time of the estimate, the financial market in Chile had not been fully developed; indeed, the exemption on capital gains was introduced in part to deepen and expand the financial markets.

The capital gain exemption on shares in the stock market is atypical among OECD countries and is not justified in mature stock markets. There are no similar widely applied capital gains exemptions for publicly traded shares on the official stock exchange in OECD countries such as Canada, Australia and the United States. Exemptions for capital gains realised on a stock market are sometimes implemented in emerging economies that want to stimulate the creation of their national stock market. Having a national stock market that is widely used by companies to attract external equity financing brings wider development advantages and, as such, a temporarily tax incentive to ensure that agents invest in the stock market and businesses list their shares on the stock market might be warranted. However, once the stock market is more mature, the arguments in favour of tax exemptions for capital gains on shares listed on the stock market becomes very weak and does not constitute good tax policy.

The current microdata provides a limited and partial view of the capital gains of taxpayers in Chile. The SII captures certain microdata on capital gains under two sworn statements. Firstly, PIT taxpayers are currently required to report the quantity and value of the sale of shares and quotas from mutual and investment funds each year that meet the section 107 ITL requirements under the income tax return (Form 22). However, the acquisition cost is not reported. Secondly, financial traders

(including investment and mutual fund administrators, banks and stockbrokers) that invest on behalf of third parties are required to report under a sworn statement (Form 1922). There is a special field for capital gains (or losses) derived from the disposal (or redemption) of quotas of mutual and investment funds that meet the section 107 ITL requirements. For 2019, this figure is 196,238 million Chilean pesos, which represents 0.1 percent of GDP. These data provide a somewhat limited view of the capital gains of taxpayers in Chile as this information is not checked against other sources and may underestimate the extent of capital gains to the extent that there is underreporting and non-reporting.

The reporting requirements for all taxpayers that invest in shares should be expanded, which would allow for a precise TE estimate using microdata matched at the level of taxpayer. We recommend that the first step is to enhance the quality of these data by requiring all taxpayers to report annually the acquisition value of the shares, in addition to the disposal value and number of the shares and quotas that meet the eligibility criteria under Section 107 of the ITL as it is currently reported in the annual tax return (F22).[31] In this case, exempt capital gains should be added to taxable income and the TE for individual resident taxpayers should be calculated as follows:

$$item\ 8.17 = PIT(taxable\ income + capital\ gains\_8.17) - PIT(taxable\ income)$$

Where the PIT function applies the progressive PIT rate schedule to individual taxpayer's taxable income.

Other matched micro-level transaction data may be available in line with the information provided in F1922 (although the information should allow differentiating between companies and individuals, which is not the case for information in F1922) **or information provided by the Commission for the Financial Market (regulator).** If the identifier for the taxpayer is not available, the TE could be estimated by applying the top marginal rate for individual residents and the 35 percent rate applicable to no-residents respectively.

The estimation of the foregone tax revenue linked to the capital gain tax exemption could be complemented with a tax policy evaluation of the exemption, both in terms of the development of the financial market in Chile in the past and the impact of a possible tax reform.

C.3 Exemption on Capital Gains up to a Threshold of 10 UTA

Description of the Provision

Capital gains are exempt for individuals that invest in any type of shares, bonds and quotas from private investment funds up to 10 UTA per year (approx. USD $7,000). If capital gains exceed the 10 UTA cap, the taxpayer is taxed on the full amount.

[31] Information on capital gains earned by non-residents would still be missing if only data from F22 were used.

Is this provision a TE under the proposed TE benchmark? Yes. **Under the proposed benchmark the non-taxation of realised capital gains gives rise to a TE.** This TE is not currently measured by the SII.

Assessment

The scope of the exemption is relatively narrow but the threshold is relatively high. Unlike the capital gain exemption granted in section No. 107 of the Chilean ITL, this exemption only applies to individual investors and has a cap. However, this current exemption does apply to any type of shares, bonds or quotas from investment funds and not just those that meet the market presence requirements. Therefore, taking both the previous and the current capital gains exemptions together, all shares on the stock market will benefit from some capital gain exemption. It also has a relatively high capital gains threshold compared to some other OECD countries (selected examples of capital gains thresholds in OECD countries include in the UK (GBP 12,300), Lithuania (EUR 500), Slovak Republic (EUR 500) and Ireland (EUR 1,270)).

This TE, which is currently not estimated in Chile, should be estimated based on the current capital gains data reported under Form 22 and the quality of this data should be enhanced by cross-checking with third-party data sources. Currently, taxpayers that have capital gains provide information on capital gains to the tax administration under the Form 22. However, the information does not seem very reliable. To enhance the quality of these data, Chile could consider cross-checking these data against third-party data sources by requiring such institutions to report capital gains information to the tax administration.

C.4 Concessional Treatment of Capital Gains from the Disposal of Real Estate (item 8.22 of the TE report)

Capital gains from the sales of real estate are exempt up to UF 8000 per person; this exempt amount can be claimed over the owner's lifecycle (i.e. unused exemption can be used at a later point in time).[32]

Regarding the excess of such exempted amount, the taxpayer faces three options:

1. To include such excess in the annual tax return of the relevant year, as ordinary income;
2. To tax such excess on a 10 percent tax rate; or
3. To reassess the annual tax returns filed over the years holding the real estate, up to 10 years, in order to include the excess in the taxable base of such years.

Is this provision a TE under the proposed TE benchmark? Yes

[32] Section 17 Nº 8 letter b.

Under the revised benchmark income is taxable when it is realised. The TE benchmark is therefore as follows: when capital gains are realised, they are included in taxable personal income and taxed at the corresponding marginal PIT rates. Any deviation from that approach is considered a TE. This means that the exemption and both options 2 and 3 set above lead to TEs; i.e. the reduced tax liabilities under option 2 and 3 compared to the incurred tax liability under option 1 are TEs.

Measurement and Data used by SII

Currently, only exempt capital gains (capital gains earned when the accumulated gains do not exceed UF 8.000) are considered as a TE (item 8.22) and the benchmark used for this exempt income is the 10 percent rate (second option discussed above which is chosen by 95 percent of taxpayers)**.**

$$item\ 8.22 = Capital\ gain\_t * 10\%$$

Where *capital gain_t* stands for capital gains from the disposal of real estate earned in time t by individuals with accumulated capital gains below 8000 UF (and thereby exempt).

Furthermore, TE reports from previous years only contain projections of this TE but no estimate based on actual data.

Assessment

The current approach followed by the SII needs to be strengthened. The recommendation is to calculate the TE not only for the exemption up to 8000 UF, but also estimate the reduced tax liability for realised capital gains in excess of 8000 UF. The TE could be calculated by applying the following formula:

$$item\ 8.22 = PIT\big(taxable\ income + capital\ gains\ _t\big) - PIT(taxable\ income) - \text{taxpaid}_{\text{option}_2} - \text{taxpaid\_option}_3$$

Where capital gains_t stands for the total amount of realised capital gains on real estate by individuals in year t (below and above the 8000 UF cap) minus the case in which the taxpayer accumulated capital gains above 8000 UF and chose option 1 for the amount in excess as in this case this gain has already been added to taxable income. tax_paid_option2 and tax_paid_option3 stand for the additional tax liability that taxpayers currently pay on the realised capital gains above UP 8000 UF under options 2 or 3, respectively.

Value of the TE Measurement

The value of this TE was estimated using a sample of taxpayers that report capital gains from the disposal of the real estate.

Table 4. Foregone Revenue Associated to the Concessional Treatment of Capital Gains from the Disposal of Real Estate, Million Pesos

	2018
Value estimated by the SII	nd
Value estimated by IMF-OECD using a sample	219,586

Box 3. Exempt Bracket/ Basic PIT Allowance

Is this provision a TE under the newly defined TE benchmark? Answer: No

The basic tax allowance within the PIT can be viewed as an amount of income that covers the expenses incurred by the individual that allows him or her to earn that income (including job-specific clothing, transport from home to work, IT and office equipment to work from home, etc.). It is a structural element of the tax system. Moreover, a basic tax allowance is generally applicable to all or to a wide range of taxpayers in contrast to tax provisions that are targeted to a selection of taxpayers or situations only. In this respect, the revenue forgone associated to the universal deduction of the basic tax allowance from taxable personal income is typically not considered a TE.

However, insofar the basic tax allowance within the PIT exceeds the average costs incurred to earn that income, the "excess" basic tax allowance could be viewed as a TE. Nonetheless, this is not common practice for different reasons. First, it is not straightforward to determine the amount of income that would match the actual costs incurred by the taxpayer to earn that income (or, put differently, to determine the "excess" tax allowance). In fact, that cost-covering amount of income will vary across professions and other characteristics. As the Covid-19 crisis has shown, the costs incurred to earn income might also vary over

time. Workers now incur different types of cost; the work-home transport costs are replaced by expenses related to home office and IT equipment, for instance. Second, most countries have designed their basic tax allowance such that it is not particularly high (i.e. there is no "excess" basic tax allowance in most countries), also because countries might allow certain professions (such as the self-employed) to deduct the actual expenses incurred from taxable personal business income. As a result, countries generally consider the basic allowance as part of their benchmark irrespective of its level.

It is broadly agreed that the basic tax allowance in Chile is high. According to OECD (2018b), 76 percent of Chileans that file tax returns are in the exempt bracket. However, a discussion of the level of the basic tax allowance that would be "excessive", if possible, at all, would go beyond the scope of this report. Such a discussion would turn the report into a tax policy review, which is not the intention of the current work. For the purposes of TE reporting, there are some arguments to support that it might be calculated but not counted as a TE. [1]

Measurement by the SII

In line with what most OECD countries do, the SII does not calculate the tax revenue foregone that arises because of the basic tax allowance in the PIT.

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[1] The Canadian TE report includes a measure of the revenue forgone associated to the Basic Personal Amount (a tax credit that can be claimed by all individuals) but states that this measure is considered part of the benchmark tax system, and therefore is not a tax expenditure. If it were considered a TE it would be the largest one in Canada.

Box 3. Exempt Bracket/ Basic PIT Allowance (concluded)

Value of the TE Measurement by the IMF-OECD team

The foregone tax revenue associated to the zero-rate bracket in 2018 was estimated by means of a microsimulation using a sample of tax returns and sworn statements. It was calculated by assuming that the taxable income would be taxed at the lowest non-zero PIT rate that applies in the country. That is, the difference between the PIT revenue in a scenario in which the tax rate for income below $ 7,609,464 is set at 4 percent and the revenue raised under the current tax schedule (scenario 1 in Table 5).

An additional scenario estimated the tax foregone revenue if the threshold for the basic tax allowance (the zero-rate tax bracket) had been set at a level that only 30 per cent of total taxpayers faced a zero taxable income (scenario 2 in Table 5).

Significantly, higher foregone tax revenue would be obtained if the basic tax allowance would be separated from the PIT rate schedule such that the value of the tax allowance would be increasing in the value of the taxpayer's marginal PIT rate.

Table 5. Foregone revenue in 2018 from Standard Basic Allowance

	Scenario 1	Scenario 2 (
Million $		
Individuals whose income is below the exempt threshold	879,341	386,586
Individuals whose income is above the exempt threshold	800,434	580,959
Total	1,679,774	967,545
Million USD	2,470	1,423
% of GDP	**0.8%**	**0.5%**

In scenario 2, the zero-rate threshold was set at $ 2147815. Note that this threshold was only determined by the sample information and thereby only considers income from formal workers.

C.5 TE at the PIT Level in Relation to the Presumptive Tax Levied at the CIT Level

Presumptive taxation applies to agriculture activities, mining and transport, under the condition that the sales amount is below 9000 UF, 17000 UF and 5000 UF, respectively. The presumptive tax is 10 percent of the fiscal assessment of the vehicle (for the transport sector) or the land (for agriculture activities). For the mining sector, the tax rate is between 4 percent and 20 percent of sales depending on the copper price. It is compulsory for businesses to distribute profits that have been taxed under the presumptive tax; the distributed profits will be taxed under the PIT and a tax credit for the presumptive tax paid can be claimed. However, the tax administration does not have information on the actual amount of profits earned.

Is this provision a TE under the proposed TE benchmark? Answer: Yes

Assessment

Businesses will choose to be taxed under the presumptive tax for the activities that qualify if this strategy yields a tax saving. Firms that fall under the presumptive tax regime might prefer to be taxed under the SME Transparent regime (i.e. for business owners that face a marginal PIT rate

lower than the 25 percent CIT rate under the SME regime), which is included as a TE benchmark. Given that under the SME Transparent regime firm owners are directly taxed under PIT, the PIT TE would be estimated as the difference between the PIT paid based on effective income minus the PIT paid under the presumptive regime. The latter amount is equal to the difference between the PIT levied on the distributed presumptive income net of the presumptive tax paid at the business level.

$$PIT\ TE\ presumptive\ regime = PIT(effective\ income) - [PIT(\ presumptive\ income) - presumptive\ tax\ paid]$$

Where the PIT function applies the progressive PIT rate schedule to individual taxpayer's taxable income. Effective income refers to the income effectively generated in the activity subject to the presumptive regime. This formula assumes all dividends from the activity subject to the presumptive regime are distributed. It also assumes the individual does not receive any other income as otherwise this would have to be included in the two terms of the PIT function. Presumptive income is likely to be smaller than effective income and thereby the PIT TE should be positive.

In the case in which the taxpayer earns income both from an activity under the presumptive regime and an activity under the SME regime or the partial imputation regime, the proposed benchmark is the partial imputation regime. The formula would then be as follows:

$$PIT\ TE\ presumptive\ regime = PIT(effective\ income + other\ dividends) - 0.65 * 0.27(effective\ income + other\ dividends) - [PIT(\ presumptive\ income + other\ dividends) - presumptive\ tax\ paid - 0.65 * 0.27(otherdividends)]$$

Where the PIT function applies the progressive PIT rate schedule to individual taxpayer's taxable income. Effective income refers to the income effectively generated in the activity subject to the presumptive regime. Other dividends refer to dividends from an activity that is taxed under the partial imputation regime. This formula assumes all dividends are distributed.

C.6 Mandatory "Social" Contributions and Replacement Income

Description of the Provisions

Mandatory contributions to pension funds, mandatory health insurance contributions, and mandatory unemployment insurance contributions are deducted from the individual's taxable income.

Are these Provisions a TE under the Proposed TE Benchmark? Answer: No

While in most OECD countries social security-type benefits are generally funded through SSCs, in Chile these benefits are generally funded through compulsory contributions to the private sector rather than by SSCs that are paid to publicly managed social security funds. The deduction of social security contributions is generally not considered a TE in OECD countries. In line

with the approach followed with SSCs, mandatory contributions to private funds in Chile are not considered a TE.

First and foremost, mandatory contributions do not reflect discretionary spending. Second, they are universal in that they are provided to all (or at least to a very large share of the taxpayers in the country). Third, these provisions are not actionable, that is, they are not concessions that could likely be abolished as they contribute to provide social protection to individuals during and after their participation in the labour market. That being said, the design of the contributions, their cost and economic impact (e.g. on labour tax wedges), and whether they give individuals value for money should be evaluated on a regular basis, but such an evaluation goes beyond the scope of a TE report.

To sum up, there are strong arguments not to consider the deduction of mandatory contributions as a TE.

Aligned with this approach, the return on investment of the mandatory contributions within the private fund could be seen as exempt income under the proposed benchmark and therefore no TE arises. However, as contributions and return on these contributions have not been taxed, the benefit that the taxpayer will receive will constitute taxable income under the proposed TE benchmark. Therefore, the taxation of pension withdrawals would no longer be measured as a negative TE. In other words, the benchmark for mandatory pension schemes would follow and expenditure approach (exempt-exempt-taxed).

Measurement by SII

Currently revenue forgone associated to mandatory contributions is measured in items:

- Deduction of mandatory health insurance contributions (item 9.1)
- Deduction of mandatory disability insurance contributions (item 9.2)
- Deduction of mandatory unemployment insurance contributions (item 9.14)
- Deduction of mandatory pension contributions (item 11.3.1)

The exemption on the return of mandatory pension contributions is estimated jointly with the exemption on the return on voluntary contributions in item 11.3.2.

The taxation of pension withdrawals is currently measured as a negative TE in item 11.3.3.

C.7 Tax Deductibility of Voluntary Pension Contributions/Savings (Item 11.4.1 of the TE report)

Description of the Provision

Chile grants tax concessions to voluntary retirement savings (Section 42 bis ITL). There are two tax alternatives:

- Option 1 gives a deduction from gross income (even for independent workers subject to presumptive expenses) up to a maximum. When the funds are withdrawn, they become part of taxable income in the year in which they are withdrawn, with a penalty if withdrawn before legal retirement age.

- Option 2: Voluntary contributions are not deductible when made but their returns are exempt. Moreover, the person receives a 15 percent contribution from the State of the amount allocated to increase the pension (with an annual cap of 6 UTM) the year the contribution is made. Returns to savings and the subsidy become part of gross income when the person retires.

Is this Provision a TE under the Proposed TE Benchmark? Answer: Yes.

The deduction of voluntary pension savings is generally considered a TE in most OECD countries. Many OECD countries allow households to deduct voluntary pension savings (up to a certain limit) from taxable personal income. Countries have introduced these tax concessions to induce households to save for an additional pension, but in many countries it is particularly the higher incomes that benefit most from this tax concession (both because they save more or because the value of the tax concession is increasing in the taxpayer's marginal PIT rate). This concessional tax treatment is generally considered a TE in most OECD countries. Overall, there are good arguments to follow a comprehensive income benchmark (i.e. a Tax-Tax-Exempt framework). The deduction of voluntary private pension savings under option 1 would therefore be a TE.

Under the proposed benchmark, the non-taxation of the subsidy (15 percent contribution) made by the State under Option 2 is a TE. This subsidy consists of additional income for the receiver that is not taxed when the contribution is made. Under a tax-tax-exempt benchmark, the non-taxation of the subsidy is a positive TE, but the tax levied on the pension withdrawal that corresponds to the subsidy is a negative TE.

Measurement and Data Currently Used by the SII

The SII has access to information on income and voluntary contributions made under Option 1 (i.e. deductible contributions) at the individual level through tax returns and sworn statements (F22, F1887, F1899, F1879). The information allows to determine contributions as follows:

$$\boldsymbol{voluntary\ contributions = voluntary\ savings - withdrawals}$$

To calculate the TE associated to this deduction the current methodology applied is the following:

$$item\ 11.4.1 = effective\_rate\ x\ (voluntary\ contributions)$$
$$effective\_rate = [PIT(income + mandatory\ and\ voluntary\ contributions) - PIT\ (income)]\ /\ (mandatory + voluntary\ contributions)$$

Where the PIT function applies the progressive PIT rate schedule given each individual taxpayer's taxable income. The same effective PIT rate is applied in the calculation of the deduction of mandatory contributions (item 11.3.1 of the TE report).

Projections

Estimates include projections for two years (t+1 and t+2). The projection of t+1 is based on the growth rate between t and t-1 of voluntary savings as informed in Form 22 (code 767). The second year is projected based on nominal GDP growth projections.

Assessment

The TE associated with the deduction of voluntary contributions could be measured in the same way as other deductions are calculated (e.g. mortgage interest payments). That is, computing at the individual level the difference between the PIT that would have to be paid if the contribution was considered part of the taxable income and the PIT currently paid.

$$item\ 11.4.1 = PIT\big(income + voluntary\ contributions\big) - PIT\ (income)\big)$$

Where the PIT function applies the progressive PIT rate schedule given each individual taxpayer's taxable income. The amount in the formula needs to be summed across taxpayers

The formula currently used by the SII yields different results if the addition of the contributions determines a change in income bracket. This is because mandatory contributions are also included in the calculations. However, the deduction of mandatory contributions is not considered a TE under the proposed benchmark.[33]

Regarding projections, it may be advisable to use the same criteria to project the two years. A priori, applying the growth rate in a variable closely linked to the variable of interest for the most recent year seems more precise than expected GDP growth. The accuracy of the two criteria could be compared using previous year's actual data and projections.

Value of TE Measurement

Table 6. Foregone Revenue from the Deduction of Voluntary Contributions, Million Pesos

	2018
Value estimated by the SII using the previous methodology	106,509
Proposed methodology (*)	134,813

(*) Estimated using a representative sample of tax returns.

[33] Currently the deduction of mandatory contributions (item 11.3.1) is calculated using aggregate data. This report suggests that these deductions should be part of the benchmark. However, in case they were still considered a TE there could be room for improvement by calculating these deductions using individual data in the same way as is suggested for the deduction of voluntary contributions.

C.8 Tax Exemption of the Returns on Investment for Pension Funds from Voluntary Contributions

Description of the Provision

The investment returns generated by voluntary contributions are exempt from tax in Chile. This exemption is common in the OECD - half of OECD countries apply a variant of the "Exempt-Exempt-Taxed" ("EET") tax regime to retirement savings, meaning that contributions are deductible, returns on investment are exempt from taxation, while benefits are treated as taxable income upon withdrawal.

Is this provision a TE under the Newly Defined TE benchmark?

Yes. Contrary to mandatory pension savings, these pension savings reflect discretionary spending. The exemption on the returns to these voluntary savings (both Options 1 and 2 previously described) should be viewed as a TE. The exemption on the returns from voluntary contributions under Option 2 are not currently measured as a TE. The latter does not only apply to the returns from the original contributions made but also to the subsidy (15 percent in addition to the original contribution) provided by the government the same year the contribution is made.

Measurement and Data Used by the SII

Currently the exemption on the return to voluntary savings is not measured on a cash flow basis. However, it is included in the measure provided in item 11.3.2 of the TE report.

The TE associated with the returns on voluntary savings is estimated using the NPV method shown in equation (1) below:

$$(1)\ NPV = (mg.PIT\ rate)\ x\ (Fund\ Contributions\ in\ given\ year)\ x \sum_{i}^{T} \frac{(1+r)^{i}}{(1+d)^{i}} - \frac{(1+r)^{(i-1)}}{(1+d)^{(i-1)}}$$

The NPV method estimates the discounted present value of future investment returns by growing the current contributions to future years. The estimate is based on tax record microdata at the individual level. The equation is shown above in three components. The first part, is an effective marginal tax rate, based on the progressive PIT '*Complementary Global Tax*'. The second part is the value of individual contributions in a given year. Voluntary contribution data come from both tax returns and sworn statements. However, only data for so-called 'option 1' voluntary contributions are used. The third part calculates the net present value (NPV) of the investment returns in future years. The calculation includes two additional estimates, namely, the investment return (r) and a baseline discount rate (d). The (d) is selected in Chile based on 10-year government treasury bonds over the past 6 years. The current (r) is selected based on the average historical pension returns over an 18-year period between 2002 and 2019. The equation then calculates the discounted return on investment by taking the difference between the growth on investment (1 + r)

and the growth in a baseline discount rate (1 + d) to account for the time value of money in a given period. This discounted rate of return on investment is then applied sequentially from the previous period (t – 1) to the current period (t) in all periods up to the final period T. T is the time remaining to retirement (j) for each individual plus half of the expected time to life expectancy (e).

The cash-flow method is the proposed approach

The cash-flow method is the suggested approach to estimate the TE corresponding to the tax exemption of the return earned by the pension fund on the voluntary pension contributions. The proposed cash-flow method, shown in equation 2 below, would provide a current estimate of the TE arising from voluntary pension investment returns. The approach is similar to that currently used by the SII to estimate the TE for mandatory pension returns (item 11.3.2 of the TE report). The estimates would be based on aggregate data sources. First, the total value of the pension fund drawn from Pensions Superintendence data could be applied to an estimate of the proportion of funds from voluntary savings (Options 1 and 2 including the subsidy provided by the government under Option2). For example, the estimate might be based on an aggregation of the available data published by the Pension Fund Administrators (AFP) or perhaps the shares of voluntary and mandatory contributions over several years based on the available tax record data.[34] Second, the investment return could be established by applying the annual rate of real profitability of the pension fund in the latest available year, the same as the approach taken for mandatory pension returns. The estimate could then be projected forward using the growth rate in real GDP. Lastly, the pension fund estimate is applied to an average marginal PIT rate, which is drawn from tax record data.

$$(2)\ Cash\ flow = (Voluntary\ pension\ funds\ annual\ value)\ x\ (\%\ profits\ Fund\ C)\ x\ (\%\ average\ mg\ PIT\ rate)$$

The cash-flow method should be the preferred method for the investment returns TE; retaining the NPV method as a secondary alternative is optional but not recommended. One argument in favour of the NPV method in Chile is that rich tax record microdata on taxpayers is matched with socioeconomic data including the age of the taxpayer. The capacity to combine and use such data is rare in many OECD countries. In addition, the NPV estimation approach makes a series of projected investment returns, which is the standard approach to estimating NPV and the selection of both r and d based on historical government long-term bonds and pension returns is in keeping with the standard approach internationally. However, when compared with the alternative cash-flow method, the NPV method requires several assumptions (for example, d, r, e) each of which come with their own uncertainty and associated statistical error. When the error from each estimate is combined to produce the TE, the overall error increases producing a greater difference between

[34] Pension funds from voluntary savings are published separately only for each Pension Fund Administrator (AFP), but it does not include those made to other institutions allowed to administrate voluntary savings (banks, insurance companies, among others).

the true and the estimated values of the TE. At the same time, it becomes less clear which individual estimate is driving a given change in the overall TE. Given the importance of simplicity and transparency in TE measurement generally, the cash-flow method seems a preferred approach. Indeed, both Canada and Australia use exclusively the cash-flow method to estimate TEs for pension fund returns. The NPV method could be retained as an alternative method, but it is not a recommended method. In considering retaining the NPV method, it is noteworthy that the complementarity between the cash-flow and NPV methods is limited in that they cannot be usefully compared with each other, in part because they differ not only in method but also in the data used.

Negative TEs driven by negative investment returns should be set to zero. In the case of the cash-flow estimates, the TE is estimated using the return earned by the fund, which varies over time and in some years might be negative. A negative TE has so far been computed in cases where the return earned by the pension fund is negative (such as 2008, 2011, 2018 and 2019). As the proposed TE benchmark only taxes the return but does not provide for a loss offset in case of losses (except for business losses), the foregone tax revenue would be simply 0 (rather than being negative). Hence, the TE should be set to zero when the pension fund's annual return on investment is negative.

Commentary on methodological aspects of NPV method

As mentioned, the NPV method is not the preferred approach but retaining it is optional. If Chile decides to retain the NPV method, the time horizons used for the estimated discount and investment return rates could be aligned and lengthened. For the NPV method, the d is estimated using long-term Chilean government bonds. This is the standard approach taken internationally to estimate discount rates. However, whether a 6-year time horizon is sufficient to be representative is unclear, particularly given the notable decline in 10-year bonds in recent years. A longer time horizon might be preferable. With regard to (r), the estimate is based on a mean average of historical pension returns since 2002. This time horizon is significantly longer than that of d and aligning time horizons more closely may be preferable given that the relative difference between them plays a critical role in NPV estimation.

C.9 Tax Treatment of Pension Withdrawals Associated with Voluntary Savings

Is this Provision a TE Under the Proposed TE Benchmark?

It is a negative TE. Under the proposed benchmark, the voluntary component of pension regimes would be taxed on a tax-tax-exempt basis. As long as the deduction of voluntary contributions and the exemption of their returns are considered TEs, the taxation of the associated withdrawals linked to pension savings made under both options 1 and 2 should be computed as a negative TE.

Measurement and Data Used by the SII

The SII has access to information on income and voluntary contributions at the individual level through tax returns and sworn statements (F22, F1887, F1899, F1812, F1879). These

contributions were made under the first option in which their deduction from taxable income is allowed.[35] Currently, taxes on pension withdrawals are measured in cash flow terms only for both mandatory and voluntary pension withdrawals together. This measure computes the negative value of the amount on taxes paid from pension payments in the sworn statement (F1812). The negative TE associated exclusively to voluntary pension withdrawals from option 1 is measured separately under the NPV method (item 11.4.3 of the TE report).

The NPV Method

The NPV method estimates the discounted present value of the taxes that will be paid on the withdrawals from voluntary savings made in time *t*. This estimate is also based on individual tax returns and includes many assumptions that are consistent with the estimates on the returns of voluntary contributions (see the commentary on methodological aspects of NPV method' section under the returns of voluntary contributions TE).

The formulas used are as follows:

$$item\ 11.4.3 = -effPITrate\ x\ \ voluntary\ pension\ withdrawals$$

$$effective\ PIT\ rate = \frac{PIT(Income\ x\ replacement\ rate)}{Income\ x\ \ replacement\ rate}$$

$$Voluntary\ pension\ withdrawals = Voluntary\ contributions\_t\ x\ \frac{(1+r)^T}{(1+d)^T}$$

The PIT function applies the progressive PIT rate schedule given each individual taxpayer's taxable income. Replacement rates for women and men are the actual replacement rates for 2016 (34.6 percent and 51.6 percent, respectively).

The formula that computes the amount of voluntary pension withdrawals assumes the voluntary pension contributions made in time t will continue growing for T years (time remaining to retirement (j) for each individual plus half of the expected time to life expectancy (e). As mentioned previously, the choice of this number instead of the expected number of years the person will live aims to reflect that the funds will decrease when the individual retires. The discount rate (d) is selected based on 10-year government treasury bonds over the past 6 years. The annual rate of return (r) is selected based on the average historical pension returns over an 18-year period between 2002 and 2019.

[35] Option 1 gives a deduction from gross income (even for independent workers subject to presumptive expenses) up to a maximum. When the funds are withdrawn, they become part of taxable income in the year in which they are withdrawn, with a penalty if withdrawn before legal retirement age.

Assessment

Deciding to publish TE values for the deductions from contributions, the non-taxation of investment income earned on these contributions and the tax revenue from benefit payments separately (as Chile currently does) promotes transparency and is considered good practice.

The Cash-Flow Method

A separate estimate of the negative TE based on the cash flow method should be included and should be the primary methodology used, while the NPV method should be optional. Computing this negative TE separately from taxes on pension withdrawals linked to mandatory contributions is challenging. Ideally, the SII would break down pension amounts in amounts associated to mandatory contributions and their returns, voluntary contributions and their returns, and the 15 percent subsidy received under option 2 and the returns associated to option 2.[36]

The NPV Method

As mentioned previously, estimating TEs using the NPV method requires long-term assumptions that impact the estimates. Indeed, this is part of the reason why both the Australian and Canadian TE reports do not include these types of estimate. That said, the assumptions made on the number of years (T) voluntary contributions in t will generate returns, the rate of return (r) and the discount rate (d) seem reasonable. However, it should be noted that replacement rates in the future may vary relative to those observed in recent years, especially for women who may increase their income (and contributions) due to increased labour participation in the margin and thereby their replacement rate may increase in future years. Chile has detailed tax microdata which are matched with socioeconomic data such as the taxpayers age (albeit missing data may be an issue), which strengthen the argument in favour of estimating tax deferrals under the NPV method at the individual level.

To conclude, the main recommendation is that the NPV method is not the preferred approach. However, retaining it is as an alternative approach is optional (if Chile were to decide to retain it, improvements could be considered).

C.10 Agreed Deposits

Description of the Provision

Agreed deposits (depósitos convenidos) are voluntary contributions to pension savings only made by salaried workers in agreement with their employer. These deposits have no cap and can be made as a one-time deposit or as monthly deposits and can be deposited in all the institutions

[36] For example, the sworn statement F1899 includes information on withdrawals from voluntary savings under Option 1 (i.e. the option that allows for the deduction of the contributions) after retirement. However, the extent to which the pension is increased due to voluntary contributions cannot be determined currently.

authorized to receive voluntary contributions. Deposits up to UF 900 per year are non-taxable to the employee under PIT, while all deposits made are deductible in the case of the employer.

Is this provision a TE under the newly defined TE benchmark? Answer: Yes

In line with voluntary contributions to pension savings, concessions to agreed deposits are also TEs following a comprehensive income benchmark (TTE).

Assessment

Currently the SII measures TEs associated with agreed deposits together with APV contributions. It is suggested that these TEs are reported in separate items although following the same methodology.

C.11 Reduced withholding Rates

Description of the Provision:

In the tax code (ITL), Chile has set rates for the withholding taxes that apply when payments are made abroad as for instance for interest payments, dividends, royalties, as well as for trademarks and patents, at 30 percent; amounts paid for to the use of invention patents at 15 percent, etc. These rates will be referred to as the "standard rates". In addition, the double tax treaties that Chile has with other countries foresee withholding tax rates that apply for transactions and types of income between the two jurisdictions. In certain circumstances, different withholding tax rates are set by law that deviate from the standard withholding tax rate that applies to that particular type of income.

Is this provision a TE under the proposed TE benchmark? Answer: Yes

Withholding tax rates that deviate from the standard rates specified for each type of income (either in the ITL or in the tax treaty) are considered a TE.

Assessment

The suggested approach to determine the TE is to apply a combined set of tax rates and rules. The proposed TE benchmark determines first the withholding tax rate that would apply when the information on the "standard" withholding tax rate (as defined above) is combined with the withholding tax rates that can be found in the double tax treaties that Chile has with other countries. This withholding tax rate is then compared with the actual withholding tax rate that applies. The difference in these rates is then used to calculate the TE; i.e. the difference in rates is multiplied with the amount of the payment made offshore.

This approach would be followed for each type of income separately (i.e. for dividends, interest, royalties, etc.). As withholding tax rates can vary across the treaties that Chile has with other countries, this approach will have to be followed for each treaty country separately. This approach is similar to the approach followed in the Australian TE report.

C.12 Concessions arising from Decree with Force of Law 2

Description of the Provision

The Decree with Force of Law No.2 ("DFL2") regulates residential property, considered as "economic housing", which have a constructed area of less than 140 m2. The benefits are granted only to individuals regarding a maximum of two new or used acquired properties. However, for DFL2 property acquired before 2010, there is no restriction on the number of properties acquired and they may be held by either entities or individuals. If these properties have been further transferred, they keep their grandfathering rules (i.e. benefits granted for property acquired before 2010).

The acquisition of a new property is entitled to more tax benefits than the acquisition of a used property in order to incentivise the construction of new housing units.

The following tax reductions apply – many of these reductions are outside of the income tax, but they have been included as they might correspond to large TEs that should be measured and included in the Chile TE report.

Benefits for New Properties

A reduction of 50 percent of property taxes property for a time-period that varies according to the size of the property:

- Up to 70 m2: The benefit is granted for 20 years from the acquisition date.
- Between 71 and 100 m2: The benefit is granted for 15 years from the acquisition date.
- From 101 to 140 m2: The tax benefit is granted for 10 years.

A deduction of 50 percent on the fee charged by the Real Estate Curator for the registration of the property qualified as DFL2. This deduction will be valid only if the property is registered between two years after its municipal reception. The first transfer of the property qualified as DFL2 will be exempt of Stamp Tax.

The DFL2 property will be exempted from Inheritance and Gift Tax, if:

- The deceased/donor has built or acquired the property in its first transfer (i.e. it was the first time the property had been sold)
- The deceased has acquired or built the property at least 6 months prior to the date of death.

Mortgage payments from property acquired before June 2001 are deductible from taxable income as discussed in a separate item below (item 9.7 of the TE report).

Benefits for Both Used and New Properties

- A reduction of 50 percent of the stamp liability tax on the second transfer of the property, to the extent that such transfer is made between 2 years since the property was authorized by the municipality to be inhabited.
- Reduction of property taxes by 50 percent; this tax benefit can be transferred to future owners of the DFL2 property, to the extent that there are remaining years of the tax benefit.
- Rental income from DFL2 property is considered as non-taxable income.

Are these provisions a TE under the proposed TE benchmark?: Answer: Yes, although not under the income tax, except for the tax exemption for rental income and the deduction of mortgage payments from dwellings from DFL2 properties.

Measurement and Data Used by the SII

Currently only the exemption for rental income from DFL2 property and the deduction of mortgage payments are measured in the TE report (item 8.10 and 9.7, respectively).[37]

The measurement of the exemption for rental income is poor given that there is no data available on this income (it is not included in F22). A proxy of rental income that meets the requirements for DFL2 property is estimated based on the Income Supplementary Survey (ESI) published by the Statistics Institute.

Value of the TE Measurement

Table 7. Foregone Revenue from the Exemption on Rental Income from DFL2 Properties, Million Pesos

2018	2019	2020
107,646	117,902	121,036

Source: SII

Assessment

In order to be able to measure TEs linked to concessions on DFL2 properties access to micro level data where the identifier of the taxpayer if available will need to be significantly improved. Rental income from DFL2 properties should be reported in F22. Furthermore, efforts to gather data from other benefits (property tax, inheritance tax and stamp tax) should also be made.

The grandfathering rule granted to DFL2 property acquired before 2010 gives rise not only to TEs at the individual level (related to PIT and also other taxes) but also TEs at the corporate

[37] The deduction of mortgage payments from DFL2 properties is discussed in a separate item.

level that should also be measured.

C.13 Life Insurance Proceeds

Description of the Provision

Proceeds from life insurance policies are considered as non-taxable income both under the inheritance tax base and the income tax base.[38]

Is this provision a TE under the proposed TE benchmark? Yes, the non-taxation life insurance proceeds are a TE under the inheritance tax

Premiums for a life insurance are paid out of the individual's after-tax income (i.e. life insurance premiums are not deductible from taxable income when they are made and paid to the insurance company). The payment that the insurance company will make to the beneficiary in so far it matches the original savings/ contributions made should therefore not be included in taxable income. This is the approach followed by the Chilean tax code. The TE report does not identify a TE and this is the correct approach.

However, if proceeds are received by a beneficiary upon the death of the insured person, the total amount received (i.e. original premiums paid and the return on investment) will constitute new income for the beneficiary, which calls for the taxation of the total amount received under the income tax. Death would be thereby considered as the moment in which income is realised. However, this approach is very uncommon. Instead, countries often include the life insurance payment within the inheritance tax.

In the majority of countries that levy an inheritance tax, life and accidental death insurance are included in the inheritance tax base. However, some countries provide a special exemption. Life and accidental death insurance benefits are fully exempt in Chile, Italy, and Portugal. In Italy and Spain, beneficiaries must be a close relative or direct descendant of the donor and in Spain, life and accidental death insurance pay-outs are exempt below a threshold. Ireland exempts insurance payments where the policy is intended to pay the capital acquisitions tax, but minimum holding periods apply. In France, assurance-vie is in theory outside the scope of inheritance taxation so special rules and different tax exemption thresholds apply. As long as the policy is established before your 70th birthday, each beneficiary can receive up to EUR 152,500 tax free when the subscriber dies and anything over this amount is only taxed at 20 percent (and a higher marginal tax rate applies above a certain threshold). For people over 70 establishing a life insurance policy, the first EUR 30,500 will be tax free for beneficiaries (although the tax exemption threshold can only be used once or has to be shared between beneficiaries).

[38] Section 17 No. 3 of the ITL and article 20 of the Inheritance Tax Law.

To sum up, there are strong arguments for measuring the exemption of life insurance proceeds as a TE under the inheritance tax.

In some cases, life-insurance policies include a savings component (*contrato de seguro de vida individual con ahorro*) **which is expected to earn a return during the period they are invested by the insurance company.** The final payment made will not only consist of the original premiums paid but also the return that has been accumulated over time. The funds accumulated in the savings account can be withdrawn by the insured in compliance with the requirements and terms established in the policy. This return is taxable income and is included under the proposed TE benchmark, which is aligned with the design of the tax system. The funds accumulated in the individuals' savings account can be withdrawn by the insured if the insured survives the maximum age indicated in the policy, or form part of the compensation to be paid to the beneficiaries upon the death of the insured. This justifies considering the returns from this saving component taxable under PIT as it is the case in Chile as well as other OECD countries.

Assessment

Information on life insurance proceeds should be provided by insurance companies so that the TE under the inheritance tax can be measured. Information should be disaggregated in order to also allow for the identification of returns from the saving component of life insurance policies.

C.14 Deduction of Mortgage Interest Relief (item 9.13 of the TE report) and Immovable Property Tax

Description of the Provision

Mortgage interest payments are deductible from taxable income up to certain limits. The deduction (i.e. tax allowance) equals the actual mortgage interest payments up to an amount of 8 UTA (approx. US$ 5,800). Taxpayers with annual income up to 90 UTA (approx. US$ 65,000) can deduct 8 UTA, and this deduction decreases to 0 as income increases up to 150 UTA (approx. US$ 110,000). Taxpayers with annual income in excess of 150 UTA are not entitled to deduct any mortgage interest payments.[39] A taxpayer can benefit from this deduction with respect to one or multiple properties and the deduction applies to both owner-occupied housing and let houses. A taxpayer cannot benefit from both this deduction and the deduction of the mortgage payment from DFL2 properties (item 9.7 of the TE report).

In addition to mortgage interest relief, until 2019 property taxes were deductible from taxable income for individual taxpayers that were receiving a rent for this property. From January 2020 onwards, the property tax has become a credit against the PIT.

[39] Section 55 bis of ITL.

Is this Provision a TE under the Proposed TE Benchmark? Yes

Under a practical variant of the comprehensive income benchmark, imputed rent from owner-occupied housing is not included in income but mortgage interest relief is a TE. Under a comprehensive income tax base, housing can be seen as an investment good. In fact, housing is also a consumption good, and the corresponding tax implications are discussed in the VAT section of the report. Aligned with the design of the CIT, interest payments incurred to finance investment could be tax-deductible but actual or imputed income earned would be included in the tax base. Hence, the TE benchmark would allow for the deduction of mortgage interest expenses but it would also include in the tax base imputed gross rental income. Most countries, however, do not tax owner-occupied property under the PIT, but rather levy a recurrent tax on immovable property. In such a setting, it is often considered that mortgage interest payments should not be deductible under the PIT. As a result, under a practical variant of the comprehensive income benchmark, imputed rent from owner-occupied housing is not included in income but mortgage interest relief is a TE. This approach is recommended and applied below.

In addition, the deduction of immovable property taxes from taxable personal income (either in the form of a tax allowance or tax credit) is uncommon. The US is an exception. In the US, immovable property taxes are deductible for both taxpayers that live in their own property and owners that rent their property. The deduction is considered as a TE in the US TE report. Under the proposed benchmark for Chile, credits or deductions linked to property tax would be considered a TE.[40]

Table 8. Treatment of Housing Provisions in TE Reports for Selected Countries

	Exclusion of imputed rental income	Deduction of mortgage interest payments	Deduction of property taxes
Australia	Not a TE	NA	NA
Canada	Not a TE	NA	NA
United States	TE	TE	TE
Chile	Not a TE	TE	Not a TE

Note: "TE" tax expenditure that is measured; "NA" concession that is not available in the country's tax system; "Not a TE" concession that exists but it is not considered a TE.

Measurement and Data Used by the SII

Currently, mortgage interest relief is treated as a TE in the Chilean TE report. The TE calculation uses information reported in code 750 of the annual tax return (Form 22), which reports the deduction of mortgage interest. This TE is estimated by means of microdata on tax returns according to the following formula:

[40] Furthermore, the property tax deductibility is not fully aligned with the approach under a partial dividend imputation regime, which is the proposed TE benchmark. Indeed, the CIT paid is not deductible from the final tax burden on dividends; instead a partial credit is received.

$$item\ 9.13 = PIT(income + mortgage\ interest) - PIT(income)$$

Where the PIT function applies the progressive PIT rate schedule given each individual taxpayer's taxable income.

Assessment

The methodology and data used for measuring the TE associated with mortgage interest relief currently applied by the SII is adequate. However, the Chilean TE report should also include the deduction of the immovable property tax for individual taxpayers that were receiving a rent for this property as a TE. Furthermore, it would be advisable to explicitly state in the TE report that the exclusion of imputed rental income from taxable income is treated as part of the TE benchmark, and that the exclusion is therefore not identified and measured as a TE (e.g. as aligned with the approach followed by Canada and Australia).

Value of the TE Measurement

The methodology used by the SII was applied to the sample microdata provided in order to estimate the TE for 2018.

Table 9. Foregone Revenue Associated to the Deduction of Interest on Mortgages, Million Pesos

	2018
Value estimated by the SII	96,724
Value estimated by IMF-OECD using the sample	116,395

C.15 Deduction of Mortgage Payments from DFL2 Dwellings (item 9.7 of the TE report)

Description of the Provision

Mortgage payments from New DFL2 property acquired before June 2001 are deductible from taxable income.[41]

Is this Provision a TE under the Proposed TE Benchmark? Yes

Measurement and Data used by the SII

Mortgage interest relief for DFL2 dwellings is currently included as a TE in the Chilean TE report. The TE calculation uses information reported in Code 740 of the annual tax return (Form 22),

[41] Law 19.622.

where taxpayers are reporting the amount of mortgage interest relief. This TE is estimated by means of microdata on tax returns according to the following formula:

$$item\ 9.7 = PIT(taxable\ income + mortgage\ payment) - PIT(taxable\ income)$$

Where the PIT function applies the progressive PIT rate schedule given each individual taxpayer's taxable income.

Assessment

This provision is a TE under the proposed TE benchmark and this approach is aligned with Chile's current TE report. However, the estimated value obtained by using the sample exceeds significantly the value reported by the SII (see Table 10). This difference in estimation might be due to the data limitations of the sample.

Value of the TE Measurement

Table 10. Foregone Revenue Associated to the Deduction of Mortgage Payments, Millions of Pesos

	2018
Value estimated by the SII	1,687
Value estimated by IMF-OECD using the sample	3,672

C.16 Deduction of 30 Percent of Independent Workers' Turnover as a Presumptive Expense (Item 9.12 of the TE report)

Description of the Provision:

Independent workers as CIT taxpayers can choose to deduct either actual expenses or alternatively deduct 30 percent of turnover as a presumptive expense with a cap of 15 UTA (approx. USD 10,600).[42] The objective of this measure is simplification.

Is this provision a TE under the proposed TE benchmark? It depends.

Under the income tax benchmark, expenses incurred in earning income are deductible. This provision provides a substitute for deducting effective expenses. Hence, provided the percentage of gross fees that is deductible as a presumptive expense is a good approximation of effective expenses, this provision should not be considered a TE. If this percentage exceeds on average effective expenses, independent workers opting for the deduction of presumptive expenses would

[42] Section 50 ITL.

receive preferential tax treatment in which case there is a line of argument for measuring the TE associated to this difference. The fact that most independent workers choose this option may suggest 30 percent of turnover is high enough. That said, it could also be the case that some independent workers would benefit from deducting effective expenses (would pay less taxes) but do not have the necessary knowledge on how to submit the tax returns or prefer not to deduct actual expenses to reduce tax compliance costs.

Measuring this type of provision as a TE is unusual. Among the five countries reviewed in section F of chapter II, none measures the deduction of presumptive expenses as a TE. In its TE report, France explicitly mentions that the provision that allows professionals to deduct 10 percent of their fees is considered as part of the benchmark as its objective is simplification.

Measurement and data used by the SII

The current benchmark assumes that the amount of presumed expenses in excess to social security contributions for independent workers is taxable income. Independent workers are subject to social security contributions (SSCs) that amount to approximately 17 percent of their fees. These contributions are only compulsory since 2018 onwards. Code 494 of the annual tax return (Form 22) reports the presumptive expenses deducted by independent workers. This TE is estimated by means of microdata on tax returns according to the following formula:

$$item\ 9.12 = PIT\left(taxable\ income + \frac{presumptive\ expenses}{3}\right) - PIT(taxable\ income)$$

Where the PIT function applies the progressive PIT rate schedule given each individual taxpayer's taxable income.

In practice, the methodology assumes 20 percent of gross fees that are deducted are legitimate expenses, for the largest part associated to non-tax contributions, and 3 percent to other business expenses. The remaining 10 percent is measured as a TE.

Assessment

The deduction should not be considered to be a TE on balance. Overall, whether the deduction is a TE arguably depends on the rate at which the percentage allowed for this deduction is set. Independent workers face expenses in order to earn income apart from contributions (such as office rent, administrative expenses, etc.). Determining which should be the percentage of turnover that best approximates effective expenses is challenging as there is no information available on the effective expenses incurred by independent workers who choose to deduct presumptive expenses.

The approach currently followed by the SII seems appropriate for years prior to 2018. Prior to 2018 contributions for independent workers were not compulsory. Hence, it may have been justified to measure the deduction of 10 percent of turnover as a TE (20 percent of turnover attributed to

contributions may have covered other genuine expenses and thereby it could be argued that overall, 30 percent may have exceeded genuine expenses).

From 2018 onwards, there seem to be no arguments for considering this deduction as a TE. As contributions are currently compulsory, only 13 percent of turnover that is deductible may cover for other expenses independent workers may face. The deduction is now significantly reduced. Furthermore, it should be noted that considering this provision as a TE is not standard practice. To sum up, it is not recommended to measure this provision as a TE in the future.

The change in rules regarding SSCs will provide insight in whether the 30 percent is too low or not by comparing the number of independent workers that choose this option prior and after 2018. A comparison with tax return data from independent workers that do not choose this presumptive deduction (i.e. deduct effective expenses) within the same sector would also shed light on the percentage of turnover that appropriately reflects effective costs.

Value of the TE Measurement

The methodology used by the SII was applied to the sample microdata provided in order to estimate the TE for 2018.

Table 11. Foregone Revenue from the Deduction of 30 Percent of Independent Workers' Turnover as a Presumptive Expense, Million Pesos

	2018
Value estimated by the SII	39,869
Value estimated by IMF-OECD using the sample	48,571

C.17 Credit for SMEs located in Free Trade Zones

Description of the Provision:

Owners of SMEs located in Free Trade Zones (FTZs) and subject to the Transparent Regime, are entitled to a tax credit of 50 percent of the CIT that would have been applicable to the profits generated in the FTZ (if the company would not have been subject to the Transparent Regime), which can be offset against the PIT. Therefore, and only for purposes of determining the amount of the deemed credit, profits generated by the SME in the FTZ are deemed to be subject to CIT.

Is this provision a TE under the proposed TE benchmark? Yes. This credit should be measured as a PIT TE.

D. Tax Expenditure Analysis in the Value-Added Tax

This section discusses TEs in the VAT. It is important to point out upfront that this section is not intended to be an in-depth assessment of the VAT TEs in Chile, which would go beyond the scope of this report. Nevertheless, this section provides guidance on a number of important VAT TE issues in Chile, which will allow strengthening the country's TE analysis.

D.1 Choice of the TE benchmark for the VAT

VAT is a tax levied on the final consumption by households levied through a staged process on the value added created along the production chain. VAT is levied on sales, but a credit is provided for the VAT paid on the business inputs at each stage of the value chain. The VAT follows the destination principle, which implies that the VAT taxing rights on cross-border supplies are to be allocated to the jurisdiction where the business uses, or the final household consumption takes place. For imported goods, the tax is generally collected at the border as part of the customs process. Exports are normally zero-rated, i.e. the exporting business makes its supply free of VAT and has a full right to deduct the associated input VAT.

In contrast to income taxes, the VAT TE benchmark is largely the same across countries as the benchmark is based upon the VAT core design principles. VAT TEs can arise from two policy design options: the application of reduced VAT rates (incl. zero rating of domestic supplies) and exemptions without the right to deduct input VAT.

D.2 Reduced VAT rates and VAT exemptions

Regarding reduced rates, the TE amounts to the difference between the VAT revenue that would be collected from domestic supplies to final household consumers if the standard VAT rate were to be applied net of the revenue collected from these supplies at reduced rates (assuming full compliance). The zero-rating of exports is part of the benchmark because of the destination principle and does not constitute a TE.

For VAT exemptions, the benchmark is defined as the imposition of the standard VAT rate with the ability to claim input tax credits net of the VAT that is collected despite of the VAT exemption. Businesses that sell exempt goods or services cannot obtain a refund for the VAT they have paid on their inputs; so, VAT exemptions might give rise to VAT revenues for government. Moreover, the non-refundable input VAT becomes a cost for the business and tends to be passed on to the final consumer in the form of higher prices. The final VAT that will be paid by the final consumer will therefore be higher because of this tax cascading effect; the VAT is levied on a price that includes the previous (unrecoverable) VAT levied. This tax cascading will increase VAT revenues. The impact of both channels will need to be taken into account when measuring the VAT TE of exempted goods and services.

Estimating TEs associated to VAT exemptions is significantly more complex that TEs due to reduced rates. The TE from a reduced or zero rate can be estimated based on data on final consumption as the difference between the benchmark standard rate and the reduced or zero rate. However, the TE of a VAT exemption has to take into account not just the revenue lost on final consumption, but also the revenue gained by the denial of input tax credits (through the direct lack of refund of the input VAT and the tax cascading effect).

Common practice estimation of the revenue impact of the denial of input tax credits involves the use of data from National Accounts input-output tables to estimate the amount of expenditure for which VAT is non-recoverable. Chile follows such an approach. A high-level examination that was carried out suggests that the approach that the SII currently implements is broadly consistent with international best practice. Whether scope exists to improve the Chilean TE estimation method has not been identified. It would require a more detailed review of Chile's input-output modelling. Such an exercise could be undertaken in the future, drawing on the lessons both from academic research and from the approaches adopted in other OECD countries to provide advice on any methodological improvements that may be made.

Even if the foregone VAT revenue of VAT exempted goods and services would be low, it does not constitute good tax policy design. VAT exemptions are inefficient and inequitable with respect to a wide range of factors, including the tax cascading and the resulting increase in prices, the distortion of business and consumption decisions, non-transparent taxation at an unknown rate depending on the number of stages in the production process. These features undermine the core neutrality-principle of VAT.

D.3 Main VAT TEs in Chile

Chile has a wide range of items that are exempt from VAT and transactions that constitute a non-taxable event under the VAT. Unlike most other OECD countries, Chile levies VAT only to a restricted list of services (i.e. those listed in article 20 numbers 3 and 4 of the ITL). In most other OECD countries and in particular in the EU, most services (and more generally all supplies made by VAT registered taxpayers as part of their economic activity) are subject to VAT, unless such supplies are explicitly exempt by the legislation (or are considered "out of scope" e.g. because they are not considered as an "economic activity" in the sense of the VAT legislation). Some countries provide a more specific description of the services covered in their legislation, but the aim is generally to tax all final consumption through the VAT staged collection mechanism. This means that VAT is applied broadly to all services unless the service is explicitly exempt or subject to a different treatment. In particular, professional services are generally subject to VAT with only very specific exemptions, which most often apply to health services. In Chile, VAT is applied to a more restricted list of services,

and this approach is not aligned with practice in the countries reviewed.[43] Table 12 lists Chile's main VAT TEs.

Table 12. Main VAT TEs, Million Pesos (Source: SII)

Item number	Description	2018
13	**Exemptions**	
13.1	Passenger transport	249,426
13.2	Education	309,105
13.3	Health services	220,352
13.4	Financial services	26,014
13.7	Life insurance	82,632
13.10	Leisure services	26,014
13.11	Services provided to businesses	-159,143
13.12	Certain other services	273,910
13.15	Free Trade Zone imports	66,539
13.16	Tips	77,204
13.17	Defense Ministry and companies: Enaer, Asmar and Famae	17,409
13.32	Financial leasing	10,415
14.	**Credits**	
14.1	Special tax credit for housing construction companies	420,026
15.	**Deferrals**	
15.3	Two-months deferral in VAT payment	44,290

Some VAT exemptions that are currently not measured in the TE report include:

- Services carried out between the cooperative and their members (Section 5, second paragraph of the VAT Regulation, Decree No. 55 of 1977)
- International freight by sea, air and land (Section 12, letter E, No. 2 of the VAT Law);
- Payments made abroad effectively subject to WHT under Section 59 ITL (Section 12, letter E, No. 7 of the VAT Law);
- Payments made by foreign tourist in foreign currency (a) to hotels, and (b) for the rental of furnished property (Section 12, letter E, No. 17 of the VAT Law);

[43] Exemptions generally applied in most OECD countries include: postal services; transport of sick/injured persons; hospital and medical care; human blood, tissues and organs; dental care; charitable work; education; non-commercial activities of non-profit making organisations; sporting services; cultural services (except radio and television broadcasting); insurance and reinsurance; letting of immovable property; financial services; betting, lotteries and gambling; supply of land and buildings; certain fund-raising events (OECD, 2018).

- Purchase of dwelling by a housing subsidy beneficiary (Section 12, letter F of the VAT Law);

The following subsections discuss selected VAT TEs.

D.4 Special Housing Construction Credit

Chile does not implement reduced VAT rates, which is considered as good tax policy practice. However, sales of new housing constructions do benefit from a reduction in the VAT that is charged (Section 21 Decree Law 910 of 1975). Buyers of new housing are only charged with 35 percent of the standard VAT rate levied on the purchase price. The aim of the credit is to reduce the price of low-income dwellings. In order to qualify for this reduction, the construction value of the dwelling cannot exceed UF 2,000.[44] As Chile does not have reduced VAT rates, this tax reduction is introduced in an indirect way. The construction company has to declare in its VAT return 100 percent of the VAT on the sale of the dwelling, even though only 35 percent of it was charged to the purchaser. This implies that the construction company has to pay more VAT to the government than it actually has collected from the buyer of the property. In order to compensate the construction companies for this subsidy, there is a special housing construction credit that is equal to 65 percent of the VAT on the sale of new housing construction, which is the additional VAT the company has paid to the government but never has received from the buyer. The special housing construction credit can only be claimed if the construction company has actually reduced the VAT that it has charged to the buyer. This credit can be offset against its mandatory monthly provisional CIT payments.

The VAT credit is correctly identified as a TE in Chile's TE report. Its estimated value by the SII is large compared to other TE items (420,026 million pesos in 2018). The aim of the concession is to reduce prices of new housing construction and in this sense, it is considered a VAT TE. However, because of the way it is implemented, in practice it is not VAT revenue that is reduced but CIT revenue (or revenue from other taxes). This is because mandatory monthly CIT payments can be offset with this credit. The TE is measured directly by means of the credit that the construction companies claim to lower their monthly CIT withholding payments (or other tax liabilities).

However, even if we consider the provision as a TE in the VAT, this does not mean that the buyers of the property do benefit from the tax reduction. As construction companies have to charge a lower VAT, they might respond by increasing the pre-tax price they charge to the buyer in order to absorb partly or fully the tax benefit. Whether the buyer, seller or both the buyer and the seller share the tax reduction is a matter of tax incidence. Such an assessment is outside the scope of this report; such an analysis could be carried out as part of a follow-up project.

[44] In the case of housing financed in whole or in part with subsidies granted by the Ministry of Housing and Urban Development, the limit on the construction value is UF 2,200.

D.5 VAT Exemption of Professional Services

Under the current TE methodology, the VAT exemption on professional services cannot be quantified in isolation. As was previously described, services are not subject to VAT unless they fall within the scope of article 20 N° 3 and 4 of the Income Tax Law. Professional services are an example of services that do not fall within that scope. Professional services are captured mainly in items 13.11 and 13.12 (services provided to businesses and other services, respectively) but are also captured in other items of the Chilean TE report. For example, services provided by doctors in a private consulting room are captured in item 13.3 (health services). While the non-taxation of professional services provided directly to final consumers clearly generates a positive TE, most of these services (e.g. legal and accounting services) are estimated jointly with services provided to businesses in item 13.11. As was discussed in the previous section, services provided to businesses are expected to generate a negative TE as no input credits are provided, while this would be the case under the benchmark system.

Making further efforts to quantify the VAT TE associated to the exemption of professional services might be advisable in order to have a better picture of the foregone revenue involved. To do so, one alternative would be that the SII refines estimates based on National-Accounts input-output data identifying more subsectors. Alternatively, to complement the current methodology that is applied by Chile (but report it as a separate item not compatible with the rest of the methodology), the SII could consider using a bottom-up approach to obtain a TE estimate for the exemption of professional services (especially services provided by liberal professions which are often highly lucrative) from the VAT base. Professional service providers need to file an income tax return that includes information on their revenues and costs. That information could be used to calculate the value added they have created, and therefore the foregone VAT revenue that has not been collected as well as the denied VAT credit on their associated inputs based on the expenses they report. The calculations might also have to take into account that part of the income that might not have been reported, which would make the TE estimation even more complex. As Chile is moving to electronic cash receipts as from 2021 onwards and has already implemented mandatory e-invoicing, this might provide an alternative source of data (probably even more precise than tax returns), which may allow estimating this VAT TE.

D.6 Deferral of VAT payments

SMEs benefit from a two-month deferral of VAT payments. This concession was extended to three months until 2021 as part of the measures introduced in light of the Covid-19 pandemic. A minor refinement of the way the SII calculated the TE for the two-month deferral of VAT payments could be considered. The TE for the two-month deferral of VAT payments was calculated as "the sum of the amount of VAT deferred in the months of November and December of a given year, minus the sum of the amount paid in the months of January and February of that year, that had been deferred previously". This approach is unlikely to capture accurately the deferral benefit provided. This should instead be based on the application of an appropriate discount rate to the value of the VAT

payments due for a two-month period. A conservative discount rate would be a short-term bank deposit rate.

IV. EXCISES

A. Introduction

Chile has an across the board above average consumption of products which are well known health hazards. Smoking prevalence is the second highest of the world, while alcohol consumption is also high by international standards, especially when measured by heavy episodic drinking (binge drinking) by 15+ teenagers. Likewise, sugar consumption is above World Health Organization recommended levels; perhaps not unrelatedly Chile ranks close to the top in child obesity world statistics.

These are all excisable goods in Chile. Since the demand for these goods is typically price inelastic, taxing them is an effective revenue raising strategy. However, taxation may also be used to induce a change in consumption behavior to reduce social costs. These costs include both negative externalities, i.e. those imposed on third parties, including the government budget, and 'internalities', that is, the cost on direct consumers of these "sin goods". One reason to consider internalities is that consumers may underestimate the health costs they will have to borne in the long run, especially when addictive consumption begins at an early age.

Table 13. Consumption of Fuels in Latin America

	Barrels/1000 pop	
	Diesel	Gasoline
Chile	9.2	4.3
Argentina	5.7	3.6
Uruguay	5.6	4.7
Ecuador	5.2	4.9
Paraguay	4.8	3.0
Brazil	4.6	4.7
Peru	3.6	1.4
Bolivia	3.1	2.9
Mexico	3.0	6.1
Colombia	2.7	2.4
Average	*4.7*	*3.8*

Source: USEIA, WB

Fuel consumption is another activity which carries strong social costs. The use of fuel is associated with pollution, congestion, erosion of public infrastructure, road accidents and is a significant cause of premature death. In the case of diesel fuel, Chile exhibits a disproportionate per capita consumption, the largest in Latin America and twice the regional average, while gasoline

consumption is very close to the average (Table 13). This may well be related to the structure of the existing excise, including the tax incentives s it provides.

There is a considerable body of literature and empirical research on the social costs in Chile due to excess consumption of excisable goods. Some of this literature subscribes to the broader public health perspective, while other authors estimate more narrowly the negative externalities associated with the consumption of these goods. These estimates allow the authors to calculate the tax that would correct for such externalities (Pigouvian tax). Such estimates are available for Chile in the case of sugar consumption and the use of motor vehicle fuels (gasoline and diesel). These estimates served as a benchmark for the analysis in this report of the existing excises.

Chile has four main excise taxes: on motor vehicle fuels, tobacco, alcohol and non- alcoholic beverages.[45] Formally, the taxes on alcoholic and non-alcoholic beverages are classified in Chile as a special or additional VAT rate. However, the revenue is reported to the Organization for Economic Cooperation and Development (OECD) under excises, keeping consistency with OECD international tax revenue data.[46]

Table 14. Excise Tax Revenue

	Percent of GDP		
	2010	**2015**	**2017**
Chile (1)	1.4	1.5	1.5
Argentina	1.6	2.0	1.7
Brazil	0.5	0.3	0.3
Colombia	0.8	1.1	1.0
Ecuador	0.8	0.8	0.9
Mexico	0.6	2.0	1.7
Peru	1.2	1.0	0.9
Uruguay	2.0	2.0	2.1
L.A. Mean (2)	1.1	1.3	1.2
OECD Mean	2.7	2.6	2.6

Source: OECD (2020)

(1) Does not include tax on imported excisable drinks

(1) Unweighted mean selected L.A. countries, excluding Chile

Revenue from excises in Chile is relatively low by OECD standards, but higher than the average in Latin America. Excise revenue in Chile has been stable at around 1.5 of GDP, including revenue

[45] Chile also has an excise on gambling, which collects 0.06 percent of GDP, but it is not discussed in this report. The green tax that applies to vehicles emissions since 2017 is not discussed either.

[46] OECD, (2019); item 5121: excises.

from taxes on alcoholic and non-alcoholic beverages (Table 14).[47] By contrast, excise revenue in OECD countries averaged 2.6 percent of GDP in 2017. The average for the larger Latin American economies was 1.2 percent of GDP.

All excises represent approximately 9.4 percent of Chile's total tax revenues. This comprises the tax on beverages classified under the VAT, including the excise on imported alcoholic drinks. About half of the total are from fuels (Table 15), which alone represent about 0.8 to 0.9 percent of GDP.

The following sections of this chapter discuss these taxes in turn.[48] Each presents a different policy challenge, especially the case of diesel fuel where the current structure of the excise may worsen rather than rein in economic inefficiencies. The taxation of kerosene is also briefly considered in the section on fuels.

Table 15. Chile: Excise Tax Revenue

	Percent of total revenue		
	2015		**2019**
N Alc. beverages	0.50		0.42
Alcohol (Domestic)	0.77		0.79
Alcohol (Imported)*	0.14		0.14
Tobacco	3.55		2.82
Fuels	5.02		5.24
Total excises	9.98		9.41

Source: SII; * estimated by the mission

B. Fuels

B.1 The Structure and Purpose of the Tax

Excises on fuels in Chile have a dual structure, with a fixed and a variable component. The fixed (or base) component is a specific charge per quantity of fuel, while the variable component is an adjustment to the base tax, which may be positive or negative, depending on whether the international price fluctuation of the fuel (in pesos) is above or below a specified range. This is calculated weekly by the Empresa Nacional del Petroleo (ENAP), a state-owned oil refining company.

[47] Chile's excise revenue from alcoholic and non-alcoholic drinks is underestimated in SII data because it does not include the levy on imports. The difference amounts approximately to 0.03 percent of GDP, as explained in sections III and V below.

[48] Section E of this chapter also discusses briefly green taxes in connection to the issue whether the general credit on diesel could be defined as a tax expenditure. A detailed discussion of the green tax in Chile is out of the scope of this report.

The purpose of the adjustment is to protect consumers from high fuel price volatility.[49] The analysis below will focus on the base component of the tax.

The tax applies to a variety (but not all) fuels. Gasolines, diesel, heavy fuel oil and compressed natural gas (CNG) and liquefied petroleum gas (LPG) for motor vehicles are taxed. Biofuels, jet fuels and paraffine are exempted. The base tax rates that apply to gasoline and diesel are 6 and 1.5 times the Unidad Tributaria Mensual (UTM)[50] per M3, respectively. CNG and LPG have lower rates. This section discusses gasoline and diesel excises; the treatment of kerosene is briefly considered as well.

The UTM rates of base excises on gasoline and diesel have not changed in a decade.[51] However, in absolute US dollar terms they have increased slightly, as shown in Table 16. In 2019, these taxes were US$1.58 and US$ 0.40 per gallon of gasoline and diesel, respectively.[52] The small change since 2007 results from the exchange rate lagging behind the domestic inflation indexation rate**.**

Table 16. Chile: Base Excise on Motor Fuels

	US$/Gallon (*)			
	2007	2017	2018	2019
Gasoline	1.46	1.63	1.69	1.58
Diesel	0.37	0.41	0.42	0.40

Source: Parry & Strand (2011) and IMF mission calculations
*2019 average exchange rate: CHP 702.6/US$1 (Source: BCC).
3.7854 lt/gallon.

The burden of excises on the fuels prices also remains practically the same. In 2019, the gasoline excise represented 36 percent of the final price (including VAT), while the diesel tax burden was 12 percent (Table 17).[53]

[49] The variable tax was called until 2014 *Sistema de protección al contribuyente* (SIPCO). Since then changed to *Mecanismo de estabilización de precios de los combustibles* (MEPCO), which reacts also to changes in the exchange rate.

[50] A UTM is a unit of measure for tax purposes indexed by inflation and published monthly by the SII. In April 2020 an UTM = CHP50,221. The average value of UTM for 2019 was CHP48,988 = (UTMJan + UTMDic)/2.

[51] The base tax on diesel has been the same in UTMs since its adoption in 1986. The gasoline tax was first set at 6 UTMs/M3 in 2001; it was decreased temporarily in 2008-2010.

[52] Excise values adjust monthly according to inflation. Values presented here are annual averages. OECD data on fuel excises are for the last quarter of the year.

[53] Average price of premium gasoline (95) in metropolitan region 2019 = CHP 818.2/lt; Retail price diesel = CHP 598.9/lt. Estimate based on CNE, *Reporte de precios de combustibles en estaciones de servicio* … available at: reporte.cne.cl. Base excises 2019: gasoline = CHP 293.9/lt; diesel= CHP 73.5/lt.

Table 17. Chile: Excises and Fuel Prices

	Gasoline		Diesel	
	2007	2019	2007	2019
Final price	4.27	4.41	3.17	3.23
Excise	1.46	1.58	0.37	0.40
Percent	34.2	35.9	11.7	12.4

IMF mission calculation based on CNE data

Importantly, the tax on diesel depends on the final use of the fuel. Diesel used for industrial purposes, including electricity, is exempt, though the exemption is granted as a credit against the VAT.[54] More generally, all VAT payers and exporters are exempt so long as they use diesel for purposes other than motor vehicles. Also, qualifying trucking companies get a credit ranging from 80 to 31 percent of the diesel excise, depending of the turnover of the company (see Box 3). Passenger transport companies cannot credit the excise and are fully taxed for their consumption of diesel. Construction companies have a mixed regime.[55]

Different purposes have been associated with the design of fuel excises in Chile. According to some analysts their original purpose was to finance the construction of highways (badly damaged after the 1985 earthquake).[56] However, the relevant legislation (Law 18.502, introduced in 1986) does not contain any provision to that effect.[57] More commonly, these excises are framed as green taxes (OECD, 2019a),[58] because they reduce the consumption of carbon emitting fuels, but the structure of the taxes also protect consumers from price volatility. The tax is likewise seen as an instrument to collect revenue.

B.2 International Comparison of the Tax Burden

Fuel taxes in Chile are among the lowest among OECD countries (Figure 2). In 2017, the excise on premium gasoline stood at roughly US$0.45/liter; VAT added another 11 cents (OECD, 2018a).[59] All in all, the tax burden represented 49 percent of the consumer price. For most OECD countries the percentage is above that level; Chile is in 30th place in this regard out of 36 reporting countries; a

[54] Energy use in industry, residential and commercial sectors represents more than 2/3 of total energy use in Chile (OECD, 2019c).

[55] Construction companies which are formally licensed a transport company as well get a partial credit for diesel used in road transport, and the general credit for that used in the construction site. To calculate the corresponding credit the taxpayer must do a double apportionment, one, separating the fuel used in activities that are VAT exempt from those that are taxed and, two, identifying the proportion of the fuel used in the taxed activity that is in fact used on the road. A special ledger must be kept for this purpose. Decree 311/1986, art 5-2.

[56] See for example, Rebolledo (2014).

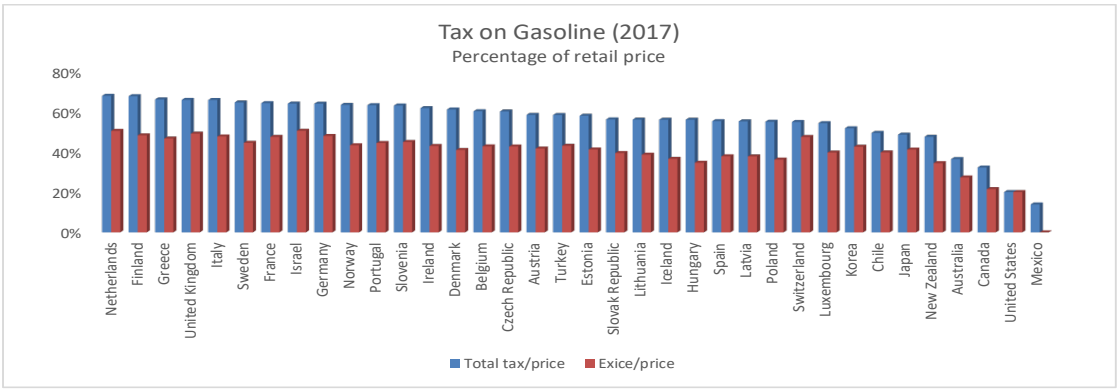
[57] Indeed, other analysts point out that this has never been the purpose of the tax, see Cavada (2019)

[58] See OECD (2019a).

[59] Source: OECD (2018a)

ranking resulting primarily from higher taxes in European countries. Also, in Chile the excise is not included in the base for the VAT, an unusual tax design feature, as discussed below.

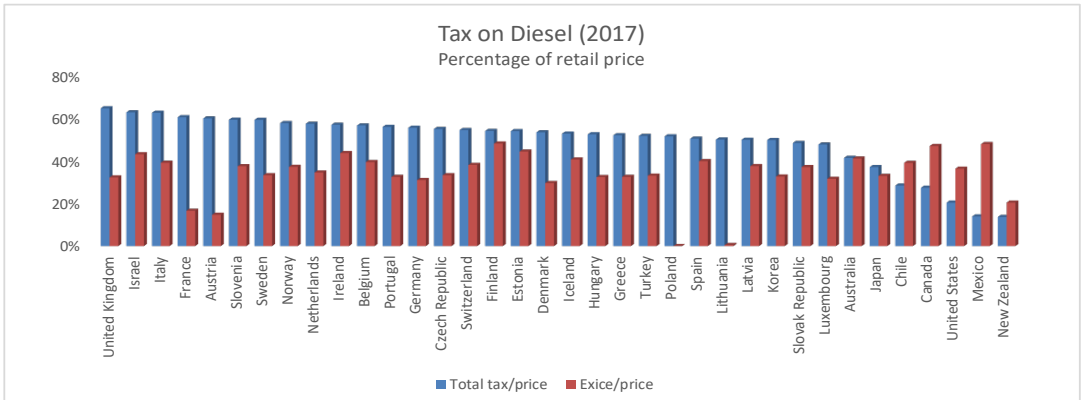
Figure 2. Taxes as a Share of Final Retail Gasoline Price, OECD Countries



Source: OECD

Excises on diesel are especially low. This tax was 11.7 cents/liter in 2017, and together with VAT represented 28.2 percent of the total price (OECD, 2018a); only three OECD counties were below that percentage, including Mexico that has no specific tax on motor vehicle fuels (Figure 3). Only two countries have a lower excise on diesel (cents per liter) than Chile (again including Mexico) and only one (the U.S.) had a lower final price for diesel, including taxes. The system also provides for an intricate set of tax credits, effectively lowering or eliminating the excise on the main uses of diesel, except for passenger transportation, although the fuel is the same[60] (Box 4).

Figure 3. Taxes as a Share of Final Diesel Price, OECD Countries



Source: OECD

B.3 Economic Efficiency (Externalities)

Chilean fuel taxes have been found to be economically inefficient. Parry and Strand (2011)

[60] A tax differentiation which may lead to evasion schemes that are hard to control. See Claudio Agostini and Claudia Martinez (2014).

estimates motor vehicle externalities (pollution, traffic congestion, accidents, road damage, etc) and concludes that fuel tax rates were in 2006 well below the level required to compensate the social costs arising from their use. According to this study, the corrective tax for gasoline should have been 60 percent higher than the prevailing rate, while the diesel tax rate should have been almost six times the statutory rate at that time. An update of that calculation with 2017 data found that excises on motor fuels in Chile were even further away from their efficiency levels: the corrective taxes should have been then US$2.90/gallon for gasoline and US$2.80/gallon for diesel (Table 18).[61]

Table 18. Chile: Statutory and Corrective Taxes on Motor Fuels

	US$/Gallon			
	Gasoline		Diesel	
	Statutory	Corrective	Statutory	Corrective
2007	1.46	1.82	0.37	1.69
2017	1.63	2.90	0.41	2.80

Source: Parry & Strand 2011; IMF (2019)

B.4 The Special Case of the Excise on Diesel

One particularly controversial aspect of fuel taxes in Chile is the low base rate for diesel. It is a quarter of the tax on gasoline, though diesel is more polluting (OECD, 2019c). Importantly, any tax on diesel not used in transportation can be fully credited against the VAT, rendering such activities exempt, despite their carbon footprint. Moreover, a large proportion of the diesel tax used by trucking companies is also credited, up to 80 percent for small companies (see Box 4).

Only the diesel tax credit to trucking companies is recognized as a tax expenditure. The expenditure arising from this tax credit is relatively small: CHP 66 billion (US$ 93.9 million) or 0.03 percent of GDP in 2019.[62] The credit for industrial uses is much larger, amounting to CHP 379.4 billion (US$540 million) or 0.14 percent of GDP. This credit could arguably be recognized as a tax expenditure as well, since it amounts to an exception from the general regime that implies a revenue loss. However, this is less obvious as of 2017 with the entry into force in Chile of a green tax, a levy on stationary sources of emissions, including the industrial combustion of diesel.[63] This is further discussed below. In any case, the credits represent a potential revenue loss from a very low

[61] Updated calculation in IMF (2019), Energy Subsidies Template (March 2019), available at https://www.imf.org/~/media/Files/Topics/Environment/energy-subsidies/fuel-subsidies-template.ashx. A methodological explanation of the calculation can be found in David Coady et al (2019). This paper however does not include specific calculations for Chile.

[62] SII database, Serie ingresos tributarios anuales consolidados, item "recuperación impuesto petróleo diésel - transporte de carga". This is inclusive of adjustment resulting from the variable component of the tax.

[63] The base of the green tax now is emissions (rather than installed capacity). The tax applies when the fixed combustion issuing source of emissions emit 100 or more annual tons of PM or 25,000 or more annual tons of CO2. If these thresholds are exceeded, the tax applies total emissions; Law 21,210/2020.

benchmark, since the diesel excise is already only a fraction of its analogous tax on gasoline and still much smaller when compared to its economically efficient level, as explained below.

Box 4. Tax Credits for Diesel Excises

- The Law 20.658 established in 2013 that a proportion of the diesel tax paid by trucking companies can be credited against VAT. The proportion depends on the annual sales of the company, according to the following scale, measured in Unidades de Fomento (UF):[1]
    - 80 percent if lower than 2.400 UF (approx. US$83,000)
    - 70 percent if between 2.400 UF and 6,000 UF (approx. US$260,000)
    - 52.5 percent if between 6.000 UF and 20,000 UF (approx. US$690,000)
    - 31 percent if above 20,000 UF
- The tax credit was to expire in 2014, but it was extended for 4 years until 2018 (Law 20.809). Then it was extended again for 4 more years (Law 21.139).
- Excises on diesel used for industrial purposes are fully creditable against the VAT (Law 18.502, art 7, first par.).
- There is no credit for diesel used for the transport of passengers or consumers not subject to VAT

[1] The UF is a Chilean unit of account, indexed to inflation. 1 UF = CH$ 34.4 April 30th, 2020

B.5 Policy Options for Eliminating Distortions and Raising Revenues from Fuel Excises

There are number of distortions in the current design of fuel excises in Chile, which would lead to greater revenue if corrected. Technically, the optimal policy is to adopt a price for fuel that compensates for its externalities. However, this section assesses also partial measures independently of one another and their revenue impact is estimated separately. They are not necessarily alternative scenarios since they could be adopted cumulatively with a view to eventually have a full corrective tax. The detailed calculations of their revenue impact are shown in the appendices. Four potential measures are considered:

- Including excises in the base of VAT on fuels
- Eliminating the credit for the excise on motor vehicle diesel
- Increasing the excise on motor vehicle diesel to equal the excise on gasoline
- Increasing excises to the point where fuel prices reach their efficiency level

Adjusting the base of the VAT on Motor Vehicle Fuels

Differing from international practice, in Chile the VAT base on fuels does not include the excise.[64] This is exceptional. The general principle is that the VAT should not distort relative prices and the same applies when prices reflect social costs by way of excises (as is the case with tobacco excises in Chile). Broadening the VAT base to include existing excises would increase motor vehicle retail gasoline prices by 6.8 percent and diesel's by 2.3 percent. The combined effect in revenue, considering an average fuel demand elasticity of -0.5[65] (Parry & Strand, 2011), would amount to approximately US$420 million, or 0.15 percent of GDP (see detailed calculation in Appendix 3).

Eliminating the Diesel Credit

Technically, it is very difficult to justify the tax credit to the consumption of diesel fuel, given its negative externalities. As explained, the trucking sector gets a partial credit for the excise on diesel, while industrial consumers benefit from full credit on this tax. Since 2017, however, Chile has a separate green tax on stationary sources of emissions[66], including the combustion of diesel. A different tax on this use of diesel is justified since the externalities associated with road transport make up a significantly longer list.[67] The green tax collected in 2019 from all fixed sources of emissions (not just diesel combustion) was US$185.6 million (CHP130.4 billion)[68], which is 34 percent of the general diesel credit given to the industrial sector.[69] The green tax collected from diesel combustion alone amounted to CHP7.8 billion (6 percent of the total)[70] which represents only 2 percent of the general credit on the industrial use of diesel.

The carbon tax in Chile is low for international standards. As shown in Table 19, most countries with a similar tax have a considerably higher rates per ton of CO2. Indeed, the carbon tax in Chile has been found to be "wholly ineffective" in reducing emissions and very low compared to the level

[64] "There is widespread agreement in the tax literature regarding some key points on the appropriate application of the VAT … In particular, … include excise taxes in the VAT base". Estefanía Marchan, et al (2017), p.7.

[65] As the percentage change in price increases, the fuel demand function becomes more inelastic. The response of fuel demand is medium to long term. The decrease in miles travelled per passenger may occur relatively fast, but the substitution for more efficient cars and trucks will take longer.

[66] This tax has two components, a global pollution levy of US$5 per ton of CO2 (standard carbon tax), and a local pollution charge, which taxes other common air pollutants and depends on local erosion conditions; Law 20.780/2014, section 8. These pollutants are particulate matter, nitrogen oxide (NOx) and Sulphur dioxide (SO2).

[67] Traffic congestion, road repair and road accidents and fatalities, for examples, are externalities associated with motor vehicles only. Environmental damage instead is common to both. Some sectors, like construction, saddle both activities and require a hard to control system of attribution of diesel use.

[68] Ministerio del Medio Ambiente, Gobierno de Chile (2019). 2019 annual exchange rate = CHP702.6/US$1.

[69] The 'general credit" on the diesel excise was CHP 379.4 billion in 2019 (SII).

[70] Ministerio de Medio Ambiente, Gobierno de Chile (2019).

necessary to meet the COP21 target; the efficient tax has been estimated at US$130 per CO2/ton.[71] Furthermore, the revenue from the second component of the green tax on other air pollutants is a fraction (12 percent) of the carbon tax.[72]

Table 19. Carbon Tax: International Comparison

	Year introduced	US$/ton CO2
Chile	2017	5
Colombia	2017	5
Denmark	1992	26
Finland	1990	65
France	2104	50
Ireland	2010	22
Japan	2012	3
Mexico	2014	1 to 3
Norway	1991	59
Portugal	2015	14
South Afric	2019	10
Sweden	1991	127
Switzerlan	2008	96

Source: IMF (2019)

The new green tax corrects some of the asymmetric taxation of different types of diesel use. This could provide a new element for arguing that the general diesel credit should not be considered a TE. Up to now the argument against considering this general credit as a TE is that the intent of the law is to tax only motor vehicles fuels, so exempting other uses of diesel is a structural feature of the tax design and consistent with excluding it from the list of TEs. However, this is difficult to sustain when, formally, the general regime taxes all diesel and allows for differentiated credits depending on its final use, even though all uses cause pollution (although not with the same intensity). With the green tax it can be argued that each type of diesel use is taxed according to its own externality and that the difference should not imply a TE. The argument could be stronger if the current level of the carbon tax is revised up and placed in a trajectory to reach international efficiency levels. This is the policy path suggested here. Instead, the tax credit to trucking companies is no doubt a tax expenditure and harder to justify.[73]

[71] Mardones and Flores, 2017. COP21 refers to the 21st Conference of Parties, held in Paris in 2015, to the 1992 United Nations Framework Convention on Climate Change, when participating countries committed to contribute to the mitigation of CO2 emissions. The Paris Agreement necessitates a US$75 average global carbon tax per ton of CO2 to achieve its climate objective of limiting global warming to 2oC by 2030; IMF (2019a). A US$75 carbon tax would potentially decrease CO2 emissions in Chile by 31 percent by 2030; IMF/WB (2020).

[72] Ministerio de Medio Ambiente, Gobierno de Chile (2019).

[73] Even if it could be justified a different tax burden for different uses of diesel given the different emissions they may produce, administratively it is difficult to control its end use. For example, an industrial company (100 percent fuel tax credit) may have its own fleet of truck to distribute its products and provide managers with company owned cars. In this case, the company diesel purchases would have three different tax treatments. Also, the differentiated tax credit for the trucking sector, which depends on the turnover of the trucking company, allowing for a larger credit to smaller companies, leads to simulated firm splitting.

Evidently, eliminating the credit for trucking companies would increase the actual cost of diesel to them. In 2019, this credit amounted to CHP 65.9 billion; this represented on average about 53 percent of the excise paid by the trucking business (source SII). Eliminating the credit would imply a 6.5 percent rise in the cost of diesel for that sector.[74] Given a rather inelastic (negative) fuel demand elasticity, the SII might not fully cash in the credit. Given a fuel demand elasticity of -0.5, it could recoup close to CHP 62 billion for the budget, (US$88 million) or 0.03 percent of GDP (see calculations in Appendix 4).

Adjusting the Diesel Tax to Equal Gasoline Tax

Another option that has been suggested (but without much echo in political circles) is to increase the excise on motor vehicle diesel at par with the gasoline tax. This would imply a fourfold increase, from US$.40 per gallon to US$1.58, raising the retail price of diesel by close to 30 percent, to CHP 819.3 per liter, or US$4.41 per gallon.[75] Assuming a lower than average fuel demand elasticity for such a large increase in price, namely -0.4, the combination of effects would result in a net increase in potential tax revenue of nearly US$ 1.5 billion, or 0.5 percent of GDP, if the diesel tax credit was simultaneously eliminated (see Appendix 5). This would address one distortion, now benefiting diesel vs gasoline users, which does not respond to other reason than the power of pressure groups. However, it would only partially address the Pigouvian intent of the tax, because the economically efficient tax is considerably higher still.

Adjusting Fuel Taxes to their Full Corrective Level

The Gasoline Tax

The base tax on gasoline which would result in an economic efficient price for gasoline in Chile was recently updated with 2017 data.[76] This replaces the estimation in Perry and Strand (2011). The newly estimated full corrective base for gasoline is US$2.90 per gallon; this represents a close to 80 percent increase compared with the current tax of US$1.58 per gallon (average 2019). Imposing this tax would represent a 30 percent increase in the retail price of gasoline, excluding the excise from the VAT base. Assuming a price elasticity of fuel demand of -0.4, the revenue impact would be approximately US$1.2 billion, or 0.44 percent of GDP. Calculation is shown in Appendix 4.

[74] This is assuming a 100 percent passthrough of the tax, meaning that trucking companies would absorb the entire cost increase of a vanishing credit. They might in turn pass it on to their clients. Evidence for 100 percent passthrough is found by Agostini (2012) in the case of gasoline in Chile.

[75] 2019 diesel price =CHP598.9/lt. Excise on diesel CHP 73.5/lt; excise on gasoline CHP293.9/lt; increase in diesel tax CHP220.4/lt. New diesel retail price CHP 819.3/lt.

[76] See link in IMF webpage: https://www.imf.org/~/media/Files/Topics/Environment/energy-subsidies/fuel-subsidies-template.ashx.

The Diesel Tax

The efficiency tax for diesel fuel is very close to that of gasoline, considering similar negative externalities. The updated 2017 corrective level is US$2.80 per gallon (which would imply a much steeper increase in the final price (approximately 75 percent), given the low prevailing tax. Consequently, raising the diesel tax to its full corrective level would have a much larger revenue impact. Assuming a lower fuel price elasticity of -03, the net effect of this measure would increase revenue by nearly US$2.6 billion, or 0.91 percent of GDP (see Appendix 5).

A Kerosene Tax

Kerosene is tax exempt. Almost 20 percent of households in Chile use kerosene for home heating, but overall kerosene ranks low in total residential energy consumption, less than three percent.[77] The exemption is an equivalent tax treatment as that provided to stationary uses (by VAT payers) of other fuels. However, kerosene consumption is not subject to the green tax, differing from these other fuels. Kerosene is also an air pollutant and in principle it should be subject to a (corrective) carbon tax, as the use of other fuels is.[78] Revenue would be small,[79] but would place pricing of different fuels on equal footing regarding their emissions factors. However, on distributional grounds a lower kerosene tax might be warranted if kerosene is disproportionately used by low-income households.

B.6 In Sum

There is a range of policy choices technically justified to raise fuel excises. The more modest step is to eliminate the credit to the trucking industry, which would raise approximately US$ 88 million, or 0.03 percent of GDP. Including the excises in the VAT base would collect considerably more revenue because it would impact gasoline taxes. However, correcting the main distortions in this market involve magnitudes of another scale; fully correcting for negative externalities of fuel consumption would have an estimated impact of 1.5 percent of GDP (see Table 20). Clearly, the greatest shortfall --the diesel tax, results from sensitive social and political pressures to keep transport costs low. This consideration however stands contrary to the Pigouvian nature of the tax.

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[77] Corporación de Desarrollo Tecnológico (2019).

[78] Kerosene's emissions factor in Chile is 2.76 kgCO2/liter which is similar to Diesel (2.7) and Gasoline (2.4). Total kerosene consumption, including jet fuel consumption accounts for about 2 percent of CO2 emissions in Chile; Source: *IEA (2020), "CO2 emissions by product and flow", IEA CO2 Emissions from Fuel Combustion Statistics (database), https://doi.org/10.1787/data-00430-en*.

[79] Consumption for residential kerosene in 2018 was 143.4 million liters; Corporación de Desarrollo Tecnológico (2019). A tax of US$ 5 per ton of CO2, given an emission factor of 2.8 kgCO2/liter, would yield a revenue close to US$2 million, assuming no adjustment in consumption.

Table 20. Chile: Taxes on Fuels, Revenue Effect of Different Policy Options

	US$ millions		
	Gasoline	Diesel	Total	Percent GDP
Eliminating trucking diesel credit	--	87.7	87.7	0.03
Including excise in the base of VAT	352.3	83.3	435.6	0.15
Increasing diesel tax to equal gasoline's	--	1461.4	1461.4	0.52
Raising excises to corrective level	1247.3	2585.3	3832.6	1.51

IMF mission calculations based on USEIA, EIA, SII, CNE and BCC data

The realistic space to increase revenue from fuel excises may be gauged by comparing it with other OECD countries. Chile's revenue from fuel excises is below the OECD's average by about ½ percentage point of GDP, 0.9 vs 1.39 in 2017. This average has been slowly sliding, most probably driven by increased fuel efficiency. This would suggest that the road ahead for Chile is to strengthen its fuels excises, but with limitations as to whether they might make a fundamental difference in overall public sector revenue.[80]

Recommendations

Taxes that increase the costs of transport are especially controversial. This is an objective obstacle in adopting abrupt revenue enhancing measures in this sector, even if they rightly correct for social costs. Hence, in the understanding that fuel taxes affect broad social sensibilities, the recommendations below are intended to provide a broad sense of the measures to be adopted, taking a gradual and long-term outlook. However, technically, they should all be implemented.

- Apply the green tax to kerosene consumption
- Increase the global pollution levy component of the green tax (the carbon tax)
- Include excise in base of VAT on fuels
- Eliminate the trucking diesel tax credit
- Close gap between diesel and gasoline excises
- Move both motor vehicle fuel excises closer to efficiency levels

[80] Recent research underscores that the potential for raising additional revenue through excise duties on fuels importantly depends on how consumers adjust to tax increases, as well as on technology developments (fuel efficiency, electrification of the fleet) that may erode fuel tax bases (OECD/ITF, 2019).

C. Alcohol

C.1 Consumption

Chile has a relatively high consumption of alcoholic drinks, topping most other countries in the Americas. Alcohol per capita consumption (APC) in Chile is 9.3 liters of pure alcohol per year, well above the continent's (unweighted) average of 7.8 liters (Table 21). The world's average is 6.4 lt. This is by itself a public health concern.

Comparing volume consumption alone does not fully reveal the extent to which alcohol drinking may be a health risk. Indeed, moderate and regular consumption of alcohol may have some benefits.[81] It is intensive drinking by non-regular consumers, or "binge drinking", that is a greater concern. Chile ranks high in 'heavy episodic drinking (HED), as measured by the WHO,[82] especially among the young. In 2016 the prevalence of HED among the population aged 15 -19 was in Chile 54.4 percent, while the world average was 45.7 percent; the American region 49.3 percent; and Europe 51.2 percent. (WHO, 2018; p. 359)**.** If the data is adjusted by subtracting non-drinkers, and by considering only effective days of alcohol consumption, Chile's APC ranks even higher in the world scale, even compared to several European producing countries (Depto. Salud Publica, PUCCh, 2018; p. 28).

Table 21. Alcohol per Capita Consumption (2016)

Main Countries in the American Region

	Liters of pure alcohol		
Argentina	9.8	Mexico	6.5
Brazil	7.8	Panama	7.9
Canada	8.9	Paraguay	7.2
Chile	**9.3**	Peru	6.3
Colombia	5.8	USA	9.8
Dominican Rep	6.9	Uruguay	10.8
Ecuador	4.4	*Sample Average*	*7.8*

Source: WHO(2018)

The consumption of alcohol in Chile has marginally declined since 2010. The consumption of alcohol per capita in Chile declined slightly from 9.6/lts in 2010, while the average global

[81] The web page of the Centers for Disease Control and Prevention (USA) warns, however: "*Although past studies have indicated that moderate alcohol consumption has protective health benefits (e.g., reducing risk of heart disease), recent studies show this may not be true*"; see https://www.cdc.gov/alcohol/fact-sheets/moderate-drinking.htm. See also, Chikritzhs et al (2009) and IOGT-NTO and Swedish Medical Society (2014).

[82] HED is defined as drinking at least 60 grams of pure alcohol on at least one occasion in the last 30 days. WHO, Global Health Observatory Data. Available at: https://www.who.int/gho/alcohol/consumption_patterns/heavy_episodic_drinkers_text/en/#:~:text=Heavy%20episodic%20drinking%2C%20or%20HED,in%20the%20past%2030%20days.

consumption of alcohol has remained put at 6.4/lts per capita (2010-2016).[83] Chile's national health survey, carried out every six years, shows that its own measure of prevalence of 'risk' drinking in the population aged 15+ was 11.7 percent in 2016-17, only one percentage point below the prevalence in the 2009-10 Survey (Ministerio de Salud, 2017). Thus, there is no indication that the high level of alcohol consumption in Chile could be trending downwards. Unrecorded consumption of alcohol in Chile (15 percent of total consumption) is close to the average for high income countries and declined since 2010.[84]

Social costs of alcohol consumption in Chile was estimated recently by the School of Medicine of the Catholic University of Chile.[85] The study indicates that the highest impact of alcohol consumption is in the mortality rate: 13 percent of all deaths in Chile are associated with the consumption of alcohol (the worldwide indicator is 5.3 percent),[86] representing more than 50 percent of social costs arising from alcohol consumption in Chile. The total costs, considering also the incidence on health problems, (e.g., heart disease, cirrhosis and pancreatitis), plus crime, violence and lower labor productivity, amounted to approximately 1.5 trillion pesos, or US$2.24 billion (0.8 percent of GDP/2017).[87] As a matter of context, total alcohol excise revenue that year (CHP 238.6 billion – Table 8) represented 16 percent of the social costs associated to it.[88]

C.2 The Structure of Excises on Alcoholic Beverages in Chile

The excise on alcoholic beverages in Chile is formally an additional rate under the VAT. The system is simple: there are only two ad valorem rates, one for liquors and distilled drinks (31.5 percent), and another for wines and beer (20.5 percent). The rates were increased in October 2014 from 27 and 15 percent respectively. These rates are added to the VAT rate (not multiplied by it), so that the excise is not part of the base of the VAT. As explained before in the case of fuels (section I), such design is distortive of relative prices, since the VAT fails to tax the external social costs of consuming the product as represented by the excise, eroding tax revenue at the same time.

Tax revenues from alcohol excises are a small fraction of Chile's total tax revenue. They have averaged less than 1 percent of total revenue in the last ten years, representing barely 0.17 percent

[83] WHO (2018), p. xiii.

[84] Unrecorded consumption is homemade or illegally produced alcohol, or smuggled alcohol. The average for high income countries is 11.4 percent (WHO, 2018; p. 56). Chile's consumption of unrecorded alcohol in 2010 was 20 percent (WHO, 2018; p. 197).

[85] Depto. de Salud Pública (2017).

[86] WHO, *Alcohol* (21 sept., 2018), available at: https://www.who.int/news-room/fact-sheets/detail/alcohol

[87] The study uses 2014 data and projects the costs to 2017. Depto. de Salud Pública (2017) p. 20. This estimate is similar to Cnossen (2007) lower-bound average of external costs of harmful alcohol use for a sample of 11 European countries, averaging 0.7 percent of GDP.

[88] Social costs are the sum of external and internal costs, that is, those borne by people other than the drinker and those borne directly by the consumer of alcohol. This is further discussed below in section E.

of GDP, when taking into account revenue from imported alcoholic drinks, which the SII data does not identify. (Table 22). These percentages have fluctuated within a narrow range. The rate change in 2014 led to a noticeable revenue increase in 2015, especially in the case for beer and wines; the effect was considerably smaller in the case of liquors.

Tax revenue data on alcoholic drinks released by the SII does not include excises on imported drinks. These are significant in the case of beer and liquors.[89] Total imports of alcoholic drinks were in 2019 over US$350 million. This should have generated an excise revenue of almost US$86 million or CHP60.3 billion, representing 22 percent of the tax collected domestically on alcoholic drinks.

Table 22. Chile: Revenue from Taxation of Alcoholic Beverages

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenue (millions of pesos)									
Domestic	133,809	138,784	146,011	167,320	214,048	237,511	238,599	268,070	273,499
Imported	22,697	26,253	29,652	38,630	48,715	48,703	51,551	53,363	60,321
Total Revenue	156,506	165,037	175,663	205,950	262,763	286,214	290,149	321,433	333,820
Annual growth rate (%)									
	----	5.5	6.4	17.2	27.6	8.9	1.4	10.8	3.9
Share of GDP (%)									
Domestic	0.11	0.11	0.11	0.11	0.13	0.14	0.13	0.14	0.14
Imported	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Total	*0.13*	*0.13*	*0.13*	*0.14*	*0.16*	*0.17*	*0.16*	*0.17*	*0.17*

Source: SII and mission own estimation based on SNA data

The public health view of alcohol taxation differs from the traditional economic approach. The former targets the behavior of consumers with a view to decrease the social costs of alcohol consumption, including the costs borne by the consumer himself, such as alcohol related diseases and the reduction of life expectancy. Under the consumer sovereignty principle of the economic approach, only the costs imposed on others (externalities) are relevant (Cnossen, 2007). Typically, economic theory prescribes that those external costs alone should be internalized in the price, applying an excise duty. However, taxes could also correct for incomplete information when consumers, especially young consumers, choose to engage in excess drinking. They may not value sufficiently the long-term health consequences of addiction and binge drinking (Cnossen, 2010).

External costs are difficult to estimate. The distinction between internal and external costs in some cases might not be perfectly clear cut. The loss of life due to alcohol related diseases is an internal cost, but the loss of tax revenues generated by the diseased person is not. Health costs may be primarily an internal cost, but not so if they are borne by a public health system. No attempt is made here to estimate externalities from alcohol consumption in Chile to approximate the corresponding corrective excises. The cited study on social costs of alcohol consumption in Chile is sufficiently indicative that taxes could play a greater role in moderating drinking, both for economic and public health reasons.[90]

[89] Revenue from imported drinks represented in 2019 about 20 percent of the total in the case of beer and 30 percent for liquors. See Appendix 8 for detailed data on alcoholic drinks estimates.

[90] Alcohol is associated with a variety of short- and long-term risks, including motor vehicle crashes, violence, sexual risk behavior, work absenteeism, high blood pressure, and various cancers.

How to tax alcoholic beverages is also a key question. In practice, alcohol consumption is typically taxed in one (or more) of three ways (Angus et al, 2019). The base of the tax in each case is:

a. The volume of alcohol contained in product (specific or volumetric tax)
b. The volume of the beverage (unitary tax)
c. The value of the product (ad valorem)

Each type of tax base has its own properties. Specific excises tax directly the consumption of pure alcohol, thus –prima facie, they are more effective in inducing a change in hazardous drinking and in correcting for externalities and internalities. However, there might be cases where the exact alcoholic content of a drink is harder to establish and a unitary tax, an amount per volume of the product (not alcohol), may be appropriate.[91] An ad valorem excise instead taxes all the attributes or perceived qualities of the product, including but not limited to alcohol content, as reflected in the price, but will not alter relative prices and will be less conducive to a substitution effect that may erode the revenue effect of the excise (Cnossen, 2010; pp 13-14).

The optimal tax mix will thus depend on the policy objectives. The main competing policy priorities are discouraging alcohol consumption to correct for externalities or informational failures (in the understanding that it will yield a net positive welfare effect[92]) or raising revenue.[93] A specific tax may be more appropriate when the policy priority is to reduce consumption, since the incentive under this tax (assuming markets are not perfectly competitive) is for producers to decrease the alcoholic content and to increase other perceived qualities in order to increase the price (upgrading effect). By contrast, an ad valorem tax induces producers to reduce the tax per unit of ethanol and the quality of the beverage (downgrading effect). This instrument is less effective in reducing the consumption of alcohol but might raise more revenue as the total consumption of alcohol may ultimately increase due to lower prices of alcoholic drinks under this tax (Sornpaisarn et al, 2017). This is not a desirable effect in a country with already high alcohol consumption.

The specific (average) tax equivalent to the current ad valorem rates will raise the final price of the cheaper but high alcoholic beverages. Adopting a specific tax regime would have a proportionally higher effect on lower income groups, which are probably the principal consumers of low-price alcoholic beverages. A reform like this could thus be considered regressive. However, lower

[91] Sornpaisarn et al, 2017; p. 34.

[92] A difficulty with taxing alcohol consumption is that moderate and regular drinking does not have social costs, so that in principle the tax should be non-linear on consumption, but this is too complicated. Taxing all consumers equally is administratively unavoidable, considering that the harm by heavy drinkers (to others as to themselves) is greater than the cost the tax would impose on moderate drinkers.

[93] Taxing alcohol consumption could have other objectives, for example, increasing the supply of labor. Since leisure is not directly taxable, but alcohol consumption is complementary to leisure, taxing it can make leisure less attractive as compared to the earnings obtained from working. In a way, taxing alcohol consumption may counter the negative effect that the income tax has on labor supply.

income groups also suffer the highest social costs of alcohol drinking.[94] So, the poor stand to benefit the most from reducing alcohol consumption, which could result in a net welfare gain, given that they are as well the most price sensitive (Cnossen 2010, p. 12). The greater effect on poorer drinkers also means reducing health inequality (WHO 2018, p.133). A fair perception of the net wealth effect of the excise depends on a comprehensive strategy regarding alcohol consumption, including instruments other than tax.

Excises can also be combined, mixing their respective attributes. Of special interest is the combination of an ad valorem rate with a specific tax per content of pure alcohol that works as a minimum tax, denominated in Sornpaisarn (2017) as an "ad valorem with specific floor taxation" (ASF). In other words, the regime would have taxpayers calculate both taxes and pay the highest of the two. The advantages of this combination are that: i) it will increase the tax more than proportionally on high alcohol but cheap beverages, having a larger impact on hazardous drinking; ii) it would not reduce as much the revenue from high-end drinks consumed mostly by high income population; iii) it would be more effective in preventing the initiation of drinking among the young, whose price elasticity of demand for alcoholic drinks is higher (Sornpaisarn 2017, p. 10). So, such a system can potentially collect more tax revenue than a pure specific regime and reduce the downgrading effect of a pure ad valorem system. The tax combination seems particularly appropriate for countries whose policy priority is both reducing consumption among heavy drinkers, preventing drinking initiation among young people, without sacrificing significant revenue compared to a pure ad valorem system (Sornpaisarn, 2017). Admittedly, the such tax combination would imply more administrative complexity, and regulations should be clear that the highest of the two taxes has to be paid.[95]

In sum, with ad valorem excises, as those prevailing in Chile, producers have the incentive to reduce the quality of the product, but not necessarily the quantity of alcohol delivered. Ad valorem taxes are therefore less effective in discouraging alcohol consumption and in reducing its social costs. However, they do not affect relative prices as specific excises do, which narrow the price difference between high and low-quality beverages and, for the same reason, tend to collect more revenue as compared to a specific tax equivalent. Most OECD member countries now have specific taxes on alcohol consumption; Chile is one of the very few to have ad valorem excises.

C.3 International Comparative Tax Rates on Alcoholic Beverages

There is a wide variation internationally in both the structure and scale of alcohol taxation. The multitude of tax regimes makes cross border comparisons difficult. Typically, the tax base changes from one type of alcoholic beverage to another – beer, wine and liquors or spirits, and within each type of beverage the design of the tax differs among countries. Specific regimes also have their own

[94] Low income groups, on average worldwide, have the highest prevalence of heavy episodic drinking among drinkers (WHO 2018, p.57).

[95] This system was in place in Thailand until 2017. Sornpaisarn et al (2012) finds some evidence of success in increasing revenue and preventing the young from initiating drinking. However, for administrative simplification reasons, the tax was replaced by a pure specific excise.

exceptions, such as special rates for artisanal production or for beverages with low alcohol content; even the definition of an alcoholic beverage differs.[96] Also, there is large disparity of rates among those countries that have a common regime for any one type of excise.[97]

Box 5. Comparative Tax Rates on Beer

Table 9 shows the conversion of the ad valorem excise on popular beer brands in the Chilean market to its equivalent specific tax per alcohol by volume. For example, the 20.5 percent excise on a 24 pack of Cristal beer is 140 pesos per liter of beer (June 2020), on a base price which excludes the VAT. Given its alcohol content of 4.6 percent per liter, the tax amounts to 3,039 pesos per hectoliter (the standard unit for measuring the specific tax). The specific tax equivalent to the Chilean ad valorem estimated in Table 23 ranges, in US dollars, from approximately US$4 to US$8, depending on the beer brand; the alcoholic content of cheaper (domestic) beers, as expected, is taxed less with the ad valorem rates.

European specific tax per alcohol by volume (hectoliter of product) varies greatly. It ranges from a low of US$2.2 in Germany to almost US$40 in Finland (OECD, 2018). The average is nearly US$11 per abv (Table 24), above the top of Chile's sample range. Premium beers in Chile are subject to a specific equivalent excise closer to the European average.

Table 23. Specific Excise Equivalent of Chile's Ad Valorem Tax on Popular Beer Brands

	Units/ pack	Vol/ cc	Price/ CHP	Price/ lt	Excise/ lt	abv	Exice/abv /Hectoliter	Excise/abv/ Ht/ US$
Cristal	24	350	7990	951	140	4.6	3039	3.9
Escudo	12	350	5790	1379	203	5.5	3683	4.8
Corona	6	355	4190	1967	289	4.6	6284	8.1
Heineken	12	350	8790	2093	308	5.0	6151	7.9

Source: Mission calculation with price data available webpages of supermakets Lider and Jumbo

Table 24. Specific Beer Excise per Hectoliter per Percent ABV

Austria	5.6	Hungary	5.9
Belgium	5.6	Ireland	25.3
Czech R.	3.4	Italy	8.5
Denmark	8.5	Latvia	5.1
Estonia	19.0	Lithuania	8.0
Finland	39.9	Poland	5.2
France	8.3	Dslovak R.	4.0
Germany	2.2	Turkey	3.4
Greece	14.0	UK	24.5
Average			*10.9*

Source: OECD (2018)

[96] Ley 18445 (1985), art 2, b).

[97] Anderson (2014) normalizes different tax bases for different alcoholic beverages in 35 country, including Chile. The conversion to a unified ad valorem standard results in a range of rates from 0 to 343 percent for non-premium wine; 3.9 percent to 179 percent for beer; and from 13.5 percent to 292 percent for liquors.

In the case of beer, for example, most European countries apply a specific tax on the alcohol content of the beverage (percentage of alcohol by volume -- abv). A few, like Chile, have an ad valorem tax. The specific tax equivalent to Chile's ad valorem depends on the price of the beer and its particular abv, which may be subject to considerable variance. Also, the rate dispersion among other countries makes it difficult to establish a meaningful benchmark. A very tentative approximation would indicate however that Chile's tax rate on beer is on the low side (Box 5).

Wines are taxed more commonly per hectoliter of product, rather than per abv or pure alcohol content. The range of rates is wide, from less than US$ 50 per hectoliter of product (e.g., Belgium, Greece), to close to US$800 (Norway). A significant number of countries have no excise on wine, only VAT; this is the case especially in European producing countries (e.g., Italy, Spain, Portugal, Romania), while others have a scale of rates depending on the alcohol content (e.g., Denmark, Germany, Finland). Again, there are a few countries in the OECD, like Chile, that have an ad valorem tax for wines, all of them with rates slightly higher than Chile.[98] Since the amount of tax paid with an ad valorem rate increases with the price of wine, the specific equivalent for Chile spans the whole spectrum, from around US$100 per hectoliter of product for a relatively cheap wine to US$600 for a super-premium wine (Box 6).

Box 6. Specific Tax Equivalent per Hectoliter of Wine

The specific equivalent tax to the current ad valorem will depend on the price of the wine bottle. If the specific tax is determined per volume of product, not alcoholic content, then the equivalence will depend solely on the price of the bottle. The calculation in Table 25 assumes wine bottles are uniformly 750 milliliters. The prices are calibrated to be representative of three main wine quality brackets (non-premium, premium and super-premium).

Table 25 is indicative that special-premium wines in Chile may be taxed at a relatively high rate for international standards. Comparing Chile's current 20.5 percent ad valorem with Anderson (2014) set of normalized rates for a sample of 35 countries supports this view for the high-end wine. The same conclusion is supported by a more updated sample of 42 countries in Anderson (2020). Instead, Chile's excise rate is equal to the median value of the sample of equivalent rates for non-premium wine, both in Anderson (2014) and Anderson (2020); see table in the Appendix.

Table 25. Chile: Specific Excise Equivalent to Current Ad Valorem on Wine

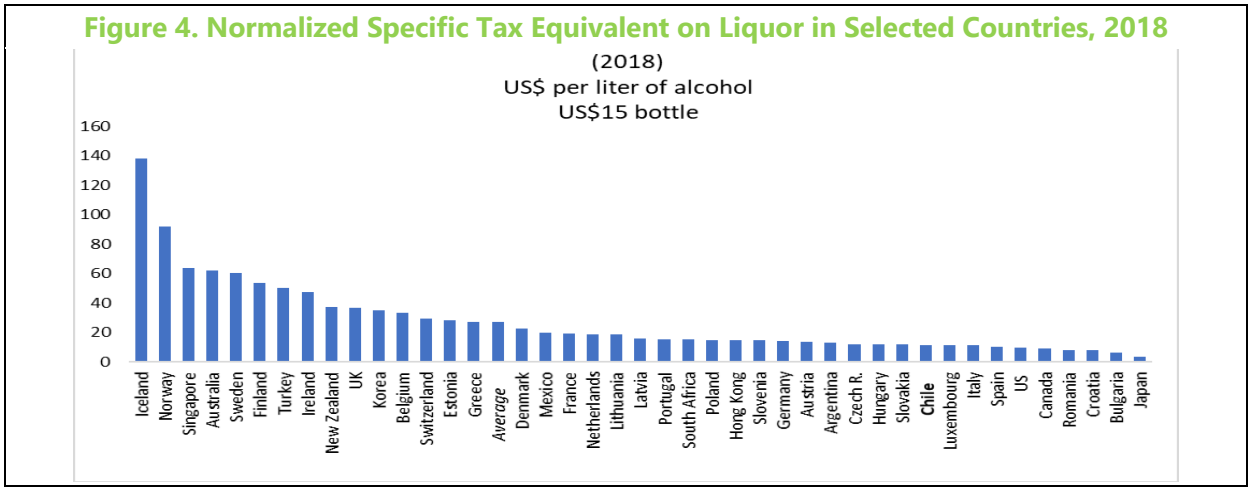
	Chilean pesos		
Price per bottle of wine	6000	12000	24000
Total tax (incl. VAT)	1.395	1.395	1.395
Pretax price	4301	8602	17204
Excise per bottle	882	1763	3527
Excise per liter of wine	1176	2351	4703
Excise per hectoliter of wine	117563	235125	470251
	US$		
Excise per hectoliter of wine	152	303	607
Mission calculations			

[98] Australia: 29 percent, S. Korea: 30 percent, Mexico: 26.5 percent; OECD (2018), p. 142.

Liquors or spirits are taxed most often with a specific rate on hectoliters of pure alcohol. Similarly, the rates change considerably between countries. On the lower end of the scale among OECD countries are the Czech Rep., Hungary and Italy, with a tax in 2016 of around US$ 1,200 per hectoliter of pure alcohol and on the high end of the distribution are Finland (US$5,400) and Sweden (US$6,000), topped by Norway with a rate of US$9,200. Among OECD countries, only Mexico has an ad valorem tax for liquors, at 53 percent for beverages above 20 degrees of alcohol proof (or percentage of abv).[99]

Countries normally tax liquors at a higher rate per content of alcohol as compared to beer and wine. One of the reasons is that production costs are lower, and a higher excise brings in line the price per unit of ethanol with that of other alcoholic beverages. Also, consumers of liquors tend to belong to high-income groups (Sarnpaisarn, 2017; p. 40). Using Anderson (2020) sample as a benchmark, one may conclude that Chile's ad valorem rate for liquors (31.5 percent) is low for international standards, about half the sample average for a US$15 spirit, one-liter bottle of 40 percent alcohol proof (2018 data). The unweighted ad valorem equivalent average for the sample is 74.8 percent for an equally priced liquor bottle (Anderson, 2020). There might be some room here to increase Chile's current ad valorem rates. Figure 4 shows the comparative rates in terms of a specific equivalent tax.

Figure 4. Normalized Specific Tax Equivalent on Liquor in Selected Countries, 2018



C.4 Revenue Potential

From the discussion above there seems to be some room for increasing the tax rates on beer and liquor. The same is not evident in the case of wine. In any event, the additional tax revenue potential is small, given also a high price elastic of consumption of wine, -0.77 (Araya et al, 2018). One possible scenario would be to raise the ad valorem excise on liquor to the level equal to the international average, which is 33 percent higher than the current Chilean ad valorem rate.[100] The

[99] Mexico has a scaled ad valorem, with a 30 percent for liquors with lower degrees of alcohol (from 14o – 20o).

[100] The international specific tax equivalent for the sample of countries in Graph 1 is US$27.5 per liter of pure alcohol on a US$15 bottle. Chile's specific equivalent tax is US$11.8, Anderson (2020). The dispersion around this average is

new rate would reach 42 percent, and assuming a demand elasticity for spirits as calculated by Araya et al (2018) at -0.14 , the potential increase in excise revenue would be approximately 21 million pesos, about 0.06 percent of GDP. The effect of an increase in the excise on beer is more uncertain, however. This is because the estimation of its price elasticity of demand (Araya et al, 2018) places it at -0.93, which is unusually elastic and, if correct, would erase most of the effect of the rate increase on revenue due to a fall in consumption. However, an increase in the tax on beer and spirits would have a significant effect in consumption, and in reducing public health costs, due to the relatively high negative elasticity of demand, as pointed out above.

Recommendations

- Re-estimate and regularly release the total excise revenue from alcoholic drinks, including the tax levied on imports
- Adopt an 'ad valorem with specific floor taxation system' for alcoholic beverages, at least for beer and liquor.
- The base for the specific tax for beer and liquor should be on alcohol by volume
- Consider a combination tax system for wine where the base of the specific tax (to be a floor for the ad valorem) is on volume of product.
- In general, the rate of the additional specific excise should be higher than the specific equivalent to the current ad valorem for relatively cheap but high alcohol content beverages.
- Include the excise in the base of the VAT
- Adopt a higher ad valorem for liquors.

D. Tobacco

Smoking tobacco carries large social costs. Not only does it affect the health of smokers, it has a negative impact on third parties as well. Third parties are affected because of health hazards to passive smokers and taxpayers footing the bill of the public health sector that provides care for both active and passive smokers. This is strictly the negative externality of tobacco smoking. Pigouvian taxes are designed to correct for this externality, not for the private, self-inflicted health costs on smokers. However, there might be an issue of time inconsistency on the part of smokers, as they may not value sufficiently having good health at a later stage in life (often referred to as an "internality"). An excise on tobacco smoking therefore may have a double corrective effect, one on adjusting pricing so that it reflects negative externalities that the market fails to internalize and, at the same, correct for a myopic valuation of smokers' self-interest.

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very wide, so the average is not very meaningful as an international benchmark. The scenario is estimated mostly for illustrative purposes and to have a ballpark figure of the revenue potential.

D.1 Consumption

Chile ranks almost at the top of the smoking prevalence in the world. Tobacco use can be measured in various ways, by users of all tobacco products, smoking of cigarettes, all smokers, or only regular smokers (at least one cigarette per day), as a percentage of total population above 15 years of age. In all these categories (where data is available), Chile tops most other countries according to WHO 2017 data. For example, prevalence of daily cigarette smoking in Chile is 32 percent of the population, second only to Serbia (marginally) among 149 countries.[101] Such prevalence percentage is almost three time the average for the American continent (Table 26). Chile therefore seems to have a serious tobacco addiction problem.

The consumption of tobacco in Chile has been trending down, however. The national health survey, carried out every six years, shows that the prevalence of the cigarette smoking population (daily or occasional cigarette smokers) has declined from 43.5 percent in 2003, to 39.8 in 2009-10 and 33.3 percent in 2016-17.[102]

Table 26. Prevalence of Daily Tobacco Smoking Percent of Population Age 15+

Region	
African	9.4
Americas	10.5
Eastern Mediterranean	14.1
European	22.2
South East Asia	17.3
Western Pacific	21.2
Chile	31.9

Source: Mission calculation based on WHO data 2017

The decline roughly parallels the trend worldwide. In 2000 the world prevalence of 'current tobacco use' was 33.3 percent of the population. This had decreased to 24.9 percent in 2015, a 25 percent drop (WHO, 2019a). Chile's prevalence (current cigarette smoking) declined between 2003 and 2017 by 23 percent, although starting from a much higher level than the world average. It significantly raised the excise tax in 2014, leading to one of the highest tax burdens on tobacco in the world (Table 26).

[101] The small island countries of Kiribati and Nauru also have larger tobacco use prevalence than Chile, but they may not be comparable. Otherwise, Chile is second only to Serbia.

[102] Ministerio de Salud, 2017, *Encuesta Nacional de Salud 2016-17*, Primeros Resultados, Depto. de Epidemiologia, Gobierno de Chile (noviembre 2017).

D.2 Social Costs of Tobacco Use in Chile

The health costs of tobacco consumption in Chile was estimated in a relatively recent study. The total costs, considering the greater incidence of health problems associated with tobacco use, such as chronic lung obstruction disease, lung cancer, heart disease, among others (including passive smoking), amounted in 2013 to 1.1 trillion pesos, or 0.8 percent of GDP (Marianela Castillo Riquelme, 2014). This cost was 34 percent higher than the total tobacco excise revenue that year.[103] In 2015, the cost attributable to tobacco consumption was estimated to represent 11.2 percent of the total cost of the Chilean health system, a proportion higher than in the other major economies of Latin America.[104]

D.3 The Structure of Tobacco Excises in Chile

The structure of the tobacco excise, combining specific and ad valorem rates on cigarettes, was introduced in 2010.[105] Currently, the ad valorem rate for cigarettes is 30 percent, in addition to the general VAT rate of 19 percent; the specific tax is 0.0010304240 UTM[106] per cigarette. The special ad valorem rates for cigars and loose tobacco are 52.6 and 59.7 percent, respectively (Law No. 828/1974). There is no specific tax for these products. Chile does not tax e-cigarettes or heated tobacco products (HTP – see Box 7). The current rates for cigarettes were introduced with the 2014 tax reform, which reduced the ad valorem by half and increased the specific rate eight-fold, which implied a combined increase of nearly 12 percent on an average priced cigarette pack. So, the balance has changed in favor of the specific tax.

Ad valorem and specific taxes do not share the same properties. Specific taxes are directly linked to the quantity of tobacco consumption and therefore address public health concerns more effectively. They also represent an incentive for producers to upgrade the quality of the product, so that the tax may represent a smaller proportion of its price. An ad valorem excise has the opposite effect, it favors lower quality products with a lower tax base. In principle, from the standpoint of the neutrality of taxes, combining both so that quality of the product remains unaltered is the optimal approach (Petit, 2016; Agostini, 2017).[107] However, from a public health perspective specific taxes are superior, although they are heavier on cheaper cigarettes and thus tend to be more regressive than ad valorem excises. This is a reason not to rely exclusively on specific taxes, but the public health argument tilts the balance in their favor (Petit, 2016), as Chile's policy has done in the last decade.

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[103] This ratio comparing revenue with health costs associated with tobacco smoking does not suggest that the revenue should be earmarked to finance such costs.

[104] Organización Panamericana de Salud (2019).

[105] Law 20.455, art 6 that modified art. 4 of Law 828/1974, which taxed tobacco with ad valorem tax only.

[106] UTM (Unidad Tributaria Mensual) is a monthly measure published by the SII which is indexed to inflation.

[107] This point is reached when the ratio of ad valorem tax to total tax is equal to the price elasticity of demand for tobacco (Agostini, 2017, p. 52).

Box 7. E-Cigarettes and Heated Tobacco Products

E-cigarettes are electronic devices that heat liquid containing nicotine (often with added flavors) in a refillable or disposable cartridge. The delivery of nicotine is through vapor, not smoke. Strictly, it is not a tobacco product, although the nicotine it delivers is an extract from tobacco. Arguably, e-cigarettes are less harmful than tobacco smoking, since fewer toxic chemicals are inhaled in the absence of combustion. However, they are a health hazard anyway because of the addictive nicotine, and other chemicals, including in particular related to flavoring (WBG, 2019). They were marketed first in 2006 and they have grown in popularity since. Many countries now tax them, given their negative health impact. They are typically taxed in Europe, although there is no common approach. In the US, 23 states plus DC also tax e-cigarettes. The structure and level of rates vary considerably (NCSL, 2020).

The most common tax design is a flat levy per unit of fluid in the device. In the European Union the rates vary from EUR0.30 to EUR0.08 per ml. Others apply a tax per mgs of nicotine content. In the US, some states impose ad valorem tax on the sale price (60 percent in DC, for example). The most common rate is 5 cents per ml of fluid. Some states have a hybrid excise, combining a specific with an ad valorem rate (NCSL, 2020).

Advocates of e-cigarettes argue that the device helps smokers quitting tobacco addiction, which has more adverse health effects and thus e-cigarettes should not be taxed. However, there is no conclusive evidence that they are be effective in aiding to quit tobacco smoking (WBG, 2019), although recent studies based mostly on US data indicate that e-cigarettes and traditional cigarettes are in fact substitutes (Cotti et al, 2020).

A similar issue applies to HTP. Although it is a tobacco product, it is not smoked. The cigarette is heated, not burned, with an electronic device. In the absence of combustion, fewer toxic elements are inhaled. No common taxation policy has been developed in this case either.

Currently, the mix of specific and ad valorem taxes on cigarettes in Chile is 55/45percent.[108] This mix stands close to the mid-point between the averages in Latin America and Europe. In the first region, specific taxes represent 62 percent of the total excise tax burden on cigarettes, while Europe has the inverse proportion, 38 percent of the burden arises from specific taxation, the remainder is from ad valorem.

D.4 Revenues

Interestingly, tobacco tax revenues increased significantly the year after the 2014 reform, but after that they have stagnated or declined. In nominal terms, revenues peaked in 2016 at slightly above 1 trillion pesos (Table 27). However, the underlying trend had been declining. The growth rate of tobacco tax revenue had dropped significantly before the reform. While 2015 sees a considerable but short-lived jump in revenue, the longer-term trend sets in again the following year, reaching a nominal decline in revenue of 3 percent in 2017. The growth rate is again negative in 2019, when revenues reached only CHP 973 billion. This has meant that tobacco tax revenue has lost a third of its share in total tax revenue in the last ten years, to a decade low of 2.8 percent in 2019.

[108] Estimated based on WHO data shown in Table 3.

Table 27. Tobacco Excise Revenue

	CHP million	% Increase	% Total Rev
2009	556,651	--	4.17
2010	647,637	16.3	3.68
2011	741,654	14.5	3.51
2012	783,995	5.7	3.44
2013	815,991	4.1	3.56
2014	856,595	5.0	3.50
2015	981,422	14.6	3.55
2016	1,009,034	2.8	3.48
2017	978,696	-3.0	3.18
2018	981,456	0.3	2.86
2019	973,336	-0.8	2.81

Source: SII

The poor revenue performance also shows as compared to other countries. Despite having a smoking prevalence about the highest in the world and a very high tax burden on cigarettes, as explained below, Chile's revenue from tobacco excises as a percentage of GDP ranks internationally very close to the average (Table 28).

Table 28. Tobacco Tax Revenue

Year	Country	Percent GDP	Year	Country	Percent GDP
2017	Greece	1.13	2018	Germany	0.43
2018	Czech Republic	1.06	2018	United Kingdom	0.42
2018	Luxembourg	0.98	2017	Uruguay	0.41
2017	Poland	0.94	2018	Canada	0.38
2018	Slovenia	0.92	2018	Japan	0.36
2018	Hungary	0.82	2018	Netherlands	0.34
2018	Slovak Republic	0.81	2018	Denmark	0.32
2018	Portugal	0.77	2018	Switzerland	0.32
2018	Estonia	0.77	2018	Sweden	0.26
2018	Latvia	0.72	2018	Ireland	0.23
2018	Spain	0.58	2018	Norway	0.19
2017	Argentina	0.57	2018	Korea	0.18
2018	France	0.56	2018	New Zealand	0.16
2018	Belgium	0.52	2018	United States	0.16
2018	**Chile**	**0.51**	2017	Ecuador	0.12
2018	Austria	0.50	2017	Colombia	0.10
2018	Finland	0.48	2018	Israel	0.04
	Average				*0.50*

Source: Mission calculation based on OECD (2019)

D.5 International Comparative of Tax Burden on Tobacco (Cigarettes)

The total tax burden on cigarettes in Chile is above 80 percent of the retail price, which ranks high for international standards. The sum of the specific and ad valorem excises, plus the VAT represent a tax burden that is among the top ten in the world, according to WHO data.[109] In the American region, for example, these taxes are on average (unweighted) around 62 percent of the final price of the most sold pack of 20 cigarettes; this is 20 percentage points below Chile's case (Table 29).

Table 29. Taxation of Cigarettes in Selected Countries

2018	**Retail price US$**	**Taxes: Percentage of retail price**			**Total tax burden (percent)**
		Specific	Ad valorem	VAT/sales	
Canada	9.07	55.3	0	9.0	64.4
USA	6.86	37.8	0	5.2	43.0
Argentina	2.18	0	71.2	5.0	76.2
Brazil	1.35	30.0	10.0	32.0	83.0
Bolivia	1.66	25.3	0	11.5	36.8
Chile	**4.23**	**36.4**	**30.0**	**16.0**	**82.4**
Colombia	1.39	52.5	10.0	16.0	78.4
Dominican Rep	4.03	26.1	9.8	15.3	51.1
Ecuador	5.40	59.3	0	10.7	70.0
Mexico	2.70	14.0	39.2	13.8	67.0
Paraguay	0.35	0	8.3	9.1	17.4
Peru	4.89	33.8	0	15.3	49.0
Uruguay	4.58	48.0	18.0	0.0	66.1
Average	*2.98*				*61.6*
Austria	6.45	21.1	37.5	16.7	75.3
Belgium	7.45	19.6	40.0	17.4	77.0
Denmark	7.01	53.2	1.0	20.0	74.2
Finland	8.47	16.1	52.0	19.4	87.4
France	9.39	15.0	50.8	16.7	82.5
Germany	7.59	30.7	21.7	16.0	68.4
Hungary	4.54	26.0	25.0	21.3	72.3
Italy	6.45	7.0	51.0	18.0	76.0
Poland	4.25	26.7	31.4	18.7	76.8
Spain	5.87	9.9	51.0	17.4	78.2
Average					*76.8*
Source: WHO					

[109] World Health Organization (2019). Appendix IX, table 9.1: taxes and retail price for a pack of 20 cigarettes of the most sold brand.

The price of the most sold pack of cigarettes in Chile is relatively high compared to that in other Latin American countries. Though similar to prices prevailing in Peru and Ecuador, the price in Chile (around US$4.2 a pack in 2017) is roughly twice the prices in Argentina and Bolivia, which are neighbouring countries. Particularly concerning is the price difference with Paraguay (where the equivalent pack is worth only US$0.35), a large manufacturer and exporter of cigarettes, especially originating from its large free trade zone. So, even if cigarette retail prices in Chile remain low compared to European standards (see Table 29), the regional market sets a limit to how much excises may rise without provoking the erosion of the domestic market from greater flows of contraband, which is already significant.

D.6 Illicit Cigarette Trade

Although protected by a difficult geography, Chile's borders are porous to contraband. A recent survey (MIDE UC, 2019) finds that approximately 25 percent of all cigarette consumption in Chile is illicit, that is, smuggled from abroad without paying any tax.[110] The problem is particularly serious in the northern provinces, neighboring with Peru and Bolivia. Most of the cigarette contraband originates from Paraguay, a well-known source of undocumented exports of cigarettes.[111] This intrusion in the domestic market, as indicated by an earlier survey, has happened very fast in the last 6-8 years, for the participation of illicit cigarettes was only 3.6 percent of the Chilean market in 2012 (Observatorio del Comercio Ilícito, 2017).

The surveys on illicit cigarette trade, though financed by the tobacco lobby, are roughly consistent with declining revenue data and the increase in cigarettes seized by Chilean authorities. Indeed, over 14 million packs of cigarettes were seized by Chilean authorities in 2019,[112] doubling the amount recorded in 2016 (Agostini 2017). However, there is a large gap between the amount of seized tobacco products and the estimated share of illicit tobacco products in the Chilean market. The potential excise revenue forgone from siezed cigarettes represent only about 3 percent of tobacco total revenue. This points at the need to strengthen administrative and enforcement procedures and operations regarding illicit trade of cigarettes.

The Chilean government has recently presented an initiative to increase penalties against smuggling of tobacco products. Currently, the penalty is the same for all type of contraband, irrespective of fiscal consequences of the illicit trade. The initiative, if approved, would single out

[110] Centro de Medición de la Pontifica Universidad Católica de Chile (2019)

[111] The Central Bank of Paraguay estimates a residual value of exports ("other exports") which accounts for cigarettes, beer, woods and sport shoes produced in or imported into the country which are not consumed in Paraguay, nor formally exported out of the country. So, these are goods that have exited Paraguay without customs intervening. The annual average value of "otras exportaciones" is about US$1.2 billion.

[112] Source, Aduana Informa, December 27, 2019. See, https://www.aduana.cl/11-millones-de-productos-falsificados-y-14-millones-de-cajetillas-de/aduana/2019-12-27/162235.html

cigarette smuggling with heavier fines. This would be clearly a step in the right direction. [113] This would also follow up on other administrative steps adopted recently, such as the traceability of legally produced or imported cigarettes through the stamping with ink that is only readable by instruments used by authorities (operational since 2018).

D.7 Policy Considerations

Chile has a severe problem of tobacco addiction; it has the second highest percentage of prevalence of cigarettes smokers in the world, far above the international average. Taxation is one instrument to induce a reduction in the use of tobacco, but not the only one. Smoke free zone regulations, mass media, health warnings (labelling), advertising bans are examples of additional and necessary elements in the toolkit to combat the tobacco epidemic. Chile scores well in most of these fronts, including a high tax burden on the consumption of tobacco which has made cigarettes less affordable.[114] However, smoking is still high. This could be a call for even higher taxes, but the signs are that this route, in the short run at least, may be close to its limits.

Increasing excises beyond a certain point may find an elastic consumers' reaction,[115] who may substitute legal tobacco product for illegal ones or other nicotine-based products subject to lower or no taxation. This is an important consideration in the design of tobacco excises (Petit, 2016). Tax revenue may suffer, as it seems to be the case already in Chile. Indeed, previous research had found that the tax burden on cigarettes in Chile (including VAT) was very close to the top of the Laffer curve, which traces total tax revenue to tax rates (Agostini 2010).[116] Since then, the overall tax burden in Chile as increased further, and revenue eventually started to fall in nominal terms.

Thus, the convergence of the following factors in Chile would suggest caution when considering another round of tax increase:

- The tax burden on cigarettes is one of the highest in the world
- The combination of specific and ad valorem excises seems appropriately balanced

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[113] Senado de Chile, "Aumento de sanciones por el delito de contrabando de tabaco será analizado en una próxima sesión ordinaria" (24 de enero 2020); available at: https://www.senado.cl/aumento-de-sanciones-por-el-delito-de-contrabando-de-tabaco-sera/senado/2020-01-24/084313.html.

[114] WHO (2019), Chile: Country Profile.

[115] Agostini (2010) estimates price elasticity of demand for cigarettes in Chile to be in the range of -1.94 to -1.46, which is quite elastic and considerably higher than in a previous study by Debrott (2006), who estimated this elasticity to be -0.22 in the short-run and -0.45 in the long-run, which were close to international parameters; see Guidon et al (2018). However, these estimations were done based on 1993 – 2005 data, when the market for illegal tobacco products in Chile was considerably smaller. Also, Agostini (2010) considers brand substitution in his estimate of demand elasticity, which could also explain the difference.

[116] The maximum effective tax burden was estimated in Agostini (2010) at 78-83 percent ad valorem. At the time, the rate stood at 76.4 percent (p.26). The Laffer curve could shift eventually if other parameters change, for example, stronger administrative controls over the illicit tobacco market. See also Laffer (2014).

- Tobacco tax revenue has decreased in nominal terms despite recent rate increases
- Seemingly, a large and growing portion of the market is supplied by illicit cigarettes
- Increasing hauls of illegal cigarettes have been seized annually by Chilean authorities
- Consistent with the above, price elasticity of demand for tobacco is large in Chile

So, the main focus at this point should be on administrative measures to reign in the illicit trade on tobacco products. To be sure, it might be important to independently verify the problem of illicit trade as portraited by studies financed by the tobacco industry. Nevertheless, stiffening penalties for illicit trade of tobacco products appears to be the correct approach at this time.

Simultaneously, novel nicotine products, which are a health hazard on their own right, though arguably less than burning tobacco products, should also be taxed. The base of this tax should be specific to the nicotine content or per stick in the case of heated tobacco cigarettes. Given that negative externalities are fewer and that there might be a substitution effect with traditional cigarettes, the tax should preferably be kept low relative to tobacco products.

Recommendations

- Do not increase existing tax rates on tobacco products
- Maintain the balance between specific and ad valorem excises
- Strengthen administrative control of illicit tobacco trade prior to considering raising excises
- Raise penalties on smuggling of tobacco products
- Verify independently studies financed by private sector on illicit cigarette trade in Chile
- Tax e-cigarettes and HTP by the content of nicotine or per unit of fluid

E. Sugary Drinks

E.1 Chile's Special Tax on Sugar Sweetened Beverages

Excess sugar consumption has negative health consequences, and the intake of sugary drinks contributes to that effect. Chile ranks high in the prevalence of diabetes and child obesity[117] and the large social costs associated with sugar consumption generally has justified the adoption of a special consumption tax on sugary drinks. It is a generalized view that "Just as taxing tobacco helps reduce tobacco use, taxing sugary drinks can help reduce the consumption of sugars." (WHO, 2017).

[117] For example, Chile has one of the highest incidences of child obesity in the world; Agostini et al (2018), p.7.

A number of countries, including Chile, have adopted an excise on sugary drinks. Most of them did after 2016, so Chile is a pioneer in this regard (Table 30).[118] For many countries it might be too soon to evaluate the effect of the tax, but the evidence from Chile and a few other countries indicate a significant corrective impact on the consumption of sugary drinks.

Table 30. Year of Adoption of Tax on Sugar Sweetened Drinks

Norway	1981	Saudi Arabia	2017
Finland	2011	Sri Lanka	2017
Hungary	2011	Thailand	2017
France	2012	Ireland	2018
Mexico	2014	Philippines	2018
Chile	2014	South Africa	2018
Belgium	2016	UK	2018
Latvia	2016	Malaysia	2019
Bahrain	2017	Morocco	2019
Brunei	2017	Panama	2019
India	2017	Peru	2019
Oman	2017	Qatar	2019
Portugal	2017	UAE	2019

Source: Global Food Research Program, University of North Carolina, Dic. 3 2019

In 2014 Chile modified the tax regime on non-alcoholic beverages to introduce a differentiated rate depending on the sugar content of the drink. The rate structure since then is 18 percent on beverages containing 15 grams of sugar per 240 ml of fluid and 10 percent on those with a lower sugar content. Previously, there was a flat rate of 13 percent on all non-alcoholic beverages. These rates are in addition to VAT at 19 percent; 100 percent fruit juices and dairy products are exempt (Impuesto Adicional a las Bebidas Analcoholicas – Section 42 of the VAT Law, as modified by Ley 20.780). The excise is not included in the VAT base. Tax revenue from this excise was CHP 145.1 billion in 2019, or 0.07 percent of GDP (SII database[119]); two thirds (CHP 92.3 billion) stem from sugary drinks taxed at 18 percent.

[118] Table 15 includes only counties with nationwide taxes. Spain has a tax at regional level (Catalonia) and several states in the U.S. have also adopted an excise on sugary drinks. Also, it excludes small island countries, which may not be comparable to Chile in terms of tax policy design.

[119] The number underestimates the total revenue from this tax because it does not include the excise collected from imported non-alcoholic drinks. The SII/Customs data does not desegregate special VAT rates revenue by type of import. Moreover, custom's classification codes, while differentiating some non-alcoholic drinks depending whether they include added sugar or not, the distinction does not follow the tax definition.. Drinks with added sugar (code 22.02), if above the sugar threshold for tax purposes, would have generated in 2019 about CHP 14.5 billion, 10 percent of the total revenue from this tax as registered by the SII. Also, fruit juices, with or without sugar, are classified in the same group (20.09). Given these uncertainties, no attempt was made to adjust the revenue data on sugary drinks.

There is no single international approach to taxing sugary drinks, however. Many have a flat tax on drinks with added sugar, irrespective of the quantity of sugar added, which may be an ad valorem rate (e.g. Panama and Middle East countries) or a specific tax per amount of fluid.[120] In Mexico, for example, another early adopter of this tax, the rate is one peso per liter of beverage with added sugar. Several European countries have a similar specific excise regime (e.g., Norway, Latvia, Finland, Hungary), although the tax is considerably higher. Other European countries have recently switched to applying a sliding scale depending on the sugar content of the beverage, as in Chile, but most have a specific tax per liter. Peru has a sugary beverage (ad valorem) tax like Chile's, but at a higher top rate: 25 percent (additional to an 18 percent VAT) for those drinks with more than 6 grams of sugar per 100/ml.

E.2 Room for Improving the Taxation of Sugar Consumption

The effect of the tax on the intake of sugary drinks does not necessarily translate into an overall decrease in the consumption of sugars, however. While it has been shown that taxes have been effective in both Chile (Nakamura et al, 2018; Olea, 2019) and Mexico (Aguilar et al, 2019) in decreasing the consumption of sugary beverages, a tax on the actual nutrient (quantity of sugar in either drinks or foods) that causes health problems better targets the social costs in question. This concern is supported by studies showing consumers substituting the source of their sugar intake (Allcott, 2019).[121] In fact, the tax on sugary drinks may encourage the consumption of sugary food, and of other unhealthy foods rich in fat or sodium; Petit, 2020).The emerging consensus is that taxing nutrient content is more effective in inducing changes in nutritional habits.

The structure of the tax is relevant to how effective it is. An ad valorem excise may be an incentive for consumers to opt for cheaper variants of the taxed good, including cheaper but more sugar rich beverages, or simply larger presentations which are cheaper per volume of content. In this regards, specific taxes, i.e., pesos per grams of sugar added, are more effective in targeting consumption of sugar.[122] Moreover, specific taxes are immune to price manipulation.[123] Taxing the consumption of sugar can be challenging, nonetheless. Tobacco might not be a fair comparator, since it has no close substitutes, it has a short supply chain and sugar may do no damage if consumed in small quantities. Some analysts argue that sugar excises will never be as effective as tobacco taxes, although admittedly they can play an important role (Petit et al, 2014).

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[120] This is also the type of tax adopted in US counties; for a detailed description of tax regimes, see Global Food Research Program (2019).

[121] Allcott (2019) provides evidence for consumption patterns in US cities that adopted the tax.

[122] "In terms of the design of the tax (on sugar sweetened beverages) …there is a consensus, supported by firm evidence, in the relative advantages of specific taxes … of their potential effectiveness as a public health policy instrument." Economic Commission for Latin America and the Caribbean (2019), p. 93.

[123] At one point Mexico's vendors of alcoholic beverages had a promotion whereby with the purchase of a (drinking) glass they gave away an alcoholic drink, free of the (ad valorem) excise since the price in the transaction was formally that of the glass.

Finally, the tax on sugary drinks is generally adopted, as in the case of Chile, on pure general health goals. This is done, typically, because there is not much empirical evidence to disentangle the effects on consumers themselves (internalities) from the costs on third parties, i.e those borne by the public health system and thus at the expense of taxpayers (externalities). Thus, the actual impact of the tax on obesity rates is the default metric of its success and this connection is still ambiguous, because while taxing sugary products decreases their consumption, substitution for other (including non-healthy) products conceals its long run effects on obesity. So, on that count the jury is still out. A Pigouvian tax, designed in principle to correct the cost of excess consumption of sugar imposed on third parties, such as the increase in funding for public health (which corrects for the negative externalities) would be a clearer metric for this tax.

E.2 A Proposal for Excises on the Consumption of Unhealthy Nutrients in Chile

When the tax was introduced in Chile, the Senate mandated a study on the possibility of expanding the base of the excise to include food with high sugar content. The study was published in 2018 (Agostini et al 2018, henceforth the Study 2018) and one of the key points made in the resulting report is that taxing only sugary drinks may be ultimately ineffective to decrease the overall consumption of sugar because people may substitute them with sugary foods. So, the key recommendation of the Study (2018) is that three unhealthy nutrients (sugar, salt and saturated fat) should be taxed, either in drinks or food, and with a specific tax per amount of nutrient content. Very importantly, the report also estimates the efficient, Pigouvian tax for all three nutrients.

The efficient (Pigouvian) tax on the consumption of sugar in Chile, as calculated by the Study (2018), is 1.90 pesos per gram. Changing the current ad valorem for a specific tax will affect differently the variety of sugary drinks sold in the market. The tax will increase most for relatively cheap but large soda bottles with high sugar content, while for some smaller presentations the tax may actually decrease (Table 31).

Moving to specific tax on (unhealthy) nutrients has raised some concerns that it may be a regressive reform. However, evidence from Chile for the most part points out that the price elasticity of demand of soft drinks is higher in lower income groups (Bascunan & Cuadrado, 2017; Olea, 2019). More importantly, lower income individuals have a higher prevalence of diseases associated with the high consumption of sugar (Bascunan & Cuadrado, 2017;the Study, 2018) and thus benefit the most in reducing their sugary diet, i.e. in reducing the costs of "internalities".[124] Also, the net outcome will depend on how the increased tax revenue is spent.

[124] Some authors argue that internalities, i.e. the costs to consumers themselves that are ignored in their consumption choices, due for example to lack of information on future health consequences, are very important to assess how regressive the tax might be; see Allcott et al (2019).

Table 31. Chile: Specific Tax Equivalent of the Current Ad Valorem Excise per Gram of Sugar of Coca Cola

Bottle size	2 Lt	1 Lt	1/2 Lt
Retail price (pesos)	1979	1249	920
Pre-tax price	1445	912	672
VAT	274	173	128
Excise	260	164	121
Tax per 100 ml	13.0	16.4	24.2
Tax per gr sugar (max)	2.08	2.63	3.87
Tax per gr sugar (actual*)	1.20	1.52	2.24
* 10.8 gr per 100 ml content			

However, evidence suggests that taxing saturated fat is particularly challenging. Mexico adopted a "caloric product tax" at the same time as it introduced the excise on sugary drinks (2014), both with the objective of combating obesity.[125] The tax, at least in the short run, has not been successful in decreasing caloric consumption. The unchanged consumption in high caloric food is explained principally because consumers substitute for non-taxed goods or cheaper high caloric food. Also, it may result from people redirecting their consumption away from sugar (Aguilar, et al. 2018).

E.3 Revenue Effect of Taxing All Sugar Consumption with a Specific Tax

The potential revenue effect of adopting a tax of 1.9 pesos per gram of sugar would not be very large (though not negligible). The elements of a tentative estimation are:

- per capita consumption of sugar in Chile at 58.6 gr/per day (Euromonitor, 2015)
- demand elasticity of sugar of -0.72 (Olea, 2019)[126]
    - sugary drinks contribute 24 percent of total added sugar consumption in Chile (the Study, 2018)
    - smaller presentation of sugary drinks represents about 15 percent of the market (Olea, 2019)
- assumption that a specific tax would not affect the final price of smaller presentations

The potential revenue arising from such tax would be about 640 billion pesos, an increase of

[125] The tax on high caloric food is 8 percent on goods containing more than 275 calories per 100grs. Basic foodstuff is exempted.

[126] It is assumed here that the elasticity of sugary foods is similar as that of sugary drinks, which is the number estimated for Chile by Olea (2019). There is some evidence supporting this assumption; a recent study in Britain found that "chocolate and confectionary, cakes and biscuits have a similar price sensitivity than SSB (sugar sweetened beverages), across all income groups … the effects of price increases are greatest in the low income groups." Smith et al (2018).

CHP 495 billion as compared to the collection from the existing tax (2019), or 0.24 percent of GDP. Applying the efficient tax rate to sugary beverages would raise the revenue collected from them by only 11 percent. This estimation does not consider the practical difficulties in taxing sugary foods, which can be considerable compared to sugary drinks, which is typically a market with few large participants (Francis et al. 2016). The estimation simply benchmarks a frictionless revenue ceiling from this tax.

Another approach is to focus taxation on a few key food items which are heavy factors in explaining obesity. An important finding in the literature is that obesity is driven mostly by small dietary imbalances sustained over a long period of time from a few key food items, including sugary drinks. The strategy would require tobacco-like excises on these specific items to induce a significant reduction of consumption at retail level. Low rate excise taxes (leading to small increases in final prices) seem to have little impact on consumption habits of unhealthy foods (Petit et al, 2020). Future studies on the effect of taxation of sugary nutrients in Chile, if excise reform is adopted, would be needed to determine if this hypothesis holds true. It should be noted too that taxing sugar nutrients in drinks and food would be another pioneering reform.

Recommendations

- Consolidate revenue statistics from imported sugary drinks (as defined for tax purposes) with the domestically collected tax.
- Change the current ad valorem tax on sugary drinks for a specific tax on sugar contents, including added sugar in food
- Adopt the efficient rate as estimated by the Senate mandated Study (2018): CHP 1.90 per gram of sugar
- Tax sugary food at the same rate as sugary drinks
- Assess the effectiveness of reformed excise in changing consumption behavior and obesity rates.

Appendix I. Selected PIT Tax Expenditures Across Five OECD Countries

	Australia	Canada	France	Italy	United States
Benchmark approach	Attempt to apply consistent treatment to similar taxpayers. This is informed by long standing features of the tax system.	Broad approach in which the benchmark tax structure is characterized only by the most fundamental aspects of the tax system	Reference law	Reference law	Normal tax and reference law baselines
PIT					
Employment income					
Zero-rating	Not a TE	Not a TE[1]	Not a TE	Not a TE	Not a TE
Exemption of certain income support benefits, pensions or allowances	TE	TE	TE	TE	NA/Not a TE
Capital income					
Exemptions					
Exclusion of imputed rental income	NA/Not a TE	Not a TE	NA/Not a TE	NA	TE
Exclusion of rental income under certain conditions	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE	NA/Not a TE
Exemption of capital gains from certain stocks	NA	TE	TE	NM	NA
Exclusion on capital gains on certain home sales	NA	TE	TE	NA/Not a TE	TE
Exclusion of certain interest	TE	TE	TE	NA/Not a TE	TE
Exclusion of certain dividends	NA	TE	TE	NA/Not a TE	NA
Foreign income exemption for temporary residents	TE	NA/Not a TE	NA	NA/Not a TE	Not a TE
Deductions					
Deductibility of imputed rental income for main residence	NA	NA	NA	TE	NA
Deductibility of mortgage interest expense on owner occupied residences	NA	NA/Not a TE	TE	TE	TE
Deductibility of other taxes	NA	NA/Not a TE	NA	NA/Not a TE	TE
Deduction for property taxes on real property	NA	NA/Not a TE	NA	NA/Not a TE	TE
Deferrals					
Deferral of interest	NA	TE	NA/Not a TE	NA/Not a TE	TE
Deferral of tax on realised capital gains	NA	TE	NA/Not a TE	NA/Not a TE	TE
Deferral of tax on unrealised capital gains	Not a TE	TE	Not a TE	NA/Not a TE	Not a TE
Reduced tax rates					
Reduced tax rates for certain capital gains	NA	Not a TE	TE	NA/Not a TE	TE
Reduced rate for certain types of interest	NA/Not a TE	Not a TE	TE	NA/Not a TE	NA/Not a TE
Pension savings					
Exemptions					
Exemption on certain retirement account withdrawals and certain pensions	TE	TE	NA/Not a TE	NA/Not a TE	TE
Exclusion of employee contributions to social security	NA/Not a TE	TE	NA/Not a TE	NA/Not a TE	TE
Exemption of earnings from individual retirement accounts	TE	TE	NA/Not a TE	TE	TE
Deductions					
Deduction of voluntary contributions to social security	NA	NA	NA	TE	NA
Deferrals					
Deferral of pension funds returns	TE[2]	TE	NA/Not a TE	NA/Not a TE	TE
Deferral of tax on contributions to a pension or annuity	TE	TE	NA/Not a TE	NA/Not a TE	TE
Reduced tax rates					
Reduced rate for employer and employee retirement contributions up to a cap	TE[3]	TE	NA/Not a TE	NA/Not a TE	NA
Reduced rate for pension funds returns (accumulation phase)	TE	NA/Not a TE	TE	NA/Not a TE	NA
Reduced rate for returns on capital gains from retirement saving funds	TE	TE	NA/Not a TE	NA/Not a TE	NA
Negative tax expenditures					
Taxation of retirement savings withdrawn at retirement age	NEG TE	NEG TE	NA/Not a TE	NA/Not a TE	NA/Not TE
Taxation of retirement savings withdrawn in-advance	NEG TE	NEG TE	NA/Not a TE	NA/Not a TE	NA/Not TE
Health and other social security provisions					
Exemptions					
Exclusion of employer contributions for medical insurance premiums and medical care from employee gross income	NA	TE	NA/Not a TE	NA/Not a TE	TE
Exemption of distribution from retirement plans for premiums for health and long term care insurance	NA/Not a TE	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE
Exemption of the private health insurance rebates	TE	NA/Not a TE	NA/Not a TE	NA/Not a TE	NA
Medicare levy exemption for residents with taxable income below the low-income threshold	TE	NA/Not a TE	NA/Not a TE	NA/Not a TE	NA
Exclusion of premiums on accident and disability insurance	TE	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE
Deductions					
Deduction of mandatory unemployment insurance contributions	NA/Not a TE	NA	NA/Not a TE	NA/Not a TE	NA/Not a TE
Deduction of mandatory health insurance contributions	NA	NA	NA/Not a TE	NA	NA
Deduction of complementary health insurance contributions	NA	NA	NA/Not a TE	TE	NA
Deduction of self employed medical insurance premiums	NA	TE	NA/Not a TE	NA/Not a TE	TE
Deduction of contributions to health savings accounts	NA	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE
Deduction of certain medical expenses	NA	NA/Not a TE	NA/Not a TE	TE	TE
Deduction of life and disability insurance premiums	TE	NA/Not a TE	NA/Not a TE	NA/Not a TE	NA
Credits					
Tax credit for employment insurance premiums paid	NA/Not a TE	TE	NA/Not a TE	NA/Not a TE	
Medical expense tax credit	NA/Not a TE	TE	NA/Not a TE	TE	NA/Not a TE
Disability tax credit	NA/Not a TE	TE	NA/Not a TE	NA/Not a TE	NA/Not a TE

Notes: "TE" tax expenditure that is measured; "NM" TE that is listed but not measured due to insufficient data; "NA" type of concession that is not available in the country's tax system; "Not a TE" concession that exists but it is not considered a TE; "NA/Not a TE" concession that it is not considered a TE but that it was not verified whether it exists or not in the country under study; "NEG TE" negative TE.

1 The Canadian TE report includes a measure of the revenue forgone associated to the Basic Personal Amount (a tax credit that can be claimed by all individuals) but states that this measure is considered part of the benchmark tax system, and therefore is not a tax expenditure.

2 The Australian Tax Expenditures Statement uses a comprehensive income tax benchmark to estimate the value of tax expenditures on savings, including superannuation. However, in a special chapter that focuses exclusively on pension saving it also provides estimates under an expenditure benchmark.

3 Employee social contributions are deducted in Australia but are taxed at a reduced tax rate when they are in the fund.

Appendix II. Selected Tax Expenditures Associate to CIT and International Tax Provisions Across Five OECD Countries

	Australia	Canada	France	Italy	United States
Benchmark approach	Attempt to apply consistent treatment to similar taxpayers. This is informed by long standing features of the tax system.	Broad approach in which the benchmark tax structure is characterized only by the most fundamental aspects of the tax system	Reference law	Reference law	Normal tax and reference law baselines
CIT					
Exemptions					
Exemption of CIT for certain activities, regions and institutional forms	NA	TE	TE	NA/Not a TE	NA
Exemption of certain NFPs	NM	TE	TE	TE	NA/Not TE
Exemption of certain mutuals' and cooperatives' income	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE	TE
Exemption of refundable R&D tax offset	TE	NA/Not a TE	NA	NA/Not a TE	NA
Special regimes					
Special regimes for certain activities / zones	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE	TE
Presumptive tax regimes	NA	NA/Not a TE	Not a TE	TE	NA
Deductions					
Deductions for investment in specific sectors	NA	TE	TE	TE	NA
Deductions for investment in specific regions	NA	NA/Not a TE	TE	NA/Not a TE	NA
Special deductions for cooperatives	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE	NA/Not a TE
Deduction of income from patents	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE	NA/Not a TE
Deductions for donations	NA	TE	NA/Not a TE	TE	TE
Deferrals					
Accelerated depreciation	TE	NM[1]	TE	NA/Not a TE	TE[2]
Enhanced depreciation	NA	NA	TE	TE	NA
Deferral of tax on profits	TE	TE	NA/Not a TE	NA/Not a TE	TE
Leasing fees	NA/Not a TE	NA/Not a TE	NA/Not a TE	NA/Not a TE	NA/Not a TE
Credits					
Credit for R&D investment	TE	TE	TE	TE	TE
Credit for investments in specific sectors	TE	TE	TE	TE	TE
Credit for investments in energy transition	NA	NA/Not a TE	TE	TE	TE
Credit for investments in specific regions	NA	TE	TE	TE	TE
Credit for employers' social security contributions	NA	NA/Not a TE	TE	NA/Not a TE	NA
Credit for training expenses and other worker related expenses	NA	TE	TE	TE	NA
Credit for donations	NA	TE	NA	TE	NA
Reduced tax rates					
Reduced rate for certain agricultural activities	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE	NA/Not a TE
Reduced rate for SMEs	TE	TE	Not TE	NA/Not a TE	NA
International tax provisions					
Exemptions					
Threshold exemption for thin capitalisation	TE	Not a TE	NA/Not a TE	NA/Not a TE	NA
Exemption for foreign branch profits from income tax	NM	NM	NA/Not a TE	NA/Not a TE	NA/Not a TE
Exemption from accruals taxation system for CFCs	NM	Not a TE	NA/Not a TE	NA/Not a TE	NA/Not a TE
Deductions					
Deduction for foreign-derived intangible income	NA	NA/Not a TE	NA/Not a TE	NA/Not a TE	TE
Reduced tax rates					
Reduced withholding tax or exemption (relative highest rate specified in the treaty or the domestic rate for each type of income)	TE	TE	NA/Not TE	NA/Not a TE	NA/Not a TE
Reduced tax rate on active income of controlled foreign corporations	TE	Not a TE	NA/Not a TE	NA/Not a TE	TE

Notes: "TE" tax expenditure that is measured; "NM" TE that is listed but not measured due to insufficient data; "NA" type of concession that is not available in the country's tax system; "Not a TE" concession that exists but it is not considered a TE; "NA/Not a TE" concession that it is not considered a TE but that it was not verified whether it exists or not in the country under study; "NEG TE" negative TE.

1 Historically, annual tax expenditure estimates were not usually provided for accelerated deductibility provisions because adequate data are not generally available to calculate them with a reasonable degree of accuracy, and because many simplifying assumptions would be required to model the pattern of deductions that would be claimed in the absence of these provisions. However, last year's report presented the combined incremental tax expenditure estimates of the three accelerated capital cost allowance measures announced in the 2018 Fall Economic Statement under "Accelerated Investment Incentive". Going forward, tax expenditure estimates will generally be provided for new accelerated deductibility provisions. These estimates/projections are made possible by the availability of additional taxpayer information, including detailed investments and depreciation allowance amounts claimed by asset class from partnerships.

2 Under the reference tax law baseline no tax expenditures arise from accelerated depreciation. Under the normal tax baseline, the depreciation allowance for property is computed using estimates of economic depreciation.

Appendix III. VAT Base Broadening to Include Fuel Excises (2019)

Revenue Effect of Expanding the VAT Base

		Gasoline	Diesel
Retail price	CHP/Lt	818.2	598.9
Excise	CHP/Lt	293.3	73.5
Pre-excise price	CHP/Lt	524.9	525.4
VAT	CHP/Lt	83.8	83.9
Pre-tax price	CHP/Lt	441.1	441.5
VAT base incl excise	CHP/Lt	734.4	515.0
Increased VAT	CHP/Lt	139.5	97.9
New retail price	CHP/Lt	873.9	612.9
Increase in price	(%)	6.8	2.3
MV fuel consumption (1)			
Pre-broadened VAT	m/lt/y	4855.6	5503.3
Aft-broadened VAT	m/lt/y	4690.3	5439.1
Current VAT revenue	CHP/m	406937	461672
New base VAT revenue	CHP/m	654453	520216
Revenue increase	CHP/m	247516	58544
	US$ (2)	352.3	83.3
Total revenue increase	**US$**	**435.6**	
As Percent of GDP (3)		*0.15*	

(1) Estimated by mission from USEIA and IEA data

(2) Average exchange rate 2019: CHP702.6/US$ (BCC)

(3) GDP 2019: US$ 282732.8 million (BCC)

Appendix IV. The Diesel Tax Credit to Trucking Companies

Recouped Revenue from Eliminating the Tax Credit

		2019
Trucking tax credit	CHP/m	65971
Notional truck tax (53% credit)	CHP/m	124473
Excise	CHP/lt	73.5
Apparent diesel consumption by trucks	lt/m	1693.5
Price of diesel	CHP	598.9
Consumption value	CHP/m	1014243
Increase in cost if no credit	%	7.0
Decrease in consumption	%	3.5
New tax collected	CHP/m	120116
Tax credit recouped	CHP/m	61614
	US$/m	87.7
	% GDP	0.031
Notes:		
Exchange rate		*702.6*
GDP US$ m		*282732.8*
Elasticity		*-0.5*

Appendix V. Equalizing Diesel to Gasoline Base Excise at Current Level

Revenue Effect of Raising Motor Vehicle Diesel Tax Equal to Current Gasoline Excise

2019		
Diesel retail price	CHP/liter	598.9
Base tax diesel	CHP/liter	73.5
Base tax gasoline	CHP/liter	293.9
Tax increase	CHP/liter	220.4
New retail price	CHP/liter	771.3
Price increase	%	29
Diesel consumption (USEIA)	th/b/d	172.4329
	th/b/y	62938
	m/g/y	2643
	m/lt/y	10006
Proportion road use of diesel (IEA)	%	55
MV consumption pre-tax hike	m/lt/y	5503
Fuel demand elasticity		-0.4
MV consumption after tax hike	m/lt/y	4870
(Notional) revenue prior to tax hike	CHP m	404406
(Notional) revenue after tax hike	CHP m	1431192
Revenue increase	CHP m	1026786
	US$ m	**1461.4**
% GDP		**0.52**

Notes:

Ex/rate	*702.6*
GDP US$	*282732.8*

Appendix VI. Adjusting Gasoline Excise to Account for Negative Externalities

Revenue Effect of Increasing Gasoline Basic Tax to Full Corrective Level

Price of premium gasoline	CHP/lt	818.2
Price of premium gasoline	US$/gallon	4.41
Basic excise tax	US$/gallon	1.58
Efficiency excise tax (2017)	US$/gallon	2.90
Retail price after tax increase	US$/gallon	5.73
Retail price increase	%	29.9
Gasoline consumption (US EIA)	th/barrels/day	83.673973
	th/barrels/year	30541
	m/gallon/year	1282.7
Consumption after tax hike	m/gallon/year	1129.1
Tax revenue prior to tax hike	US$/m	2027.1
Tax revenue after tax hike	US$/m	3274.5
Revenue increase	US$/m	**1247.3**
	% GDP	0.44

Notes:

Lts/gallon	*3.7854*
G/barrel	*42*
Fuel price elasticity	*-0.4*

th = thousands
m = millions
g = gallons
lt = liters

Appendix VII. Adjusting Diesel Excise to Account for Negative Externalities

Raising Motor Vehicle Diesel Tax Equal to Corrective Level		
2019		
Diesel price/liter	CHP	598.9
Price/lt	US$	0.85
Price/gallon	US$	3.23
Base tax/lt	CHP	73.5
Base tax/g	US$	0.40
Corrective base tax/g	US$	2.80
Tax difference/g	US$	2.40
new price/g	US$	5.63
Price increase	%	74.5
Diesel consumption (EIA)	th/b/d	172.4329
	th/b/y	62938
	m/g/y	2643
Motor vehicle consumption	m/g/y	1454
Consumption after tax hike	m/g/y	1129
revenue prior to tax hike	US$ m	575.6
revenue after tax hike	US$ m	3160.9
revenue increase	**US$ m**	**2585.3**
% GDP		0.91

Appendix VIII. Imported Alcoholic Drinks and Estimated Excise Revenue

Chile: Imports of Alcoholic Drinks and Estimated Excise Revenue

	2011	2012	2013	2014	2015	2016	2017	2018	2019
	Imports (US$)								
Beer	65,349,405	95,102,809	130,212,223	175,145,564	161,935,017	169,204,309	186,512,573	191,215,405	222,039,036
Wine	5,575,170	6,888,444	8,159,041	9,125,430	11,337,819	8,501,821	8,589,202	10,938,776	11,211,318
Liquors (*)	134,496,723	143,075,197	144,990,910	134,110,668	123,595,620	112,798,202	125,073,948	133,014,607	120,754,684
Total	205,421,298	245,066,450	283,362,174	318,381,663	296,868,456	290,504,332	320,175,723	335,168,787	354,005,038
	Tax Revenue (US$)								
Beer	9,802,411	14,265,421	19,531,833	28,723,873	33,196,678	34,686,883	38,235,077	39,199,158	45,518,002
Wine	836,276	1,033,267	1,223,856	1,496,571	2,324,253	1,742,873	1,760,786	2,242,449	2,298,320
Liquors	36,314,115	38,630,303	39,147,546	37,550,987	38,932,620	35,531,434	39,398,294	41,899,601	38,037,726
Total	46,952,802	53,928,991	59,903,235	67,771,430	74,453,552	71,961,190	79,394,157	83,341,208	85,854,048
							Chilean pesos (millions)		*60,321.1*

Source: Mission calculations based on Chilean customs database on imports

(*) Customs import classification numbers 22.07 and 22.08

Tax Revenue by Type of Alcoholic Drink

		2011	2012	2013	2014	2015	2016	2017	2018	2019
Million pesos										
Liqour	Domestic	42,604	42,995	44,944	52,324	57,280	59,327	57,988	63,410	65,021
	Imported	17,554	18,805	19,378	21,404	25,474	24,048	25,581	26,828	26,725
Wines	Domestic	39,250	40,314	41,877	50,750	61,736	69,253	70,492	79,072	81,095
	Imported	404	503	606	853	1,521	1,180	1,143	1,436	1,615
Beer	Domestic	51,955	55,475	59,190	64,247	95,032	108,931	110,119	125,588	127,383
	Imported	4,738	6,944	9,668	16,373	21,721	23,476	24,826	25,099	31,981
	Total Revenue	*156,506*	*165,037*	*175,663*	*205,950*	*262,763*	*286,214*	*290,149*	*321,433*	*333,820*
Share (%)										
	Liqour	*38*	*37*	*37*	*36*	*31*	*29*	*29*	*28*	*27*
	Wines	*25*	*25*	*24*	*25*	*24*	*25*	*25*	*25*	*25*
	Beer	*36*	*38*	*39*	*39*	*44*	*46*	*47*	*47*	*48*
	Total	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Mission estimations based on SII and SNA data

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