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WHY THE EXISTING TAX STRUCTURES ARE DIFFERENT FROM WHAT THE NORMATIF THEORIES OF TAXATION PROPOSE?

NEDEN MEVCUT VERGİ SİSTEMLERİ NORMATİF VERGİLEME TEORİLERİNİN ÖNERDİĞİNDEN FARKLIDIR?

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ABSTRACT

Distributional equity, economic efficiency and administrative simplicity are viewed as the most important criteria for designing Tax Structures according to the normative theories of taxation. However, these criteria fall short in explaining why the existing tax structures are designed as the way they designed today. In this article, I investigate alternative explanations for why the existing tax structures are different from what the normative theories of taxation propose. As the result of this investigation, I found that rather than normative theories of taxation, the positive theories of taxation are capable of explaining the important characteristics of the existing tax systems.

ÖZET

Vergilemenin normatif teorilerine göre eşitlik, ekonomik etkinlik ve idari uygunluk vergi yapılarının dizaynı için en önemli kriterler olarak değerlendirilmektedir. Bununla birlikte bu kriterler varolan vergi yapılarının niçin mevcut şekliyle dizayn edildiğini açıklamakta yetersiz kalmaktadır. Bu makale günümüzün ekonomilerinde varolan vergi yapılarının neden normatif vergileme teorilerinin önerilerinden farklı olduğunun alternatif açıklamalarının bir araştırmasıdır. Bu araştırma sonucu mevcut vergi sistemlerinin politik ekonomi modelleri gibi pozitif vergileme teorileri tarafından normatif vergileme teorilerine nazaran daha iyi açıklandığı ortaya çıkmaktadır.

Tax Structure, Political Voting Model, Public Choice Perspective.
Vergi Yapısı, Politik Oylama Modeli, Kamu Tercihi Yaklaşımı.

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INTRODUCTION

Economists design modern tax structures according to some common criteria such as equity, efficiency and administrative simplicity. The tax structure, which satisfies these criteria, is called to be an ideal (optimal) tax structure and is suited well to the normative theory of taxation literature. A vast literature of normative studies based on the above criteria on taxation provides rules of thumb in building the blocks of an ideal tax structure. However, attempts to design tax structure, which consist of tax bases, tax rates and special provisions and fully satisfies the chosen normative criteria shown to be unrealistic. Indeed, the literature of normative studies leads distinct set of values and tax instruments that cannot be achievable with existing economic and political systems.

An important reason for the deviation of an ideal tax structure from the existing ones is that normative economic policy of tax design ignores the political environment. Indeed, including political factors in addition to economic, social and historical ones into the analysis of taxation leads deeper understanding of existing tax structures.[2] Since a tax system is influenced by both the advice of economists and the political decision-making process, "*Only in the context of political equilibrium we can gain a full understanding of how tax systems arise, function and should be evaluated...*"[3]

As the literature suggests, considering political factors as well as many others for the analysis of tax structures leads a broader perspective but more realistic one at the same time. Such broad perspective taxation has been continuing to develop for the last quarter of 20th century under the name of public choice perspective of taxation.[4] Although the traditional models of optimal taxation appear to be successful in explaining some parts of tax structures, public choice models of taxation provide complete explanation of tax systems. A pioneering study by Hettich and Winer[5] lays out a positive theory of taxation model developed in the context of political equilibrium and is consistent public choice perspectives of taxation. In this study, Hettich and Winer demonstrated that, an equilibrium, which defined under the influences of economic, political and administrative factors leads to a complex and

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2 See this claim in the following articles: Schumpeter, Joseph A., "The Crisis of the Tax State," In *International Economic Papers* 4, edited by A. Peacock, R. Turvey, W. Stolper, and H. Leisner London: Macmillan, 1918. Hinrichs Harley H. "Determinants of Government Revenue Shares Among Less Developed Countries." *Economic Journal,* 1965. Holcombe, Randall G. "Tax Policy from a Public Choice Perspective," *National Tax Journal, Vol.* 51, 1998, pp. 359-371. Poterba M. James, "Public Finance and Public Choice," *National Tax Journal, Vol.* 51, 1998, pp. 391-397. Winer S. and Hettich, Walter, "What is missed if we leave Out Collective Choice in the Analysis of Taxation." *National Tax Journal, Vol.* 51, 1998, pp. 373-389.

3 Hettich and Winer, 1998 p. 387.

4 "*…But there is still a substantial amount of work that can be profitably undertaken to integrate public choice analysis more fully into the analysis of taxation*." See the article by Holcombe, 1998, p. 359.

5 Hettich, Walter, and Winer Stanley, "Economic and Political Foundations of Tax Structure," *American Economic Review, Vol.* 78, 1988, pp. 701-712.

flexible tax structure. This result shows a radical contrast to what normative models of taxation propose but it is more consistent with the existing tax systems.

In this study, I plan to review, explore and evaluate the studies that produce a more realistic and contrasting results to the normative theory taxation. My starting point is the review of normative theory of taxation especially with their suggestions regarding the tax base, rates and special provision. The focus of my survey is on the main assumptions of the positive theory of taxation, since they are main sources of the difference and are drawn mostly from public choice models. I believe that approaching to the problems of taxation from this perspective apparently provides an important insight for the role of politicians and voters in determining the ideal tax structure especially in democratic countries.

This article is organized as follows: The next section briefly covers the predictions of three basic normative approaches to ideal tax structure. Section three contains a positive model of tax structure originally developed by Hettich and Winer.[6] Reintroduction of the model will provide an opportunity to discuss the elements of tax structure such as tax rates and bases, and special provisions in this section. The last section includes the existing empirical studies that show not only economic variables, but also political and administrative factors affect the design of existing tax structures.

1. THE REVIEW OF NORMATIVE THEORIES OF TAX STRUCTURES

The design of a tax structure is complicated as much as economy itself. Economists and politicians have been studying different aspects of the problem along the modern economic structure. The designing an ideal tax structure mainly boils down to the questions of what base should be taxed, what rates should be used and what kind of special provisions should be given. Initially, for a long period time there have been three major normative analyses developed to approach each of these questions. The first one which views an ideal tax structure based on the principle of ability to pay is the theory of equitable taxation (ET). The second one, which is advocate of benefit principle in taxation, is the theory of optimal taxation (OT). The third approach has provided a further competing point of view with theory of fiscal exchange (FE) to consider problems of tax design.[7] All the perspectives address each of main questions regarding an ideal tax design.

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[6] Hettich, Walter, and Winer Stanley, "Economic and Political Foundations of Tax Structure," *American Economic Review, Vol.* 78, 1988, pp. 701-712.

[7] Brennan, Geoffrey, and Buchanan. James, *The Power to Tax: Analytical Foundations of Fiscal Constitution*s. Cambridge University Press, New York, 1980.

1.1. The Choice Of Tax Base

For the choice of a tax base each of the perspectives has distinct set of priorities. According to the theory of equitable taxation (ET), taxes should be allocated based on the change in the economic power of individuals and families[8]. Indeed, the early writings in ET literature emphasized on net wealth as a measure of economic power of individuals. However, the problem of measuring wealth led economists to use comprehensive income base as the standard measure of ability to pay. In fact, Musgrave argues that income as tax base includes all its sources and uses rested on the merit income as a fair measure of ability to pay. In his view, there should not be discrimination between sources such as wage and capital income.[9] In short, most studies in this literature suggest a single based income tax is enough to make taxation equitable. That means an elimination of other taxes such as sales or excises[10]. In addition, there is no place for any other type of taxes in this literature with the exception of property taxes. Furthermore, there is widely accepted proposition of integrating personal taxes with corporate income taxes, or at least reducing the levels on corporations to a withholding device.[11]

Although the ET literature shed lights on what should be the tax base, this literature ignore to deal with the trade-off between efficiency and equity, and reject the use of multiple tax instruments. These weaknesses require some alternative perspectives for the establishment of the ideal tax structure. Optimal Taxation (OT) literature, which is based on proposals of sacrifice doctrine of classical economists, arises as one solid alternative. These economists interpret sacrifice as loss of utility and advocate the equalization of marginal utilities as the proper rule for minimizing the aggregate sacrifice caused by taxation. Formal models of OT provide a social welfare function to measure the aggregate sacrifice namely loss of efficiency. The focus of analysis is on the trade-off between equity goals and the deadweight cost of taxation given the available tax instruments. Unlike ET tradition, OT take equity and efficiency goals into account and integrate them into a single welfare function. These models also predict a deadweight loss resulting from pursuing any equity goals an explicit part of the tax design.

Even though OT literature embraces the most important criteria, the resulting prices rules for ideal tax structure are almost as complicated as the underlying economic structure. Therefore, the implications of the theory are

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[8] Hettich, Walter, and Winer Stanley, "Blueprints and Pathways: The Shifting Foundations of Tax Reform," *National Tax Journal, Vol.* 38, 1985, pp. 423-446.

[9] Buchanan J. and R. Mugrave Public Finance and Public Choice: Two Conrasting Vision of the Sate, MIT Press, Boston, 1999.

[10] Musgrave (1989) however, also suggests that substitution of income with the consumption as a tax base because tax on consumption rather than income solves the problem of distortions in labor-leisure decisions and consumption is related to lifetime income after all.

[11] Hettich, Walter, and Winer Stanley, "Blueprints and Pathways: The Shifting Foundations of Tax Reform," *National Tax Journal, Vol.* 38, 1985, pp. 423-446.

based on less formal rules of thumb rather than on a formal analysis. According to these rules, which taxes should be chosen depends on the elasticity of alternative tax bases. More-inelastic tax bases should be chosen to minimize distortions. For instance, taxing consumption of present and future rather than income should be favorable to avoid distortion in the inter-temporal allocation of resources and consequently to minimize dead weight loss. Labor taxes should also be preferred to capital taxes because capital is a much more elastic tax base. Efficient taxation is also in favor of broad-based taxes in order to avoid inducing substitution between activities that are taxed at different rates. Knowing the fact that substitubility not only involves present and future consumption but also leisure makes the argument stronger than it was. Broad based taxation would also allow gifts and wealth to be taxed.[12]

The preceding rules are based on the first best solutions of the welfare economic analysis, which uses seriously restrictive assumptions. In the face of second-best situations, the use of first-best welfare economics may be misleading. The analysis of dealing with fewer distortions may not be closer to efficient outcome than more distortions.[13] For example, the conventional wisdom that a consumption tax is superior to an income tax is not strictly correct when the utility function is not separable in leisure and goods.[14] Nevertheless, there is a tendency to shift towards consumption taxes in many countries. One reason may be because such a tax is not biased against saving and investment as the income tax. Second reason can be attributed to attempts for minimizing the efficiency cost of taxation.

As can be seen above that both of these normative approaches aim to reach a conventional wisdom of what is the best way to rise revenues for a given budget size. They both assume that tax structure exogenous to economic activities. In particular, the level of total revenue to be raised is held constant in the search for the optimal tax structure. In fact, most conventional public finance in the search of optimal taxation focuses on the distortions in the private sector for a given amount of tax revenues. Most importantly, they ignore government behavior regarding decision-making process of tax reforms. Buchanan turns this completely around by saying: "Choose the taxes that minimizes the distortions of public decisions."[15] In contrast with most of public finance economists, Buchanan realistically treats the government as endogenous. According to Buchanan, government's goal is not efficiency or/and equity but revenue maximization.

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[12] Buchanan J. and R. Mugrave Public Finance and Public Choice: Two Contrasting Visions of the Sate, MIT Press, Boston. 1999.

[13] Lipsey, R. G. and Lancester, Kevin, "The General Theory of Second Best," *Review of Economic Studies*, 1956.

[14] Atkinson A. and J. Stiglitz, Lectures on Public Economics, McGraw-Hill, New York, 1980.

[15] Buchanan J. and R. Mugrave Public Finance and Public Choice: Two Contrasting Visions of the Sate, MIT Press, Boston. 1999.

A chosen tax base in Buchanan's Fiscal Exchange theory is not specified to income or consumption instead, is it to the some features of the base. For instance, Buchanan's Fiscal exchange theory indicates that the choice of tax base should be constitutional.[16] Otherwise, government with Leviathan tendencies chooses bases that would simply increases the deadweight loss or inefficiency. In order to avoid inefficiency problems taxing especially inelastic bases should be constitutionally restricted, because inelastic bases cannot escape Leviathan' grasp. In an open economy for instance, bases such as capital income should be preferred to labor income because they allow taxpayer to escape more easily. In addition, the studies of this theory lead to narrowly defined bases because they restrict Leviathan's power, and deadweight losses. This is in direct contrast to OT, which holds that broader bases are superior since broadly based taxes distort relative prices to a lesser extent[17]

1.2. The Choice Of Tax Rates

There are three alternative rate structures, as progressive, proportional and regressive rate structures can be found in the existing tax systems. Evaluation of each rate structure from the major perspectives provides relatively different results. According to the Equitable Taxation (ET) literature, a rate structure should provide more equitable income distribution. Both horizontal and vertical equity principles should be followed in an ideal rate structure. The underlying horizontal equity principle of taxation suggests same rate for same comprehensive income. Turning the statement the other way around implies that income tax rate should be progressively structured in terms of vertical equity principle. As ET, literature suggests both horizontal and vertical equity principles are being taken into account in tax design of many countries. The only divergence is about the degree of progressivity and number of brackets between different countries tax systems.[18].

According to the optimal taxation (OT) literature, however, in order to satisfy efficiency criteria it is not enough to have a few tax brackets. In fact, the efficiency of tax systems requires unique tax rates for each of taxpayers. In the absence of administration cost there is no reason not to have rates separate rates for all economic agents. However, administration and transaction cost are discouragingly high to run a tax system with too many rates. Indeed, the rate structures of recent tax systems have been changed

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[16] Brennan, Geoffrey, and Buchanan. James, *The Power to Tax: Analytical Foundations of Fiscal Constitution*s. Cambridge University Press, New York, 1980.

[17] Hettich, Walter, and Winer Stanley, "Blueprints and Pathways: The Shifting Foundations of Tax Reform," *National Tax Journal, Vol.* 38, 1985, pp. 423-446.

[18] Recent studies emphasize on flat rate structures. For instance, Buchanan and Musgrave (1999) point out that flat tax rate with an exemption to low-income groups, is progressive in its effective rate. Replacing multiple tax brackets with a flat tax rate with exemptions included, causes extra redistribution of wealth among different income groups. He argues however that a flat tax will sharply cut liabilities at the top, while raising them over middle-income groups.

towards the flat tax rate due to administrative complexity and may other cost related reasons. Designing a tax structure with multiple or single tax rates does not usually lead to economic efficiency anyways. From the OT perspective, in order to minimize distortions or maximize efficiency from taxation, it is the distortions for per unit of tax, not the tax rates should be equalized.[19] This leads too many tax rates for the economic efficiency at the end.

According to Fiscal Exchange theory, the rate structure should be progressive or at least proportional. Otherwise, if income tax schedules are regressive, then revenue maximizing monopolistic governments could charge too much tax[20]. Too much taxation with regressive rate structure causes government to grow inefficiently and crowd out private sector, while progressive or proportional rate structures limits the size of government and thus leads less inefficiency[21]. Limitations of government that act like Leviathan as Buchanan described would lead to efficient uses of resources in the economy. Fiscal exchange theory also indicates that the choice rate structure should be constitutional in order to avoid Leviathan-like tendencies of government. Since Leviathan levies revenue-maximizing rate structure on every available base, adding bases simply increases the deadweight loss in an economy.

1.3. Special Provisions

Although special provisions normatively viewed as deviations from the ideal tax base, there are major items that are usually exempted from the bases. Some of them can be listed as of capital gains, owner occupied residences, private savings for retirement, charitable contributions depreciation of capital assets, explorations and development costs of mining and oil companies and expenditures on education and research and development.

Recommendations for special provisions and exemptions derived from OT are less clear-cut. Depending on the government objectives, exemption deductions and tax credits may be appropriate elements of a good tax system. Further, a complete structure of special provision results from interaction of particular policy objectives. Since the formal mathematical modeling requires, the complete picture has never been lied out concerning the tax structures overall.

According to Brennan and Buchanan, whether tax loopholes are good or bad depends on whether they are opened up at the constitutional

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[19] Stiglitz Joseph E., Economocs of Public Sector. Third Edition, W.W. Norton & Company Inc., New York / London. 2000

[20] This is analogous to the statement that a perfectly discriminating monopolist maximizes profit by charging prices that decline at the margin (Buchanan and Musgrave 1999).

[21] Hettich, Walter, and Winer Stanley, "Blueprints and Pathways: The Shifting Foundations of Tax Reform," *National Tax Journal, Vol.* 38, 1985, pp. 423-446.

stage or later on.[22] One advantages of having tax loopholes at constitutional stage is that taxpayers seek to build certain escape routes into the tax structure at this stage. The loopholes created at this stage provide the protection or guaranties against fiscal exploitation probabilities of leviathan government. Post constitutional loopholes are bad for taxpayers assuming, that they represent attempts by leviathan to discriminate among heterogeneous taxpayers. Thus, this argument by Brennan and Buchanan implicitly assumes the fact that tax loopholes exist in a tax structure. His wish is to make these loopholes constitutional not post-constitutional. The reason for this lies behind the desire of politicians to get rents by selling these loopholes. This part will be explained in more detail in the next section.

As a result, a brief analysis of the three normative theory of taxation regarding choices of tax bases, rate structure, and special provisions leads to some major conclusions and differences at the same time. Although the preceding studies occupy a large space in the literature, they have not been reached at a level to analyze a whole tax structure. The problems of tax design is neither merely directed to the control of Leviathan, nor purely economic conditions. It is not only economic, because better design of tax structure requires better understanding of political decision-making process. It is not only politic, because the use of resources during a political decision-making both directly by political parties and indirectly by interest groups have to be taken into account as economic cost. The next section approaches to the analysis of tax structures knowing this problem of tax design.

2. A POSITIVE THEORY OF TAX STRUCTURE

The analysis of tax structures requires more realistic framework to explain why the existing tax structures differ from what the normative theories propose. The positive theories of tax structure have better premises than normative theories to answer questions like this. They indeed, show how tax bases, rates and special provisions as main elements of tax structure arise in the existing tax structures. One of their strengths is related to their reliance on the analysis of collective choice mechanism in which most fiscal decisions made.

One of the most used positive models of taxation to incorporate a collective choice mechanism is the median voter model. According to this model, the median voter as a decisive voter determines the choices of tax base, the tax rate, exemptions, and provisions. The chosen tax rate maximizes the decisive voter's fiscal surplus (fiscal surplus = public services - loss in welfare due to tax). Although the median voter model has been successful in dealing with the problem of explaining coercive redistribution, the same is

[22] Brennan, Geoffrey, and Buchanan. James, *The Power to Tax: Analytical Foundations of Fiscal Constitution*s. Cambridge University Press, New York, 1980.

not true in providing an ideal tax system as a whole. For instance, the median voter would not wish to spread public services and taxes uniformly over the electorate as whole. Thus, the median voter model substantially restricts the options to the single option that is selected by the decisive voter. Voting process continues on pairs of proposed tax rates until one rate emerges that can not be defeated by any other in a pair wise majority vote. In addition, the median voter model provides a relevant tax structures only if all voters' preference relations are single peaked and tax structure has one-dimensional. Since almost all voters have multi-peaked preferences over tax rates and tax structure is multi-dimensional, the use of median voter model fall short in analysis of existing tax systems as a whole.

A more promising model for the analysis of tax structure is probabilistic voting model. Hettich and Winer[23] introduce a model that incorporates public and private decisions' into the design of more realistic tax system. This model allows for regular elections and free entry of new political parties. Voters choose between parties on the basis of policies that they propose to implement while continuous pressure from the opposition forces each party to adopt a fiscal platform that would maximize expected vote in the next election. They argue that not only private behavior is modeled as self-interested in the way common in other area of economics, but public decision-makers are also assumed as self-interested in this model for first time differently from the traditional tax literature[24]. In fact, they show that the essential facts of tax systems can be explained as the natural outcome of self-interested decision making if such behavior is assumed in both the private and public sectors. They modify the neoclassical optimal tax model by replacing the benevolent social planner with self-interested politicians so that the tax system occurred would be as the natural outcome of self-interested decision-making.[25]

Other assumptions that are critical to the model are listed as follows: First, there is a single public good (G) and there are two proportional tax rates imposed on two separate tax bases. Second, there are two self-interested political parties competing with each other to maximize their own total expected votes. Third, parties do not know with certainty how voters will cast their ballots. Fourth, voters may have heterogeneous preferences for the public good. The last assumption is that the model excludes consideration of lump sum and benefit taxation: separation exists between taxing and spending.

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[23] This model seems as a bridge between the field of public finance and collective choice (Hettich and Winer, 1988).

[24] Notice that public decision-makers are assumed in the traditional tax literature to choose and implement policies according to general social criteria such as efficiency and equity.

[25] The political equilibrium resulting from explicit derivation of government objectives in a game- theoric context is interpreted as the outcome of a competitive process with no independent role for bureaucracy (Hettich and Winer, 1988).

Governments' problem in designing a tax structure is to choose tax bases, rates and the size of public expenditures that maximize its total expected vote. In this model, expected support of the government depends on the characteristics of voters such as age and the taste for civic duty and cost of voting, and the benefits from G and the loss in full income resulting from taxation. It also depends on the individuals' relative political influence such as interest group membership and strength and personal wealth.

Given the assumptions above, I reintroduce a simple general equilibrium model, which has been adopted, from Hettich and Winer's model. According to this model individuals get utility from consuming composite consumption good (X) and leisure (L): $U^k(X_k, L_k, G)$. Government levy consumption tax on consumption (t_x) and income taxes on labor earnings (t_L). Under these conditions the indirect utility function of individuals from utility maximization problem is $V^k(t_x, t_L, G, P_x, w)$. The governments problem is to maximize expected supports $EV_k = \sum_{k=1}\pi_{ki} = \sum_{k=1}\pi_k \{f_k(V_{ki}-V_{ko})\}$. Where π is the probability that voter k support the incumbent as perceived by the party depends on the difference in the voter's evaluation of her welfare under the incumbent's policies (i) and those of the oppositions (o). The government budget constraint is $G = R_x(t_x, t_L, G) + R_L(t_x, t_L, G)$. Model requires here an additional assumption that there is no asymmetry among competing parties in terms of knowledge of the probability density functions describing voting behavior and of the structure of the private economy. The resulting first order conditions with respect to tax rates are as follows:

$$t_x : \sum_k \frac{\partial \pi k}{\partial fk} \cdot \frac{\partial fk}{\partial Vk} \frac{\partial Vk}{\partial tx} - \lambda \left[\frac{\partial Rx}{\partial tx} + \frac{\partial RL}{\partial tx} \right] = 0$$

$$t_L : \sum_k \frac{\partial \pi_k}{\partial f_k} \cdot \frac{\partial f_k}{\partial V_k} \frac{\partial V_k}{\partial t_L} - \lambda \left[\frac{\partial R_x}{\partial t_L} + \frac{\partial R_L}{\partial t_L} \right] = 0$$

The following condition can be obtained by equalizing the λ from each first condition:

$$\frac{\sum_k \frac{\partial \pi_k}{\partial f_k} \cdot \frac{\partial f_k}{\partial V_k} \frac{\partial V_k}{\partial t_x}}{\frac{\partial R_x}{\partial t_x} + \frac{\partial R_L}{\partial t_x}} = \frac{\sum_k \frac{\partial \pi_k}{\partial f_k} \cdot \frac{\partial f_k}{\partial V_k} \frac{\partial V_k}{\partial t_L}}{\frac{\partial R_x}{\partial t_L} + \frac{\partial R_L}{\partial t_L}}$$

This equation shows that the platform chosen by the incumbent equalizes the marginal effect of tax policies on expected votes per dollar of revenue across tax sources. It also implies equalization of political cost of per dollar of tax revenue across taxpayers for each activity. A resulting tax

structure that satisfies this condition minimizes total political costs for any given level of revenues collected.[26] As stated earlier, the self-interested policymaker will equate the marginal political cost per dollar of revenue raised from different policy instruments, rather than the marginal efficiency costs as in the standard Ramsey tax analysis.

Minimization of opposition to taxation requires an adjustment of tax structure when the nature of activities conducted by taxpayers, changes. The continuous adjustment process also requires government to be dynamic in competing with opposition parties and facing with difficulties of changing tax-mix that equalizes the marginal political costs of rising another dollar of revenues from various tax bases over time. Depending on the socio-political and economic conditions of a country, these readjustments require changes in tax laws frequently. Hettich and Winer argue that often these changes are presented as tax reforms.[27] The equilibrium conditions in their model can explain the equations of tax structure that is closely related to economic change and development. Governments, which are constrained constitutionally in changing tax laws, prefer to use substitutes such as regulations.

The preceding analysis shows that various political cost of different taxable activities and taxpayers lead to complex tax structure. Equality condition above indicates that this complexity in tax structures is politically rational. In fact, this model predicts optimal political tax system as the one that treats every taxpayer and each of his activities differently. The reason is that differentiated treatment of taxpayers increases the political support of incumbent party. If it were possible the parties would offer each taxpayer a unique treatment for each separate activity that taxpayer conducts. The exercise of making distinctions among the taxpayers and producing a complex tax structure is a product of the struggle for office.[28]

In reality, however, governments reduce complexity down to some degree in order to economize administration and enforcement costs.[29] In existing tax systems cost savings of this type is achieved by sorting individuals into tax brackets within their differences. In addition, activities are generally grouped into bases, which consists of similar or related activities. Grouping of activities or taxpayers causes a loss[30] in political support. The government may decide to accept such political losses in order to reduce administration cost because reducing the administration cost in this

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[26] Hettich and Winer, 1988, p. 704.

[27] Hettich and Winer, 1988, p. 704.

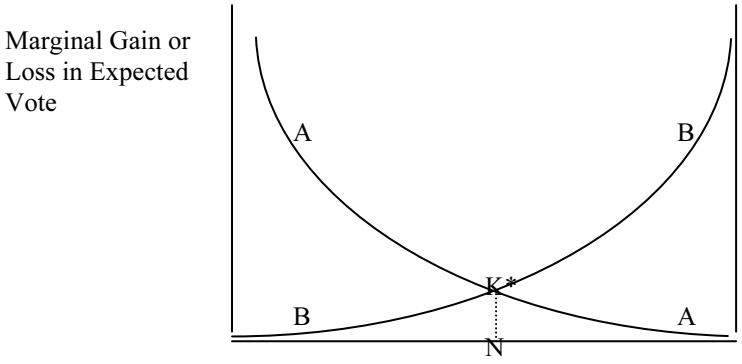
[28] Hettich, Walter, Stanley Winer, and George Warskett, "A More Formal Model of Tax Structure in Equilibrium*."* in *Democratic Choice and Taxation: A Theoretical and Empirical Analysis*, edited by Hettich Walter and Winer Stanley Cambridge University Press, Cambridge, 1999, pp. 61-96.

[29] Holcombe, 1998, p.364.

[30] This loss comes from the creation of rate brackets where groups of individuals with relatively different levels of economic activity, are subject to the same tax rate. The ones who are in lower quintile of the same group opposes to a common tax rate.

way releases some resources. Government can use these resources to increase public good provision, which provides extra political support. In fact, marginal gain in political support in this way is expected to be more than loss in political support due to imposing tax brackets. Thus, the government's problem is to balance the marginal loss in support from grouping with the marginal gain in support from spending resources not used in administration. Achieving this goal requires government to establish the politically optimal number of brackets and to assign individuals to these brackets in a manner that is consistent with its political objective. As a result, the existence of administration cost makes the degree of complexity lower in actual tax systems than is it in the basic model of Hettich and Winer.[31]

Creating the optimal number of brackets is shown in Figure 1. In this figure, the curve AA reflects the maximum reduction in opposition possible from increasing the number of brackets. It shows that marginal loss in expected votes declines continuously, as the number of brackets (B) approach to number of taxpayers (N). Hettich and Winer called this as tax discrimination curve[32].



In the Figure, movement to the right along the horizontal axis implies rising number of groups and thus lower degree of sorting. The intersection at K=N where all taxpayers are treated uniquely. While more differentiated tax structure reduces loss in expected votes, it leads incremental increase in administration costs as K and the degree of complexity of the system grows. This is because the opportunity cost to the government of treating individuals differently goes up as number of brackets rises. This suggests a positively sloped tax administration curve as shown in Figure 1. The equilibrium number of groups K* is determined by the intersection of the two curves.

The political economy model of tax structure also explains the existence of special provisions and exemption much better than the normative

[31] Hettich and Winer, 1988.
[32] Hettich and Winer, 1988, p. 705.

theories. These models show that the existence of special provisions such as exemptions, deductions, and tax credits is another necessary part of the tax structure. As the first reason, consider there are five (activities 1,2 3, 4, and 5) different activities for two different taxpayers. As argued above grouping of the activities are necessary to minimize administration cost. Thus, government tries to group these five activities as first three (1,2,and 3) and last two (4 and 5). Suppose this kind of grouping is appropriate for the first voter. However, two bases consisting of activities 1, 2, 3, and 4 and activity 5 better suited for the second voter. Therefore, it will be politically undesirable to tax fourth activity as it is in the second group for the second taxpayer. Even if it is so, the government will keep the original grouping of activities, since a special provision such as an exemption or a deduction will allow the government to differentiate tax treatment of activity 4.[33]

Another explanation for the existence special provisions is related to effective opposition groups. Winer and Hettich argue that if there is an effective interest group that has strong opposition to the inclusion of a specific activity in a particular base, it may be cheaper to compensate it with special provisions, compared to creation of a separate base for the disputed item.[34] The endogeneity of special provisions is also raised significantly for the government expenditures. In both parts of the public finance, special provisions are argued as a rational response by governments who compete with opposition parties in future elections. As a result, special provisions are an efficient response to the existence of administration costs and to the need of self-interested politicians to differentiate effective tax price among taxpayers in a democratic system.[35]

All essential elements of tax structure including special provisions are unavoidable consequences of the government's optimizing behavior. The W&H model show that all parts are interdependent since tax policy or tax reform, which often focuses on one aspect of the system, has repercussions on other parts. Therefore, as governments try to establish a new political equilibrium, they should focus on tax systems as integrated parts of rate structures, bases and special provisions. Politically efficient tax system is even argued to be complex to the extent of regulations. Special interest groups, which loose favored tax treatments, may succeed in obtaining relief through new regulatory measures. This implies that induced simplicity in one policy area may thus lead a greater complexity elsewhere. Therefore, broadly base and flexible taxation including special provisions would minimize the inefficiency[36] but may lead misusage of the system by politicians.[37]

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[33] Hettich and Winer, 1988, p. 709.
[34] Winer S. and Hettich, Walter, "What is missed if we leave Out Collective Choice in the Analysis of Taxation." *National Tax Journal, Vol.* 51, 1998, pp. 373-389.
[35] Winer and Hettich, 1998, p. 377.
[36] Winer and Hettich, 1998, p.378.
[37] Holcombe, 1998, p.366.

Unlike the studies in the literature of ET and OT, Hettich and Winer reach a politically optimal tax system without assuming lump-sum taxation.[38] They explain the intuition of having an politically optimal tax system as follows: "*Assuming the voters cast their ballots strictly on the basis of how policy outcomes affect their utility, adoption of fiscal platform that makes some voters better-off without making any other voter worse of must increase overall expected support. Competition for office ensures that, in political equilibrium, no such Pareto-superior policy platforms remain to be adopted."*[39] However, an efficient tax system under both OT and politically optimal taxation depends on the assignments of weights in aggregating individual welfare gains. In OT, the governments maximize a welfare function, written as a weighted sum of individual utilities whereas the government maximizes expected support in politically optimal taxation.

While efficiency in optimal taxation requires that the change in social welfare per dollar of additional revenue be equalized across revenue sources, a support-maximizing government equalizes the change in expected political support per dollar of additional revenue across revenue sources. As a result, support-maximizing governments will create tax structures that differ significantly from solutions envisioned in the OT literature. But still political equilibrium of tax structure may be globally efficient for the existing set of competitive political institutions in the long run by accepting that no political party can offer an alternative tax system generating the same political support with a lower welfare loss for any individual.

3. EMPIRICAL EVIDENCE

Some relatively recent studies[40] empirically showed that not only economic and administrative factors but also political ones played role in the development of the tax structures. For instance, Hettich and Winer tested their own positive model of tax structure by using income taxation and special provisions for the states of the U.S. The authors set only political cost function with respect to different sources of revenue. They assume that government attempt to minimize the political costs for a given amount of revenues. As argued in the earlier section, in order to minimize political costs the government must adjust the composition of revenues until the marginal political cost of raising an additional dollar is equal for all tax sources. They also assume that total cost is additive separable in each revenue sources. This

[38] Hettich, Walter, and Winer Stanley, "The Political Economy of Taxation," *In Perspectives on Public Choice*, edited by Dennis C. Mueller. Cambridge University Press, Cambridge, 1997, pp. 481-505.

[39] Hettich and Winer, 1988. p.379.

[40] Shumpeter (1918) had conceptually studied the economic, political, and administrative factors that shape a fiscal structure during the first quarter of 20th century. Hinrichs (1966) and Musgrave (1969) also suggest that the development of revenue systems be linked to broad trends in economic development. These studies did not however, provide a framework how these factors interact to shape evolving revenue systems.

assumption implies that marginal political cost are independent across revenue sources because each tax is born by a different group of essentially unrelated taxpayers.

Hettich and Winer used multivariate regression analysis to test the political effects on tax structure.[41] The dependent variable used in their study estimated equation[42] is the share of income tax revenue in total state revenues (YTR). The independent variables that are related to political costs to government are categorized into two such as the variable related to the effective tax price, and the variables related to the cost of organizing opposition. Regarding the effect of tax price, the authors hypothesized that the opposition to the use of a tax depends first on the effective tax price[43]. The government uses available opportunities like adjustments of rate schedules, exemptions, credits and variations in the definition of the taxable base, to lower the effective tax prices of voters who most likely to offer political opposition.[44] They use three variables to represent effective tax price factor in the regressions. The first one is the federal taxable income of at least $20000 (FTB20) that is expected to measure the tax shifting to federal government for the taxpayers. The sign of the coefficient of this variable is expected to be positive. It is because the more progressive the federal income tax the more the rich taxpayer will be relieved by shifting the tax burden to federal level, thus, the more rely on income taxation. The second variable[45] is price of nationally traded factors and goods, (VANM). This variable is expected as inversely related to the dependent variable. The reason is that the greater the ability to shift taxes other than the income tax, the lower the political cost of relying on them, thus, the less rely on income taxation. This variable is represented as a percentage of the state's total value added in manufacturing, VANM. The third variable is the tax credits variable[46], (CYT). The states that have tax structures with tax credits have ability to rely more on income taxation. That is, because the existence of such credits reduces opposition to use of the income tax by lowering tax prices of influential interest groups.[47]

The second group of political variables that are related to the costs of organizing opposition by those on whom a particular tax will fall, the value of mineral production relative to state income (RBY), and the value of total retail sales relative to state income (SBY), are introduced. It is argued

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[41] Hettich, Walter, and Winer Stanley, "A Positive Model of Tax Structure," *Journal of Political Economy, Vol.* 24, 1984, pp. 67-87.

[42] $YTR_j = \alpha_0 + \alpha_1 FTB20j + \alpha_2 VANMj + \alpha_3 CYTj + \alpha_4 RBYj + \alpha_5 SBYj + \alpha_6 ENj + \alpha_7 AYTRj + \alpha_8 Vj + ej$,

[43] Effective tax price can be defined as resources given up by taxpayers in order to pay the taxes. In addition, filling out forms and keeping records to comply with a tax are part of the effective tax price.

[44] Hettich and Winer, 1984, p.71.

[45] It is known as the tax-exporting variable.

[46] The authors define this variable as a dummy variable that takes the value 1 if a state has such a credit and the value 0 otherwise

[47] Hettich and Winer, 1984, p. 77.

that the larger the economies of scale in organizing political activity, the faster the political opposition grows as more revenue raised per dollar of potential tax base. If other tax sources are available, then the cost of organizing opposition will not be effective as a constraint to raise revenue. The reason is that the larger the availability of other sources, the less heavily will income be drawn upon as a revenue sources. The variables supposed represent cost of organizing opposition are expected to have negative signs. Winer and Hettich found significant coefficients with expected signs for all the critical variables.[48] This means, forming the whole tax system are being influenced not only by economic and administrative factors but also by political ones.

Winer and Hettich support the political economy model of tax structures with another empirical study[49]. In this study, they investigate the factors that play significant role in the development of the tax structure[50] of Canada from the year of 1871 to 1913. The authors used log of ratio of the deficit plus all other non-tariff revenues to tariff revenues as the first dependent variable [(R-CUS)/CUS]. The ratio of budget deficit to tariff revenues is the second dependent variable (DS/CUS). There are three groups of explanatory variables, are central to explaining changes in revenue structure, used in the estimations[51]. The first group consists of economic variables as forecasts of the tariff revenue base (IMF), one period lagged population (POP-), one period lagged federal and provincial debt per capita (FPD/N-), and one period lagged liabilities of commercial failures per GNP (FAL/Y-). The second major category of explanatory variables represents political factors. Three of these variables, one period lagged manufacturing output per capita (MFG/N-), one period lagged number of unions (UNION-), and one period lagged membership in farm cooperatives (COOP-) are to show the influence of the three most important domestic interest groups. The authors expect that manufacturing interests and unions to have a demand for tariff protection and farmers to oppose the use of custom duties. Since the government annually readjusts revenue structure in accordance with the changing relative size of the interest groups, the authors used these variables as continuous variables. In addition, they used two dummy variables as special protection from manufacturing interest, EXEMT, and lowering of tariff rates from consumers and farmers, OPP, to represent large discontinues changes occurred in the tariff as result of discontinuous political influences on tariff policy. The authors also introduced a dummy variable, USTRF, for the years 1890 and 1897 in which the U.S. created substantial new tariff barriers affecting Canada.

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48 Hettich and Winer, 1984, p. 79.

49 Winer S. and Hettich, Walter, "Debts and Tariffs: An Empirical Investigation of the Evolution of Revenue Systems," *Journal of Political Economy,* Vol. 45, 1991, pp. 215-42.

50 The authors observed that evolving revenue structure focused primarily on excises on alcohol and tobacco, borrowing and the tariff in Canada during this period.

51 $Ln\{(R\text{-}CUS)/CUS\} = -\beta_1 IMFI - \beta_2 IMRI + \beta_3 POP_{t-1} - \beta_4 FPD/N_{t-1} + \beta_5 FAL/Y_{t-1} + \beta_6 HV/IM_{t-1} - \beta_7 ADVSE_{t-1} + \beta_8 RAIL.$

The standardized regressions in the study of Winer and Hettich indicate many significant results.[52] Firstly, the variables representing IMF, POP and FPD/N have a pro-dominant influence on revenue structure of Canada. Secondly, the variables measure economic factors also work very well in explaining the existing tax structure. Thirdly, the variable indicating relationship between revenue and expenditure structure, 'RAIL' found as highly significant. This shows that evaluation of tax structure of a developing country should not leave its expenditure structure aside. Moreover, the variable representing the U.S. taxation policy as a large country, USTRF, has significant effect on evolution of Canada's tax system. Lastly, some political variables such as the variable representing the influence of labor on tariff, (UNION-), and the variables representing political influence –manufacturers and farmers show significant influence.

Hunter and Nelson[53] also investigate interest group effect as an explanation for the existing tax structures. They model interest group demand for specific tax regime or tax legislation[54]. In this type of model, it is mostly assumed that individual will participate in groups lobbying when the benefits derived from the legislation exceed the individual share's share of the lobbying cost. The objective of the group activity is to skew legislative discussions toward the adoption of tax systems, which is more favorable to their membership. This objective can be satisfied successfully through a shift of the burden of taxation onto unorganized individuals groups of individuals. In the effect of making this shift the optimal amount of lobbying effort will occur at the point where the difference between the individuals gain from an improved tax mix and share of interest group costs per member is the greatest. It is argued that the higher the value of the potential legislative gains the bigger the effort that interest groups would be willing to devote. The resulting tax mix requires that the marginal benefit from a small improvement in tax mix for the group member equal the increase in his share of lobbying cost necessary to obtain that improvement.

The analysis of tax structures by Hunter and Nelson leads to the following testable hypothesis[55]. A particular tax will face with effective organized lobbies when the group members represent a large share of that tax base and /or when groups bear low organizational cost. Thus, the tax structure will be skewed away from taxes that mostly fall on these types of groups. For instance, relative to most other businesses, manufacturers employ large amount of real property in their operations and therefore pay a large share of the property tax. As a result, manufacturer organizations would lobby to reduce dependence on local property taxes. In other words, the political opposition cost that they impose on incumbent party will be higher

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[52] Winer and Hettich, 1991, p.233.

[53] Hunter J. William, and Nelson Michael A. "Interest Group Demand for Taxation." *Public Choice, Vol.* 62, 1989, pp. 41-61.

[54] They differently from Hettich and Winer (1988), incorporate their model into a simple majority rule model of community decision-making.

[55] Hunter and Nelson, 1989, p.44.

in a political equilibrium with an increase in property taxes. Similarly, excises on tobacco institute and fragmented beverages will be on governing party due to the fact that high lobbying effort of a few but very effective producers. The authors tested the model using variations among local government tax structure in the State of Louisiana. The dependent variables of their simultaneous equation model represent the share of locally generated revenue from property taxes, sales taxes and concerning user fees of 65 counties. They discover four property intensive groups in this paper as farmers, timber producers, landlords, and wealthy homeowners. The empirical results their paper indicate that members of the interest groups are effective in reducing their own tax burden. For instance, the coefficient for the wealthy homeowner variable is negative and statistically significant in the property tax equation. As a result, this paper found that variables representing special interest groups play a significant role in determining different tax structures.

Another study significantly determines some parts of an existing tax structure.[56] The authors in this study incorporate expected voting into a computable general equilibrium model of political competition. They investigate the Pareto set of fiscal policies for representative members of three interest groups. These groups are chosen according to a combination of two characteristics: the level of gross household personal income and the share of factor income from ownership of capital. They use the calibrated influence weights to study the determinants of changes in the U.S. tax policy over the decade of 1973-83. Their results show that tax on both capital and high personal income fall while those on labor income rose substantially during this period due to capital owners' and high income earners' influences on tax system.

CONCLUDING REMARKS

The design of a tax structure is complicated as much as economy itself. Economists and political scientists have been studying different aspects of the problem along the modern economic development. The problem of designing an ideal tax structure is strictly related to the questions of what base should be taxed, what rates should be used, and what kind of special provisions should be given. There have been normative theories developed to approach each of these questions. The theories of equitable taxation (ET) and optimal taxation (OT) and fiscal exchange (FE) are among the most common ones. In this article, I have investigated the literature of tax design including the literature that embraces these theories. I have found at

[56] Winer, S. and Rutherford, Thomas, "Tax Policy in a Computable Model of Economic and Political Equilibrium," In *Democratic Choice and Taxation: A Theoretical and Empirical Analysis,* edited by Hettich W. and Winer, Stanly, Cambridge: Cambridge University Press, 1999, pp. 153-192.

the end that although the normative theories can explain some parts of the existing tax structures, two things are still missing.

The first missing part is the consensus between normative theories in terms of policy prescriptions for what base should be taxed, which rate structure should be used and what types of exemptions may be tolerable. For instance, while ET literature suggests broad, and single-based taxes on combined income personal and corporate including capital, OT literature suggests single-based broad personal consumption tax with less of capital taxation. In contrast with both of these literatures, FE literature suggests multiple and narrow-based tax structure with highly elastic tax rates.

One cause of such differences studied in this paper is that economists in each of these approaches view the models of state and politicians differently. Both Equitable taxation and Optimal taxation literature view government as social planner whose decisions are exogenous to the economic activities and thus to the analysis. However, Fiscal Exchange approaches to the government with more suspicious view and ask the question of how the decision making process can be improved to implement pareto-improving set of tax policies. In fact, the approach of viewing government as endogenous and imposing limitations on government behavior is unique to the public choice literature. The analysis with this approach provides the most consistent explanations of why the existing tax systems are complex with multiple tax rates, bases and exemptions and loopholes. The resulting tax structure of this type of modeling is driven from expected vote maximizing self-interested politicians in section three.

The most important reasons of having such a complex tax structure are political. Indeed, the analysis show that sustaining the equilibrium condition of equality between marginal political cost and benefit requires tax structures to be adjusted depends on the change in tax bases, such as income, consumption, international trade, and political forces. Forming the tax rate structure according to the trade off between number of tax brackets and administration cost is also related to political factors. Obviously, the political economic equilibrium model of tax structure show that inclusion of special provision and loopholes are an efficient response to the existence of administration costs and a need of self interested politicians to differentiate effective tax price among taxpayers. The evidence drawn from the literature also shows that rent-seeking behaviors, the role interest groups are effective in determining tax structures. The factors such as the influence of unions, cooperative memberships, wealthy homeowners, and high-income holders play significant role to explain variety of tax structures.

This study indicates that the empirical studies in showing the significance of political factors still to be improved. This is because political influence that is supposed to be measured a continuous variable, may exercise a discontinuous impact on government decision-making. Another

reason is that, in many instances, it is hard to find adequate proxies[57] for the strengths of various interest groups. Therefore, there is a need for new research that may provide new evidence and may strengthen the political economy approach of tax structures.

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[57] For instance, Hunter and Nelson (1989) argue that the difficulty of formulating proxies may lead weak performance of these variables because of difficulty of accurately capturing the influence.

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