An Essay about the Misperception of Public Goods' Costs and Benefits

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Abstract — This paper addresses the different causes of fiscal illusion, as the flypaper effect, debt illusion, renter effect, complexity of the tax system, revenue elasticity, inflation and voters’ manipulation. The causes and implications of the simultaneous misperception of the cost and benefit of public goods and the importance of a cost-benefit analysis in the provision of public goods are also attended. We conclude for the need to analyze simultaneously the two sides of the provision of public goods (fiscal cost and benefit). If the median voter underestimates his fiscal benefit, and simultaneously underestimates his fiscal cost, there may be compensation between the two underestimations, with a smaller effect on the demand for public goods.


I. INTRODUCTION

The timeliness of the problem of fiscal illusion is visible through the continued and present publication of works that deal with this phenomenon. The existence of a tendency for politicians to use this imperfection, that is, the ignorance on the part of voters about the real value of the tax rates paid, for their own purposes, leading to an increase in the public sector, makes the fight against this phenomenon very important in the current times.

The fiscal illusion is present in different sectors of the contemporary society [1]. This is visible in the financing of social security systems (the current contributions are used to finance current pensioners and not their taxpayers); in income taxes of collective persons (who are transferred to final consumers); among others.

Despite the public choice theories argued that the level of government spending should reflect voter-taxpayer’s demand for public goods these theories forget some features of the tax structure that affect voter’s perceptions of their tax burden, as defends the fiscal illusion literature [2]. These misperceptions affect negatively the estimation of the weight of their tax burden, which lead taxpayers to underestimate how much tax they truly pay, creating “an excessive” demand for government-provided goods. Such fiscal illusion implies that observed expenditure will be greater than predicted by a simple “decisive voter” model, because taxpayers – voters will vote for higher levels of government expenditures than would be demanded in the absence of fiscal illusion.

However, we argue that this result also depends on the perception of the fiscal benefit. If the median voter underestimates his fiscal benefit, and simultaneously underestimates his fiscal cost, there may be compensation between the two underestimations, with a smaller effect on the demand for public goods and services. This compensation will depend on the degree of the underestimation of each of the two sides.

The paper is organized as follows. Section 2 proceeds to the analysis of causes and consequences of misperceiving the fiscal cost. In section 3 we discuss the causes and implications of the underestimation of the benefit of public goods. Given the importance of the cost-benefit analysis in the provision of public goods, in Section 4 we concentrate on the joint perceptions of fiscal cost and benefit. Section 5 offers some concluding remarks.

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II. MISPERCEIVING THE FISCAL COST

The problematic of fiscal illusion has been for some time subject of analysis by various entities specialized in different areas. Although associated with regulatory issues, focusing mainly on the tax burden and the optimal degree of progressivity of taxes on income, it was also interpreted as an implication of irrational personal conduct.

The interpretation of this behavior conditioned by illusion or imperfect information as irrational is not necessarily correct since it is possible to obtain consistent results in the presence of such behaviors. This is possible because the agent will act rationally and consistently with the reality that he perceives, always trying to maximize his utility.

The fiscal illusion associated with a certain rate of fiscal illusion, by its very nature, can only persist for some time [3; 4]. This is because, as more earnings are affected by this rate, the harder it is to hide it. However, even if voters know precisely their tax burden, some illusion in evaluating the benefits of public goods may still persist due to their permanent nature (taken for granted).

Next points describe some factors that are considered to be the cause of fiscal illusion.

A. The complexity and lack of transparency of the tax system

According to Sausgruber and Tyran [5], the problematic around tax structure and its effect on taxpayers was first analyzed by Mill in 1848 [6]. However, both Marshall [7] and Dollery and Worthington [8, 9] attribute this feat to McCulloch in 1845 [10]. Marinheiro [11] goes further and identifies David Ricardo [12] as the more remote author to address these questions. Despite such precedence, this accomplishment is commonly attributed to Puviani [13], given that he was the first to use the term “Fiscal Illusion” in his work “Theory dell’illusione finanziaria” published in 1903.

Although the term fiscal illusion has emerged, in a different context, it was only after the work “Public Finance in Democratic Process: Fiscal Institutions and Individual Choice”, by Buchanan [1] (where the author devotes a chapter of his work exclusively to this issue), that such idea was introduced in the modern public finance literature and taken over by other economists. According to Buchanan [1], who was greatly influenced by the work of Downs [14], this topic had already been the subject of his research “Fiscal Theory and Political Economy” in 1960 [15].

Some public choice theorists argue that the level of government spending reflects voter-taxpayer’s demand for public goods [16]. However, various analysts, defenders of fiscal illusion theory [1], have suggested that certain features of the tax structure affect the perceptions of voters about their tax burdens so that they may underestimate how much they pay for public goods. Buchanan [1] contradicts the arguments of Galbraith [17] that imperfect information would tend to make the public budget too small, advocating fiscal illusion as a major source of an oversized public sector.

The traditional literature is generally characterized by assuming that taxpayers have a real understanding of their tax burden. However, studies carried out recently [18, 19], show that there is a bias in the perception about the true value of the tax burden or, in other words, there is a bias in the perception of the costs associated with the provision of a certain public good.

With the aim of understand and calculate the degree of the bias in the agent’s perceptions regarding their tax burden, in the last fifty years started to appear the first studies dedicated to this problematic. In 1963, Enrick [20] sought to measure the perception of such bias, using a questionnaire made by taxpayers in different tax systems. Through the results obtained, the author showed that this bias was not always in the same direction varying according to the tax system.

Peek and Wilcox [22], for example, showed that a high degree of complexity associated with lower transparency of the tax system helps to increase the perception bias of the agents. This conclusion was confirmed by Boylan and Frischmann [23] through an empirical study.

Through these studies was possible to conclude that the phenomenon of fiscal illusion is not due to one particular factor but rather a set of factors that affect simultaneously the perception of the common agent about the true value of the annual tax burden [20, 21], and that the existence of imperfect information is not synonymous of fiscal illusion but rather a necessary but not sufficient condition for its existence.

The type of tax system, the complexity and transparency of such system, and the moment and means by which the taxes are collected, play a crucial role in the perception of tax burden by the agents.

The complexity and transparency of the fiscal system also play an important role in the agent’s perceptions, because the greater is the variety of fees and taxes, the more difficult will be for taxpayers to understand the degree of responsibility associated (revenue complexity hypothesis). Even in the presence of a reduced number of charges, fiscal illusion can persist because, sometimes, taxpayers have no idea of the perfect base for those fees, even if they are well informed about the value of them – tax obfuscation, which leads them to “built an imaginary” tax rate.

In this sense, the greater the complexity of a system, the greater would be the differences between the actual tax rate and the built rate: “Individuals will respond not to the tax rate as it is set but as they construe it” [25, pp. 6]. According to Sausgruber and Tyran [5], the only way for agents apprehend the real value of the tax burden is through the learning process, which makes irrational to suppose that fiscal illusion can persist forever, due to the learning process: “The real incidence of indirect taxation is every day more generally understood and familiarly recognized” [6, pp. 585].

Deepening this question, Blumkin et al. [26], concluded that the labor supply is less affected by the tax burden when it falls on consumption (indirect taxes) rather than on income (direct taxes). When the taxpayer pays indirect taxes, he is targeted by some tax mechanisms that anesthetize him. For example, the withholding for direct taxes and the fragmentation of the Value
Added Tax (VAT) in consumer goods can enhance the fiscal illusion through the “camouflage” of the tax included in the final price. In the end, the taxpayer believes that he pays much less than what he actually pays, the indirect taxes are included in prices and somehow “hidden”, so the voter does not consider them completely, unlike direct taxes that are more visible.

This principle is reflected throughout the work of Mill [6, pp. 584], with the following sentence as an example:

“Perhaps […] the money which [the taxpayer] is required to pay directly out of his pocket is the only taxation which he is quite sure that he pays at all. […] If all taxes were direct, taxation would be much more perceived than at present; and there would be a security which now there is not, for economy in the public expenditure”.

According to his work, fiscal illusion is mainly due to the relative “invisibility” of indirect taxes compared to more visible taxes. The Mill’s hypothesis predicts an increase in public spending as a result of the underestimation of the true tax burden. This is often used to justify the increased public expenditure in different countries.

More recently, Chetty et al. [27] tested this theory, known as the Theory of Mill, through an empirical study¹. The author showed that the indirect tax collection increases fiscal illusion while a simple tax system which taxes the individual and not the household allows the taxpayer to have a better idea of the tax burden.

The moment and means by which the taxes are collected and the possibility of dispersing the tax burden over time can also increase fiscal illusion. Here, can be include the use of specific institutions that collect the taxes at times particularly nice for the taxpayers (for example, registration of children and weddings) as well as the association of some taxes on public services at special events and the fragmentation of the package of taxes. If the total annual taxes were paid in a single moment, it would be easier for agents to understand the real value of their tax burden.

In sum, according to what has been previous mentioned, fiscal illusion can be define as a persistent and consistent misconception of the size of the tax burden associated with a particular public program, being possible to conclude that the more developed countries, with transparent governments and good government practices and high Gross Domestic Product per capita, are negatively associated with fiscal illusion [24].

B. Inflation as a source of fiscal illusion

The existence of inflation combined with a system of progressive tax rates defined in nominal terms without adjustment, leads to an increase in taxes given a fixed income – fiscal drag. Often, this increase is not fully apprehended by agents, which makes the tax burden underestimated. In this way, money illusion increases because agents base their economic decisions in nominal rather than in real values, affecting individual perceptions about the real inflation rate.

C. Information diseconomies

Sometimes the benefits of searching for information do not compensate the expenses incurred in such demand, because a voter by himself has little influence to change the government behavior. Sometimes, interest groups – generally government’s opposition – absorb information costs in order to provide the median voter with relevant information. Thus, political competition tends to provide information to the median voter at zero prices, which is the best situation for voters when the costs of information about managerial behavior are nonzero, and political competition is imperfect.

The investment in collecting tax information can result from several reasons: the will of voters to be well informed about policy decisions and to participate in decision-making, which may provide a better electoral decision and improve the perception of tax burden; the need to decrease uncertainty about the future policy tax; and the possibility of using tax evasion, or even avoid certain fees.

Besides that, the fact that the voter underestimates subjectively the taxes paid does not necessarily mean that he misperceives his marginal costs of such tax burden and as consequence vote for the increase of weight of the public sector. There are differences between misperceptions about actual and marginal costs, and it is not possible to use the same argument – the fact that public goods are permanent – to justify the underestimation of marginal costs and benefits.

Williamson and Wearing [28], in the context of the median voter model, support the existence of an optimal level of fiscal illusion simultaneously for government and for voter, which is consistent with the principle of rationality of all agents. The underestimation of the tax burden for the median voter at this optimal level does not mean a continued growth in public sector, since the misperception of the tax burden (and public spending) by itself does not imply any effect on the perceived value of the government budget.

The existence of costs associated to the gathering of information on the tax system and on the activities of governments appears as another source for the underestimation of the tax burden. However, the changes in information costs have ambiguous effects on the size of public budget, because this will influence both tax and expenditure illusions.

D. Revenue elasticity

Another form of fiscal illusion, empirically examined by Oates [29], Craig and Heins [30], Hunter and Scott [31] and Misiolek and Elder [32] is related with income elastic forms of taxation. The establishment of a system characterized by a high degree of income elasticity, or the existence of a small proportion of revenue from inelastic sources, with everything else constant, will cause a higher level of fiscal illusion.

Such systems support the increase in the incomes of agents that will be reflected in an increased public spending. Thus, there is a direct relationship between increased revenue from an income elastic revenue structure and increased expenditure.

¹The experiment involved the posting of the tax included in the final price in 750 products subject to sales tax at a grocery store for a three week period. After this time, they compared the quantity sold of these products with the quantity sold of the products whose tags were not modified.
ceteris paribus.

According to Oates [29, pp. 141], “people will not object to increases in public expenditure if they can be funded with no increase in tax rates (that is, from increments to revenues resulting solely from growth in income), but they will not support an expanded public budget if it requires a rise in tax rates”. So, the agents do not care about their tax burden but rather with the tax rate they face.

In sum, the more elastic the tax system, the more responsive is the revenue to growth in national income. Therefore it is easier to sustain a higher volume of public spending if income is growing [1].

E. Flypaper effect

The flypaper effect is related to the impact on local governments’ spending caused by inter-governmental lump-sum transfers. Such transfers instead of being returned to the taxpayers, either directly through discounts or indirectly through the reduction of tax contributions, are used to increase public expenditure. This fact creates an illusory reduction in the marginal price of public goods, which will stimulate the demand for these goods and positively bias the public spending2.

According to this effect, there is a tendency for categorical lump-sum grants to increase public spending in a proportion greater than would be originate by an increase in local founds, in the same proportion, but obtained from a different source. As Arthur Okun’s put it, central grants “stick where they hit”.

The effect of grants on spending is much greater than the income effect because voters do not perceive a grant as equivalent to an increase in the voter’s income – the effect of the grant should be the same as that of an increase in income, which does not happen – the flypaper effect.

Voters do not know the real value of the subsidy received by the local authority and will perceive a reduction in the costs of public goods. Even if they are aware of the subsidy, this illusion can still prevail due to the ignorance of the exact amount of local taxes incurred.

An illusion similar to the flypaper effect arises through the profits made by local authorities – utility profits. Often, the profits are used internally with the objective of reducing the perception of taxes paid by local voters which reduce the price realized by the agents. The only difference with the flypaper effect is the source of funds; subsidies are exogenous while profits are endogenous to the local authority.

In sum, the flypaper effect is the persistent empirical finding that an intergovernmental grant stimulates more spending by the recipient government than an equal increase in local resources, which contradicts the theoretical perspective that defend equal effects.

F. Renter illusion

Renter illusion associates fiscal illusion with the level of property ownership in a fiscal jurisdiction. It is expected that the increase in the jurisdiction’s proportion of renters will increase the demand for public goods, with everything else constant, and therefore the level of public expenditure [16, 37]. This conclusion is based on the fact that major local revenue comes from property taxes. As this fee is paid by owners, renters will not correctly perceive the tax-price of the local public good. Renters are subject to a lower perceived tax-price than owners because renters do not think that they bear the full cost of property taxes. Even though higher property taxes are reflected in higher rents, it will occurs a disagreement between a rental voter’s perception of the level of public good services and the level of rents paid.

Only those who pay the local tax are likely to correctly perceive the local tax-price, so renters may feel they do not pay the full tax price and therefore vote for higher expenditures [38]. The capacity of renters to increase the level of spending will depend on the number of voters involved. The higher this value, the greater will be the number of voters who underestimated the actual tax-price, so the higher will be the positive bias of public expenditure.

According to Martinez-Vasquez [37], there is no illusion in such situations because as renters benefit more from rising government spending than the owners, with the same level of income (renters have a lower level of housing consumption expenditure, holding income constant), if we assume that renters vote rationally, it would be expected a vote in favor of providing more public goods.

G. Debt illusion

Oates [39], Epple and Schipper [40] and Dalamagas [41] are some of the authors who have studied the effects of public debt on the perception of tax burden by agents. As governments replace the financing of public expenditure through the collection of taxes by resorting to loans, fiscal illusion will increase and consequently the spending on public goods will increase as well.

Buchanan [1] distinguishes two types of debt illusion, “Vickrey-type” and “Puviani-type”. The first refers to the underestimation by voters of the future effects in their tax burden, arising from the current debt of governments. The second concept is applied when the objective is to emphasize the fact that voters treat the subjective assessment of the reduction of the value of assets in a different manner to that used in the case of a lump-sum taxation payment.

As the costs of public debt only appear after a reasonable time lag, it is expected an underestimation of the price of public goods – “Puviani-type”. By underestimating the current value of their future responsibilities, voters are encouraged to request more public goods, contributing to the increased weight of the public sector. The agents perceive more realistically the costs of public programs if they are subsidized by current taxes than through public debt. If Ricardian equivalence does not prevail, taxpayers will incorrectly discount the future tax liabilities associated with debt finance of current expenditures. This is a variant of the flypaper effect, with debt in the place of grants.

2 The more relevant contributions are done by DiLorenzo [33], Winer [34], Logan [35] and Grossman [36].
H. Habituation effect

Another form of fiscal illusion appears through the habituation effect derived by the excess burden cost (as agents never experience the level of welfare associated with non-distorting taxes they may never consider other possible situations), which contributes to aggravate the phenomenon of fiscal illusion [42].

I. Voters’ manipulation

Sometimes, the incorrect perception of the true costs of a public good is driven not only by voters disinterest in obtaining information, due to costs associated with this achievement, but also by the effort made by politicians in keeping voters uninformed. Fiscal illusion can be used in order to handle the increased weight of the government, through less visible taxes, which generate a weak social protest. According to Buchanan [1], fiscal illusion exists mainly: on the side of budget revenues, by manipulating the percentage of each individual’s opportunity cost of public goods; in the use, by government, of businesses collector payments, who links the requirement of payment to a specific period or occurrence where the taxpayer takes some advantage, as in the case of taxes on capital gains or even in case of bequest; by levying explicit taxes on nominal service after the occurrence of certain unexpected pleasant event; by charging fees to ensure social justice, making the tax burden “less heavy”; the fragmentation of certain taxes for different periods of time, and finally in the distortion of the incidence rate (for example, when the incidence of a given tax includes the amount collected for another tax).

Such tricks allow governments to increase tax revenue without any social unrest, due to “...the notion that systematic misperception of key fiscal parameters may significantly distort fiscal choices by the electorate” [43, pp. 65].

It is possible distinguish three generations of political business cycles, following Andrikopoulos et al. [44], Shi and Svensson [45] or Mink and De Haan [46].

The first generation – models of political opportunism – is characterized primarily by the intention of governments to be reelected. Assuming that voters formulate their expectations and opinions in accordance with the past (backward looking), the government is encouraged to adopt expansionary fiscal policies in pre-election times in order to stimulate the economy [47].

The second generation – adverse selection models – tries to take advantage of temporal existence of asymmetric information about the competence of rulers. As voters want to elect the most competent politician, they try to formulate rational expectations about the politicians’ efficiency using for that the visible results of fiscal policy. This fact encourages the government to adopt an expansionary fiscal policy [48].

The third generation of budget cycles models began in same premises of the previous generation, assuming that every government is associated with a certain level of competence that is not fully absorbed by voters. It is also assumed that not even the government itself is able to fully observe such level.

As rational voters, they will try to elect the most competent government taking as measure the macroeconomic performance of the government in power. These models assume, in a fundamental way, that the existing government may use a policy instrument, not observable by the electorate, which can replace competence. The instrument’s success will depend on the results of fiscal manipulation, the credibility of the incumbent government, and democratic maturity.

Through the description of these three models, it is found a certain proximity to the problem of fiscal illusion, through the relationship between electoral cycles and fiscal illusion. According to the literature on fiscal illusion, it is possible to conclude that this phenomenon provides adequate tools for budget manipulation, changing the fiscal aggregates, which promote a lower stability of the tax system and therefore a weak economic growth. The higher is the fiscal illusion, the less likely is the saving of government.

The magnitude of budget cycles is positively affected by the phenomenon of fiscal illusion. High levels of illusion lead to cycles with greater amplitude which leads to a higher budget volatility with negative consequences in terms of the size of the public sector and economic growth. The magnitude of these effects is more significant in countries with recent democratic experiences [49]. Economic development and/or the democratic maturity of the country influence in a heterogeneous way the interconnection between election periods and fiscal illusion (youngest democracies tend to have higher public spending in election periods while the more mature and developed democracies tend to experience decreases in government revenue).

There is an underestimation, by taxpayers, of the costs that arise from public expenditure, due to a poor perception of the weight of their tax burden. Such underestimation distorts democratic decisions and leads to an over redistribution when voters are too inexperienced (in the learning process).

III. Misperceiving the fiscal benefit

The concept of fiscal illusion is based on the principle that costs inherent to public goods are consistently underestimated by the voters. However, taxpayers may misperceive not only the costs of the government activity but also its benefits. According to Musgrave [50], the benefit of public programs could be underestimated due to their permanent nature, as the sun in the sky (as it rises every day is often forgotten by whom it benefits) [42].

Puiviani [13], in the Buchanan’s [1] perspective, considers the existence of fiscal illusion not only on the revenue side but also in public expenditures, especially given the difficulties experienced in distinguishing between the rights of the public sector and its agents and the absence of systematic budgeting techniques accounting.

The set of benefits available to all agents free or at subsidized price, which are financed totally or partially by the state through taxes is usually referred as “social wage”, representing
in some aspects the fiscal benefit. The definition and the measuring of such concept (the identification of the goods and services which constitute the social wage) are sources of discord between different researchers dedicated to such problematic. Some economists use the notion of social wage to capture the value of all forms of social spending that benefit in particular the poorer classes of the population, as social security and social protection.

Social wage can be seen as other benefits provided to workers that come from another source than the wage component of their pay packets. This can include benefits like pension, childcare and medical care, and family payments such as maternity allowance. In another way, the social wage covers the facilities provided to society by public funds.

Saunders [51] defends a simplest definition, namely as the government spending on education, health, social security and housing, without mentioning any specific social class. Many times, specialists use the value of social wage to evaluate the intervention of government in fighting poverty because this concept can give an idea about the hypothetic situation of poor agents without the provision of public services and goods or in the case they had to pay for the full cost of such goods and services.

In a similar way, Harding [52] and Sefton [53] state that social wage has commonly been taken refer to public social spending on health, education and housing. In turn, Meade [54] adopts another posture and compares the social wage with a universal basic income, while Maniatis [55, pp. 384] defends the following definition: “This net transfer is the net contribution of the state to the standard of living of labor and it can be positive or negative, in the latter case it is a net tax on labor”.

Such disagreement is visible in Rankin [56] and Shaikh and Tonak [57]. Rankin [56] argues that “The social wage is the income accruing to the public interest, transcending the traditional class interests of labor and capital...” and therefore “...can be seen as a slice of a country’s national income; a flat rate levy on producers and consumers in return for the use of social – i.e. public domain - inputs, plus the earnings of publicly owned capitalist enterprises.”, while Shaikh and Tonak [57, pp. 164] define social wage as “the value of all government services received, less taxes that are paid”. However, the definition of net social wage more commonly adopted is the difference between the total benefits received by labor from state spending and the labor taxes. In other words, the net social wage is the difference between the total labor benefits received from the state and the total taxes paid by labor.

In some counties, the net social wage has been positive in the few recent years, due to a slow growth, high unemployment rates and compensation for the adverse developments for labor in the market distribution of income. Generally, it is found high public deficits in this situation. This situation happens because the social wage acts as an automatic stabilizer, minimizing the economic cycle’s fluctuations. When it is positive, it can mean that part of the social wage is being funded by government borrowing.

Usually, the net social wage is presented as a percentage of some measure of market labor income like total employees’ compensation – net social wage ratio. This kind of measure indicates the significance of the net impact of the state budget on the income market of labor.

In a general way, all definitions have something in common; they all refer to a provision of an imprecise set of public services which invariably include education and health care, as a form of collective property income, including “royalties” for the use of public services and goods.

However, some economists associate the concept to a specific class: workers, due to the word wage in the concept. If we see the word wage as any factor payment (for example, salary is a wage of labor and profits are a wage of capital), rather than a payment specifically to labor, the concept will transcend the traditional class of workers. This view can be complemented with the notion that this wage is not an income in money but an income in kind (or benefits in kind) that represents an addition to people’s cash income.

While the social wage can be a good approximation for the fiscal benefit, the willingness-to-pay can be used as a good approximation of the value of the perceived fiscal benefit.

Generally, the concept of willingness-to-pay refers to the economic value of a good to a person, that is, in an economic view the willingness-to-pay is the maximum amount that an agent is willing to pay, sacrifice or exchange for a specific good. From a practical point of view, it is possible to associate the willingness-to-pay to the consumer surplus, which reflects the difference between what the consumer is willing to pay for a good or service and what he actually pays (the market price).

According to some empirical works conducted on the use of public services and goods [58], there is an underestimation of the benefit obtained by the use of public resources by users/electors. Many voters do not know or underestimate the costs that would be supported if they had to get from the private sector the same services and/or goods provided by governments. The most obvious situations are observed in the access to a national health system, public education and public transportation.

IV. INTEGRATING THE PERCEPTIONS OF FISCAL COST AND BENEFIT

The fact that public goods are non-excludable and non-rival in its consumption creates situations in which market arrangements may fail to meet individual demands for public goods, leading to market failure. Since public goods are difficult to package or unitize, they are also difficult to measure, which complicates the process of decision-making by the authorities responsible for providing the public good.

Before offering a good or service, governments should use a cost-benefit analysis, as a support to evaluate when and how a particular good or service should be provided by the public sector.
The benefit of any public good or service can be measured by the total amount, that people who benefit from such good or service, are willing to pay for its use. In this sense, the concept of willingness-to-pay is crucial in assessing the benefits of a project.

The cost-benefit rule for public goods provision implies that the sum of consumers’ marginal willingness-to-pay for the public good should be equal to the marginal cost of providing the good. Since the value that each agent assigns to a good is in principle different, there are some difficulties in the execution of such analysis, which can delay the process of decision and the provision of the good. The cost-benefit analysis is intended to obtain, not the fairest solution but the most efficient solution to a social problem, since it would require the use of other instruments of public policy beyond this type of analysis.

The cost-benefit analysis is a formal analysis of the impacts of a measure or program, designed to assess whether the advantages (benefits) of the measure or program are greater than its disadvantages (costs). The objective of such analysis is identifying how to use scarce resources to obtain the greatest possible benefits of them.

There are four fundamental principles of cost-benefit analysis on the provision of public funds: consumer sovereignty, valuation of goods according to willingness-to-pay, pareto-optimality as the criterion of welfare maximization and neutrality with respect to income distribution [59].

Consumer sovereignty consists on a principle in which the choices made by consumers with respect to how to spend their income are accepted and are treated as data.

Willingness-to-pay is the measure of benefits used in cost-benefit analysis. Despite the difficulty in measuring the value of willingness-to-pay for each agent, the value that agents attach to each good and service provided by the government, reflecting the fiscal benefit, can serve as a reference in determining the optimal amount of the public good being provided. However, there is the possibility that agents might misrepresent or not reveal correctly their willingness-to-pay, in an unconscious way, due the misperception about their benefits, or in a conscious way since consumers can take advantage of public goods without contributing sufficiently to their provision – the free-riding problem (rational behavior, given that it is irrational to pay for a good from which you can enjoy without contributing economically, which can happen with public goods due to the non-exclusion property). The non-exclusion feature arises when it is technically and/or economically impossible to exclude anyone from consuming the good by price. Thus, when the price to be paid for a public good is determined by its benefit, people tend to underestimate the benefits, revealing a false preference – not revealing correctly their willingness-to-pay.

As there is not a scientific method to evaluate and compare the benefits and costs of the provision of public goods, the use of a cost-benefit analysis for deciding if a public project should be adopted or not brings some problems. Thus, such analysis should be used only in cases where we want to know if the project is potentially Pareto improving. The final principle of cost-benefit analysis refers to the fact that if the benefits outweigh the costs in total the agents remain neutral regarding the distribution of benefits and costs among the population covered by the provision of the public good.

According to Downs [14], politicians have no incentive to correct fiscal illusion because through it they can spend more on public investment projects without being penalized at the time of reelection. Three years after the work mentioned above, Downs [60] begins to sustain a new ideology, influenced by Galbraith [17], which argued that fiscal illusion did not contribute to an increased public spending – increased weight of the public sector – but it contributed to make the public budget smaller. He supported his new ideology with the assumption that voters have a poor perception of the benefits of public programs while the rates and taxes for such programs were better learned, which contributes to a true perception of tax burden and consequently to reduce the weight of public sector.

According to Edwards [61, pp. 6], “a small increase in the supply of the public good is desirable if it increases maximized social welfare”. When governments want to decide whether to increase public good provision, they should estimate the effect of such provision in households’ marginal willingness to pay (reflecting the social benefit) and in the shadow government revenue (reflecting the social cost).

Edwards [61] develops a general rule which can be used to help government’s decisions about the provision/supply of some public projects. In this sense, if the welfare-weighted sum of households’ marginal willingness-to-pay for the public good exceeds the cost of the project at shadow prices less the effect that the project has on shadow consumer tax revenue (because of complementary or substitutability between the public good and household demands for private goods), then the project should be undertaken. Such rule can be applied in any provision of public good or service and does not require any special assumptions.

However, the application of a cost-benefit analysis is not so linear in the presence of fiscal illusion, stressed by the problems inherent to the provision of public goods as the free-riding, false revealing of preferences, lobbies, among others. In such situation, the marginal cost of providing the public good or service does not reflect the reality. As the underestimation of the tax burden associated with the provision of public goods creates an excess of demand for public goods, leading to an increase in public expenditure (vote for a higher level of spending), is necessary to use other means of measurement to determine the optimal amount of public good to provide. Thus, some authors as Sandmo [62] and Ballard and Fullerton [63] suggest the use of other type of measurement: the marginal cost of public funds.

According to Edwards [61], the marginal cost of public funds is the multiplier that the governments have to apply to the net

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3 A project is Pareto-optimal if it improves the welfare of at least one person without reducing the welfare of any other person.
government revenue, required to finance the additional provision of a public good in order to calculate its true marginal social cost. In other words, the marginal cost of public funds measures the monetary welfare cost of raising an additional monetary unit in the presence of fiscal illusion.

However, the calculation of the marginal social cost of public good provision in the presence of distortional taxation requires some care and attention\(^4\). In this way, Edwards [61] analyzes the appropriate cost-benefit rule for public good provision using a simplified version of the model developed by Drèze and Stern [65, 66].

The main conclusion of Edwards’ work [61, pp. 14] is: “a small increase in the public good increases social welfare if the welfare-weighted sum of households’ marginal willingness-to-pay for the public good exceeds the direct cost of the public good computed using the domestic currency value of world prices less any induced effects on actual consumer and trade tax revenue resulting from complementarily or substitutability between the public good and household demands for private goods”.

In conclusion, the comparison of the appropriately-weighted sum of households’ marginal willingness-to-pay for a public good with the net effect of the increased supply of the public good on shadow is a generally valid cost-benefit rule for public goods provision in economies with distortional taxation.

V. THE EFFECT ON THE LEVEL OF PUBLIC EXPENDITURES

There is some consensus in the literature that the underestimation of the marginal fiscal cost leads individuals to demand a larger amount of public goods (Q1).

However, the perception of the marginal fiscal benefit (of the last unit of public good consumed) is not so clear, even if the existence of literature that supports the tendency to its underestimation [58]. If this is the case, individuals will tend to ask for a lower increase in the amount of public goods provided (Q2). In a very particular situation, the two misperceptions may even cancel out leading to the optimal amount of public goods (Q\(^*\)) or the benefit misperception may more than compensate the cost misperception leading to an amount below the optimal one (Q3).

Of course, if individuals overestimate their marginal benefit, this effect will reinforce the increase in public spending induced by the misperception about the marginal fiscal cost (Q4).

However, according to Carter [42], we only have a significant effect on the level of public expenditures if the misperceptions about marginal tax-costs and benefits are permanent. This permanency implies not only a bad perception ex-ante but also an ex-post misperception of the tax-cost. For instance, if the agent initially underestimates the marginal cost through an overestimation of the productivity of some specific public good, “in supplying desired consumptions units, it must be true that, ex-post, the number of consumption units received is also overestimated” [42, pp. 347]. Otherwise, expectations would be revised. The permanent misperception only exists if it is verified ex-ante and ex-post.

With this, Carter [42] defends that the misperceptions about marginal tax-costs and benefits must be permanent to have any significant effect on the level of public expenditure. On one hand, voters can underestimate the cost of public goods, and on the other hand, they may also underestimate the benefits of public goods. They can do this in two ways: underestimating the benefits derived from any additional consumption unit supplied or underestimating the number of consumption units supplied by one unit of the public good. In others words, they can be wrong about their preferences.

However, it is not possible to assume a permanent underestimation of the marginal benefit ex-post, because it is not rational to suppose that the individual will always be wrong, ex-post, about the subjective utility derived from a given consumption unit.

Carter [42] extends his approach by concluding that, when misperceptions are realized in terms of marginal fiscal cost and benefit, a permanent underestimation of the marginal tax-cost and marginal benefit of public goods can promote either an

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\(^4\) According to Pigou [64] and Sandmo [62], the marginal cost of public funds would necessarily be greater than one when revenue was raised by distortional taxation.
expansion or a contraction of the public sector, depending on the nature of such misperceptions and the simultaneity of the effects. Over some range of prices, the misperceptions of marginal benefits amplify the size of government: “the greater the underestimation of marginal benefits, the larger may be the size of the public sector” [42, pp. 354].

The underestimation of the marginal benefits associated to an underestimation of marginal costs can accentuate the expansion effect in comparison to when only the marginal costs are underestimated. If the median voter underestimates his marginal tax-costs and overestimates the total amount of his marginal benefits (sum of all marginal benefits of all public units consumed), he will, over some range of prices, demand less public goods than if he had only underestimated his marginal costs [42]. In the next figure 2 and 3, the point 1 corresponds to the situation where the median voter has a correct perception of his marginal benefits and marginal costs. In the point two, the median voter only underestimates his marginal costs. Finally, in point three he underestimate, simultaneously his marginal benefits and marginal costs. The difference between the two figures resides in the fact that in figure 2 the median voter underestimate less his marginal benefits than his marginal costs.

Under some conditions, the units of the public good demanded by the median voter are equal or smaller to the units that would be demanded if any agent had correct perceptions. This happens when the median voter underestimates his marginal tax-costs and underestimates more his marginal benefits (of the last unit consumed).

In conclusion, the permanent misperception of marginal costs and benefits only can exist if they are complemented, ex-post, by misperceptions about the existing total value. The figure 4 is similar to figure 2 and 3, however in the point 3 the median voter underestimate in the same proportion his marginal benefits and marginal costs.
VI. CONCLUDING REMARKS

The empirical studies conducted on the topic of fiscal illusion differ about the possible causes of this phenomenon. If there are studies that confirm some causes [1, 32, 33, 36] others prove the opposite [37]. In addition, there are few studies that try to demonstrate the combined existence of more than one type of causes [22, 23].

The use of different methodologies and different data affects the comparison between the different studies done until now. In common, these works share the emphasis given to some causes of fiscal illusion like revenue-complexity, revenue-elasticity and rent illusion, over other causes, particularly debt illusion.

Most studies done about the problematic of fiscal illusion base, essentially, the analysis on the side of fiscal cost, understimating the importance of the perception of fiscal benefit in such analysis, verifying a scarcity in the literature devoted to this issue compared with the literature based on the perception of fiscal cost.

We demonstrated that the simultaneous conjunction of the misperception of marginal fiscal cost and marginal fiscal benefit can be compensated with an unpredictable effect on the quantity demanded of the public good. Therefore, the need to consider both sides of public goods provision is important to achieve realistic results about the possible effects of fiscal illusion in the quantity provided of public goods.

We conclude that there is not a linear relationship between fiscal illusion and the expansion of the public sector because the net effect of fiscal illusion will depend on the interaction between the misperception of the both sides of public good provision. In this way, it would be interesting to consider, in the same regression, variables able to reflect the perceived marginal cost and the perceived marginal benefit by the voters, through the use of proxies. Another possibility to capture the final net impact of the two effects in the public expenditure could pass by the use of experimental economics. There is still much work to be done in this area. Issues such as the derivation of suitable proxies for illusionary variables and the usefulness of these variables remain controversial.

REFERENCES


