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Flux or Fixed: Tax Reforms, Informal Economy and Foreign Investment in New EU Member States

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Abstract

The paper tries to analyze the tax reforms in new EU member states, and to understand how these developments came into existence. Despite several commonalities we argue that across country variation is very much present, especially in the areas of degree of dependence on indirect taxes as well as the share of each component in total tax revenue. Our preliminary evidence indicates that there are three identifiable groupings; Hungary, Slovenia and Czech Republic as the first, Poland and Slovakia as the second, and the rest of the countries as the third. From the clusters we claim that these differences reflect the underlying the structural characteristics of the economies, particularly the scope of the informal economy and the intensity of competition to attract foreign capital. The paper contributes to the literature in a number of ways. First, it gives a comprehensive overview of reforms and possible explanatory factors. Second, it attempts to categorize the transition countries according to the features of the tax systems adopted. Finally, it establishes a linkage between the informal sector, capital from external sources and why particular modifications were implemented.

1.   Introduction

Tax systems contain a complicated set of provisions and standards, and numerous economic outcomes are dependent on the effectiveness and efficiency of the system. In new EU member states, there have been substantial changes and revisions since the beginning of the transition. Although, the pace and the extent of reforms varied greatly across countries, all of them experienced major developments both in terms of taxation rules and administration of these rules. There were several imperatives that induce these countries to radically transform their tax rates, bases, and administration. New fiscal institutions were required to cope with a market system as well as to generate enough revenues to meet the social expenditures. As argued, the transition countries needed a wholesale renewal of tax systems rather than gradual alterations of their fiscal institutions

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since the previously established institutions were not adequate to function under the new economic regime (Tanzi, 1993).

Before the transition the regime allowed mainly three sources of revenues; enterprise, turnover and payroll while taxes on personal incomes were relatively negligible (Dabrowski and Tomczynska 2001). The governments received most of their income from the earnings of the state owned enterprises, and hence the taxes were not playing the crucial role of public finance as they do in modern economies. These countries did not have extensive tax administration given that most of the proceedings were flowing from large enterprises. Additionally, mono-banking made tax collection process to be quite smooth. There were no fixed tax rates or when they existed, they were numerous. In general, the government and enterprises negotiated the amount of payments. Thus, after transition all the countries needed to radically transform their fiscal institutions and particularly the taxation systems.

The paper tries to analyze the tax reforms in new EU member states, and to understand how these developments came into existence. By only looking at the new EU member states we try to refrain from the potentially diverse external impacts that can exist between the transition countries. There are several commonalities among these countries such as the introduction and application of three main conventional tax sources – personal, corporate, and value added. Also, more reliance on indirect taxes as the main supply of government revenue can be observed in all cases compared to the older EU members. However, the share of each component in overall tax revenues and the timing of the adaptation of the tax laws and regulations are quite divergent across countries. Besides, the dependence on indirect taxes differs substantially from one country to another. For example the share of direct taxes in overall tax expenditures reaches to 31.4% in Lithuania on average for the most recent period while this is approximately 17% in Bulgaria[1] (Eurostat, 2009). Also, the capital income taxes amount to 12.7% of all tax revenues in Czech Republic whereas in Estonia this is kept relatively low, around 5% for the same period.

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[1] However, one should note that the ratio of direct taxes to GDP in these two examples is quite similar, 14.2% in Lithuania and 14.8% in Bulgaria.

Our preliminary evidence indicates that there are three identifiable groupings; in the first cluster we have Hungary, Slovenia, Czech Republic, in the second one, the Baltic States, and in the third cluster the rest of the countries. The first group is characterized by a higher share of capital income and a lower share of value added taxes in the overall revenues. The second cluster has the highest rates and share of personal income taxes, and finally the third cluster mainly relies on taxes on consumption. From the clusters we claim that these differences reflect the underlying the structural characteristics of the economies, particularly the scope of the informal economy and the intensity of competition to attract foreign capital. The paper contributes to the literature in a number of ways. First, it gives a comprehensive overview of reforms and possible explanatory factors. Second, it attempts to categorize the transition countries according to the features of the tax systems adopted. Finally, it establishes a linkage between the informal sector, capital from external sources and why particular modifications were implemented.

Section 2 describes the current situation of taxation systems in these countries and situates them against their Western counterparts. In section 3, we look at the informal economy, investment incentives and promotions, and their relations to taxation. Section 4 applies a cluster analysis method to identify similarities and dissimilarities among the new member states. Both, components of taxation and related economic outcomes will be considered in the analysis. Also, the results of the clustering method are discussed. The last section concludes.

2.   Taxation Systems in Transition Countries

This section tries to inspect the developments in tax systems in transition countries especially looking at the changes in main sources of revenue; namely labor, capital, and value-added taxes. There have been numerous reforms since the start of the 1990s and these changes varied greatly both in terms of timing and content from one country to another. A summary of the timing in each three tax component is provided in the appendix. In this section we also incorporate a brief overview of underlying macroeconomic conditions, particularly the role of informal economy and governments' attitude towards foreign capital investments, since we claim that these are explanatory for the variation across countries.

2.1   Labor Income

During the communist regimes, the labor income tax laws were largely missing, and citizens were not 'tax conscious[2]. And at the beginning of the transition countries adopted a large number of brackets and rates, which generated some confusion and increased the difficulty of administration. Almost all countries tried to simplify the system throughout 1990s with the exception of Slovenia. Estonia, Slovakia, Lithuania, Latvia and Romania went to the other extreme and implemented flat rates. The highest rates of labor income tax for certain income brackets are in Slovenia and Hungary, 50% in the former and 40% in the latter case. Besides cutting down the differential rates the countries were also engaged in limiting the tax exemptions and deductions available to taxpayers, thus broadening the tax base (Gandullia, 2004).

With the exception of Baltic States and to a certain extent in Romania and Bulgaria there have been numerous and very frequent tax reforms. However, all the developments had a unique direction; decreases in taxes on labor income. Most of the countries by 2009 adopted flat rates while Hungary, Slovenia and Poland kept their differential schemes. Thus, the progressivity of labor income taxes is quite distinct across transition countries, flat rate countries being at the bottom of the list. One peculiar feature of all changes throughout the period is the relatively low dependence of the fiscal budgets on direct taxes. Although many countries established comparable income taxes and caps with the more developed nations in the West, over time the share of taxes on labor income in total revenues have been declining.

Although, the implicit tax rate on labor[3] is not equivalent to labor income taxes, the overall picture might give an idea of the trend of rates in the transition countries. Figure 1 shows the fluctuation of average implicit tax rate on labor over the period as well as the share of taxes on labor income in total taxes for the period of 1995-2007. In 1995, the average rate was 38.1% but went down to 35.4%, there was also a decrease in the share of the PIT revenues from 17.2% to 15%. The only country that had a rise in the

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[2] Since the citizens were not directly contributing to the fiscal budget, they were generally now aware of their own contributions to the publicly provided services (Kornai, 1997).

[3] According to Eurostat implicit tax rates are calculated as follows: "… a tax rate is calculated by dividing the revenues from taxes on a special activity or good by an appropriate corresponding aggregate tax base from national accounts statistics". For more explanation;
http://circa.europa.eu/irc/dsis/coded/info/data/coded/en/gl008798.htm

burden on labor is Czech Republic, which has one of the highest rates among all countries in the world. One explanation for the higher taxes on personal incomes in Czech Republic and to a certain extent in Hungary and Slovenia is the relatively extensive social protection policies and welfare state spending.

Figure 1. Implicit Tax Rate on Labor and Share of Labor Income Tax
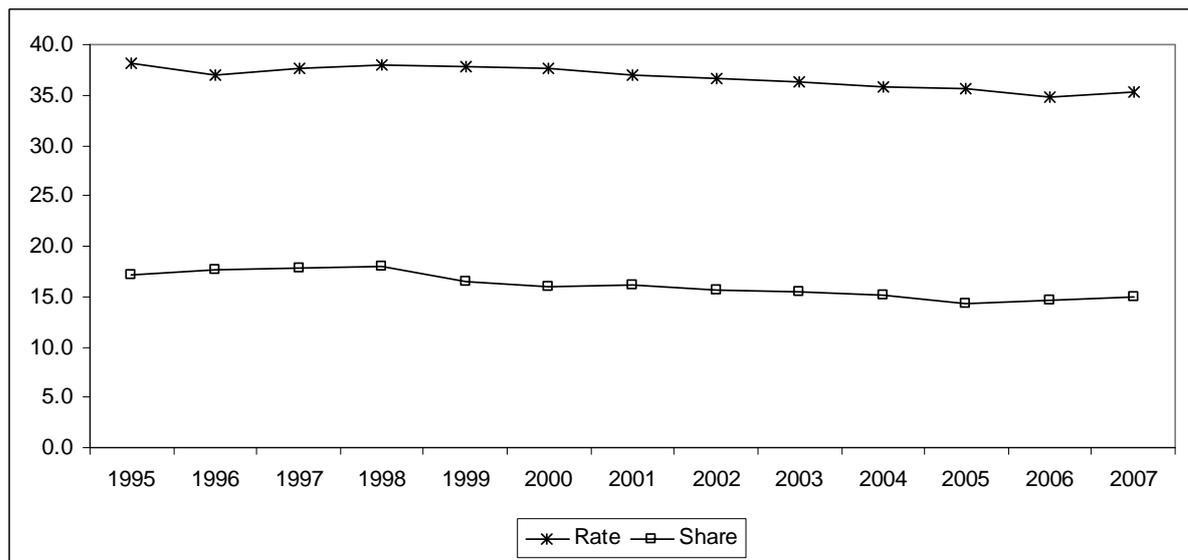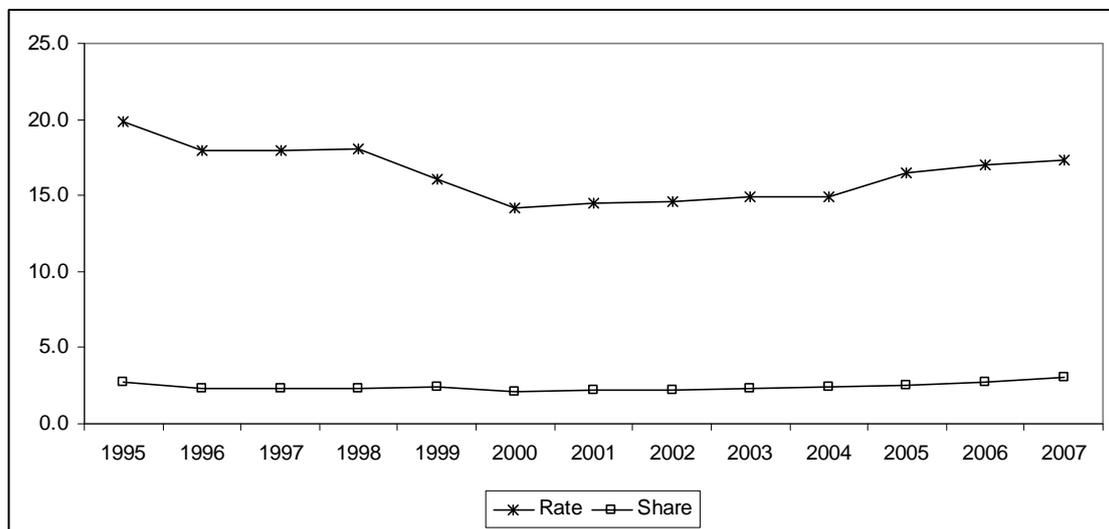

Source: Eurostat and OECD

2.2 Capital Income

Corporate taxation during the communist era was mostly in the form of enterprise profit taxation. Hungary and Poland were the pioneers of reform in this area (McLure, 1995), many deductions were possible and most of the allowances were negotiated between firm owners and government officials. The excess wage taxes[4] were quickly eliminated in the region. This type of revenue source was not viewed as conducive to enterprise growth and innovation. As a result of the big deviation of the earlier techniques from what is observed in advanced countries, the transition governments needed to restructure their ways of revenue generation via corporations after the transition but various countries tried to solve the immediate problems in different fashions. In certain

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[4] Excess wage taxes are taxes levied on wages that are above the average or commanded levels. The more efficient companies suffered more from this type of tax since they are more able to pay excess wages.

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countries, several rates were introduced while others adopted a single rate such as Slovakia and Romania. The highest average implicit tax rate on capital is seen in Czech Republic which is approximately 26%. In Estonia the capital is taxed on average for the same period by 8.68% only, other countries lie somewhere in the middle. Figure 2 presents the developments in implicit capital tax rates and shares from 1995 till 2007. As can be seen from the below graph, the implicit tax rate on capital has been on a steady decline until the first half of 2000s, then a rise is recorded. However, the share of CIT revenues is quite stable for the period under consideration.

Figure 2. Implicit Tax Rate on Capital and Share of CIT

Source: Eurostat and OECD

Most of the CIT systems made it possible to have considerable deductions and exemptions particularly for foreign investors. In this sense, almost every transition country pursued policies to attract external capital and designed numerous encouragement mechanisms as well as tax subsidies. The literature suggests that most of the competition for investment is done via reductions in tax percentages. Rivalry among governments to attract capital leads to tax competition and erodes the tax base, which in turn reduces the funds for welfare state, and simultaneously shifts taxes onto labour (Tanzi 1995). Although the tax rate on labour income is also declining, the cuts in capital taxes are relatively greater. Besides the rates, the governments can also have tax holidays

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and various other investment incentive schemes. The transition countries resorted to all of the measures to receive foreign investments especially throughout 1990s, which were cut down gradually in couple of nations like Slovakia, Czech Republic, Bulgaria and Latvia.

2.3   Value Added

Finally, value added taxation was a completely new preface for the post-communist nations given that there was much complicated turnover tax system in the pre-transition period. However, it should be noted that in some countries the transformation started already in 1980s. For example in Czechoslovakia in July 1990, negative rates of this tax were abolished and only four rates were introduced, replacing the several hundred that had been in existence previously (Mitra and Stern, 2004). Many of the reforms in this area were completed until the second-half of 1990s. After this date, most of the changes observed were about the type and number of goods and services that can be covered by reduced rates. Although, VATs are widely used by every government, there are number of pitfalls regarding the administrative costs and its regressive character (Raboy and Massa, 1989). Since there are EU regulations[5] on this domain, the transition countries needed to comply with the rules before accepted to become members. Even before the accession, the Central European countries followed the EU style VAT rather than the Russian method, which was set as a single rate. Additionally, these countries implemented excise taxes on several products such as tobacco, alcohol and petroleum.

On average, the share and rate of indirect taxes are much higher in the region than the Western Europe. The highest average implicit tax rate on consumption can be seen in Hungary, which is 24.63% while the lowest average rate is recorded in Lithuania, approximately 16%. Figure 3 summarizes the over time change in implicit consumption tax rates and revenue shares for the same period. From the figure one can observe that the rates and shares of this component oscillated much more than the taxes on labor or capital. The implicit rate went up to 22.2% in 2007 from 21.7% in 1995 while the revenue share rose from 19.3% to 25.3% in the same phase. These numbers are very much in line with the arguments in the literature since they clearly show that transition countries are putting most of the tax burden on indirect elements.

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[5] EU regulations on VAT are mainly described by the Directive 2006/112/EC.

Figure 3. Implicit Tax Rate on Consumption and Share of VAT
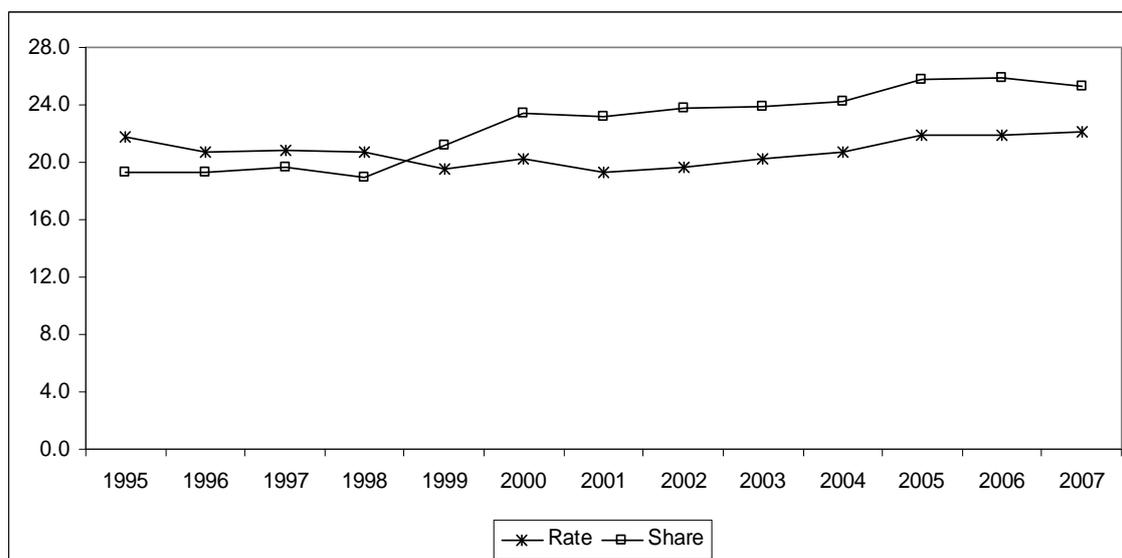
Source: Eurostat and OECD

On the whole, the new member states reveal several common features. Firstly, they have a higher percentage of indirect taxes than the old member states for every year and the gap is increasing. For example in 1995, the average revenue from the indirect taxes for the transition group was 39.5% while this was 36.5% in Western Europe. In 2007, the ratios reached to 41.4% for the new and 37.1% for the old members. Secondly, the burden on labor is slightly lower in the transition countries compared to the rest of EU; for 2007 the implicit tax rate on labour on average in EU12 was 34.13% while this was 36.33% in EU15. Nevertheless, in several countries such as Czech Republic and Hungary, the burden on labor is much higher, around 40%, which can be both detected from the higher average rates of taxation and social security contributions. Lastly, the new member states started with lower capital tax ratios and decreased them even further. In Estonia, for instance, the corporation tax on retained earnings has been completely abolished[6]. Many of the old member states like Germany, Italy and France have statutory rates between 35-40% while the highest in the transition countries is 25% in Slovenia.

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[6] Even though the tax on retained earnings have been set at zero in 2000, the statutory tax rate on capital is 26% and the average effective tax rate is around 22.5% for the most recent years.

Despite these commonalities, the transition countries varied significantly in choosing the types of the reforms applied to their fiscal institutions as well as balance between tax components. We will discuss the country groupings in terms of tax variables and probable explanations in section three. Before moving to the statistical analysis, we review the extent of the informal sector and reliance on FDI in the region. Also, we outline the reasons why the level of shadow economy and range of investment incentives can be explanatory for the cross-country groupings. The differing degrees of labor, capital, and consumption taxes as well as the balance between revenues from direct and indirect sources can be described by the initial constraints in these countries. However, contrary to the widespread association between fiscal indicators and taxation systems, we affirm that the structural barriers matter most.

3. Informal Economy and Foreign Capital

In this part we lay out our arguments about why the informal economy and foreign capital at the beginning of the transition affected the tax options of the transition governments. A larger informal economy and more eagerness for foreign capital would lead to lower capital taxes and higher indirect taxes. The shadow economy restricts the tax base, and also to motivate participants of these activities to switch back to formal sector, the governments decrease the taxes or refrain from elevating costs. For the incentives and promotions, the argument is clear. Lower corporate taxes are required to be more competitive in the capital markets. In the following parts, we first provide a very brief overview of these aspects for the region, and then discuss how they impacted the evolution of the tax systems.

3.1   Extent of Informal Economy

Informal economy can be defined as the "… output and workforce of firms not registered with the government as well as the unreported activities and workforce of registered firms" (Palmade and Anayiotis, 2005). The size and depth of informal economy in several transition countries are widely researched by employing a physical

input methodology[7] (Kaufmann and Kaliberda, 1996; Johnson et al., 1997; Lacko, 2000). In this methodology, the degree of informality is gauged by subtracting the amount of electricity needed to produce the official national income from total electrical output. However, the measurement and usage of estimates based on strict assumptions are all debated in the literature. Either the cash demand or electricity consumption approaches are deficient in identifying the true extent of informal or shadow economy. For example even when the difference between the electricity that is required for formal activities and total consumption is estimated, this figure needs to be converted into value added figures, which requires very strong assumptions. Alexeev and Pyle (2003) and Belev (2003) affirmed that the previously mentioned studies look only into the physical attributes and largely ignore the historical determinants of these activities. Moreover, the institutions coupled with legacies play an important role in shaping the shadow economy. Nevertheless, there is an agreement that in many transition countries, the extent of informal activity is rather high and in some nations it is even increasing over time.

Since one of the biggest negative consequences of having a large shadow economy is the losses in revenue, there can be dissatisfaction about the amount and quality of public goods. This might exacerbate the informality problem if more people find the taxes overburdening. In 2007, the estimated size of the informal economy ranged from 17.4% of GDP in Slovakia to 39.4% of GDP in Bulgaria (Schneider, 2009). While several countries have seen a decline in the unrecorded activities during the transition period, the others have experienced expansion in this sector, mainly Romania and Bulgaria. The trend in the rest of the new member states was a downward one but the highest contraction was around 2.8% in Latvia, which might be considered as relatively little. When we compare the average size of informal sector in transition region to Western Europe, we can see that there is a big difference. In the former set of countries the average size of informal activities reach to 29.77% while this is 16.8% in Western Europe (Schneider, 2003).

The main channel through which the informal sector can influence the tax systems is through the deterioration of the base. Starting with a very large shadow economy

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[7] These studies mainly consider the electricity consumption as a proxy for GDP in a country and estimate the size of the shadow economy based on the consumption figures.

means that the governments are constrained in raising public revenues since a large portion of the incomes –both personal and corporate- are unrecorded. There might be a variety of reasons why the informal activity is viewed more lucrative by the individuals but once they decide to move to this sector, these individuals no longer can be taxed. This, we argue, pushes the governments of these countries to mostly rely on indirect taxes and revenue generation via taxing consumption especially when they are not capable of raising the attractiveness of formal economy and pulling people back to formal employment. In the short run at least, the breadth of the shadow economy partly determines the public proceedings and governments are expected to opt for immediate solutions such as indirect taxation. Additionally, lower burden on personal and corporate incomes can be used to enlarge the tax base since these are expected to give more incentives to people to participate in formal markets.

3.2   Investment Incentives and Promotions

The other major factor that our paper claims to have an influence on tax system is the governments' willingness to attract foreign capital and investment. UNCTAD stated that the FDI incentives can be understood as "any measurable advantages accorded to specific enterprises or categories of enterprises by (or at the direction of) a Government, in order to encourage them to behave in a certain manner" and include "measures…designed either to increase the rate of return of a particular FDI undertaking, or to reduce (or redistribute) its costs or risks" (UNCTAD, 2000, p. 11). This definition points to the fact that governments can undertake various policies to appeal to foreign investors and these are different than the overall macroeconomic policies such as the fiscal system. Therefore, fiscal and financial incentives such as tax exemptions, preferential treatment of profit on exports, investment allowances, cash grants, provision of infrastructure and direct subsidies, are all included in the summary measures for policies that target more capital inflows. This broad menu of options already signal that governments have alternatives and do not have to resort to only tax incentives, however, the mobility of capital is argued to strongly increase the tax competition (Winner, 2005).

In the case of transition context, FDI is believed to have several additional contributions to the growth process. Because capital is scarcer domestically and capitalist economic relations are rather new, FDI can foster transition of the economy. Various reasons have been offered to account for the role of FDI in overcoming some of the transitional problems. Lavigne (1999) maintains that foreign capital helped to solve the restructuring troubles of previously state owned enterprises. Others mentioned the technological improvements brought by foreign firms and upgrading of exported commodities, compensation of underdeveloped domestic financial markets[8], and higher investments and advancement of skills, knowledge and managerial expertise (World Bank, 2002).

These countries managed to attract substantial amounts of investment both as a percentage of their size and compared to other regions in the world. Czech Republic received FDI equal to 6.5% of their GDP on average between 1994 and 2003 (UNCTAD, 2004). Poland and Hungary also had quite high levels while in Slovenia, the FDI played a miniscule role[9]. This can be partly explained by the incentive and promotion schemes that were put in place. The fiscal incentives include tax holidays, exemptions and other benefits that the foreign investors enjoy while the financial incentives can range from cash grants to preferential credits. Investment promotion agencies, on the other hand, provide information and services to the potential investors, and try to sell the country as a lucrative place to invest. Countries have applied differential policies to receive foreign investments depending on their preferences for incentives, which are mainly fiscal and financial versus promotion agencies. For example, in Czech Republic, the promotional activities are recorded to be quite high while these are relatively minor in Lithuania, and both countries have the same intensity of fiscal and financial incentives for FDI. Besides the mixture of the two set of policies, countries also differ in how much they care about FDI. Hungary, for instance, scored highest when it comes to fiscal and financial incentives among the transition countries while in Estonia, these types of attraction have been rather low.

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[8] For broader explanation on the technological issues and exports see Smith (2000), and for the financial market argument, see Gros and Steinherr (1995).

[9] Although, the low FDI in Slovenia can be explained by the few state enterprises for sale, the passive promotion policies were also present especially before 2000s.

We contain that incentives and promotions for foreign capital clearly indicate the governments' willingness to attract this type of investment, which would lead to lower taxes on corporate incomes. Even though the immediate tax rates might not significantly alter the flows, they act as a signal to the investors outside and exhibits governments' commitment to stimulating FDI (Morisset and Pirnia, 2000). Also, at the beginning of the transition, these countries need additional determination to show the foreign capitalists that the uncertainty is low and the country offers significant rewards in excess to risks and possible administrative and legal obstacles. However, the governments are simultaneously interested in improving domestic investment opportunities and cannot heavily tax the national corporations. Therefore, the incentive structures for domestic and foreign capital would be harmonized and transition governments would treat corporate earnings in a more lax manner. We maintain that stronger policies aimed at foreign investment at the start would result in lower tax burden on capital in general and more reliance on indirect taxes in particular.

4.   Cluster Analysis and Implications

Two clustering exercises are undertaken to identify the current tax systems' similarities and dissimilarities across countries as well as the possible linkages between these variances and structural factors. The higher share of indirect taxes and particularly low taxation on capital income can be explained by the informal sector, and incentives provided to attract foreign capital. After defining the variables used in the analysis, we move to investigate whether a match between the clusters of systems and potential underlying factors emerge. The cluster analysis is a well established an accepted method to group cases where similarities are minimized while the differences are maximized[10]. Certainly, the analysis is descriptive and explanatory in nature rather than attempting to find causal relationships between the variables.

Any statistical method that aims to classify cases is extremely sensitive to the variable selection. Therefore, it is worth to mention which series were used in our analysis and the justification for the choice. For the taxation systems we first consider the total tax revenues as a percentage of GDP since this measure is the most direct indicator

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[10] For a detailed explanation on cluster analysis, see He et al., 2005.

of the governments' ability of revenue generation. Also, it indicates whether the governments are using debt to finance their expenditures since lower tax proceedings require higher borrowing. The tax components include the average rates, share of each component in overall tax revenue as well as in GDP. For the tax rates we used the implicit tax rates on labor, capital and consumption to reflect the personal income, capital income and value added taxes. Since there are several rates involved in some of the countries, the implicit rates can provide a good summary and reflect the real tax burden more accurately. Additionally, this provides the most comparable series for all transition countries under question. The averages from 2004-2007 period is utilized in the analysis to control for the affects of European Union; moreover we are more interested in explaining the current system by the macroeconomic structure and investment choices at the beginning of the transition.

In terms of the macroeconomic underlying variables, we employed the share of informal sector as a percentage of GDP, ratio of inactivity or in other words, part of labor force that does not work but are not at their retirement age. The first measure is quite straightforward since it shows the extent of unrecorded economic activity, and a larger informal sector is argued to decrease the tax base; hence a change in the tax rates and composition. Our consideration of the inactive population at the working age emerges from the fact that particular transition countries have quite high levels of inactivity[11]. Undoubtedly to become inactive or to leave the labor market, the individuals need alternative incomes. And when the social policies are lacking to provide sufficient incomes[12] to the inactive population, we can argue that these individuals are mostly absorbed by the informal sector. For robustness checks we also cluster the countries without inactivity rates. In the area of external capital, all the transition countries from the start tried to appeal to the foreign investors and to this purpose had produced strong incentive and promotion schemes. Incentive index consists of grants, free zones, and subsidies given by governments to foreign investors while promotion index looks at the number of promotion agencies and the extent of their activity. All the data is adopted

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[11] Activity rates range from 67.2% in Romania to 49.5% in Hungary for the earlier transition years. On average the activity rates are lower than the Western European sample.

[12] Although, the social spending is quite high in several transition countries like Hungary and Czech Republic, in Baltic States the public expenditures are rather low. For instance in Estonia, the ratio of social expenditures to GDP is 12.5%, which is well below the Western and transition country averages.

from Caas (2007)[13]. The higher incentive and promotion indices generally correspond with low tax burden on capital. Since the fiscal and financial incentives generated by these countries to draw foreign capital have tax regulations and tax rates in them, we only used the investment promotion scores in our empirical section. Again for robustness purposes we also look at actual capital flows and restrictions applied. For these indicators we took the average of the period between the earliest year available in 1990s and until 1999. A certain time lag is required between the principal factors and the contemporary tax systems.

The following section presents the cluster results graphically. Figure 4 explains the three groupings which were constructed by using squared Euclidean distance and Ward method[14]. From the dendogram, we can see that there are mainly three clusters; Czech Republic (CZ), Hungary (H) and Slovenia (SV) in the first group; Poland (P), and Slovakia (SK) in the second; Romania (R), Bulgaria (B), Lithuania (LI), Latvia (LA) and Estonia (E) in the third. In the first cluster, we can see that there is a lower degree of reliance on indirect taxes and higher rates of capital income taxes. The second cluster represents the intermediate cases. Baltic countries and the most recent EU members form the final cluster which exhibits very low rates of taxation on capital earnings and a much higher share of indirect taxes in the overall revenues.

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[13] In his analysis, the overall index includes tax rates and tax breaks. Since capital taxation is a dependent variable in our paper, we leave out the tax related measures when computing the incentive and promotional indices.

[14] Ward's method estimates the dissimilarity between any two clusters by the loss of information from joining the two clusters. The loss of information is measured by the increase in error sum of squares.

Figure 4. Dendrogram for Tax Variables
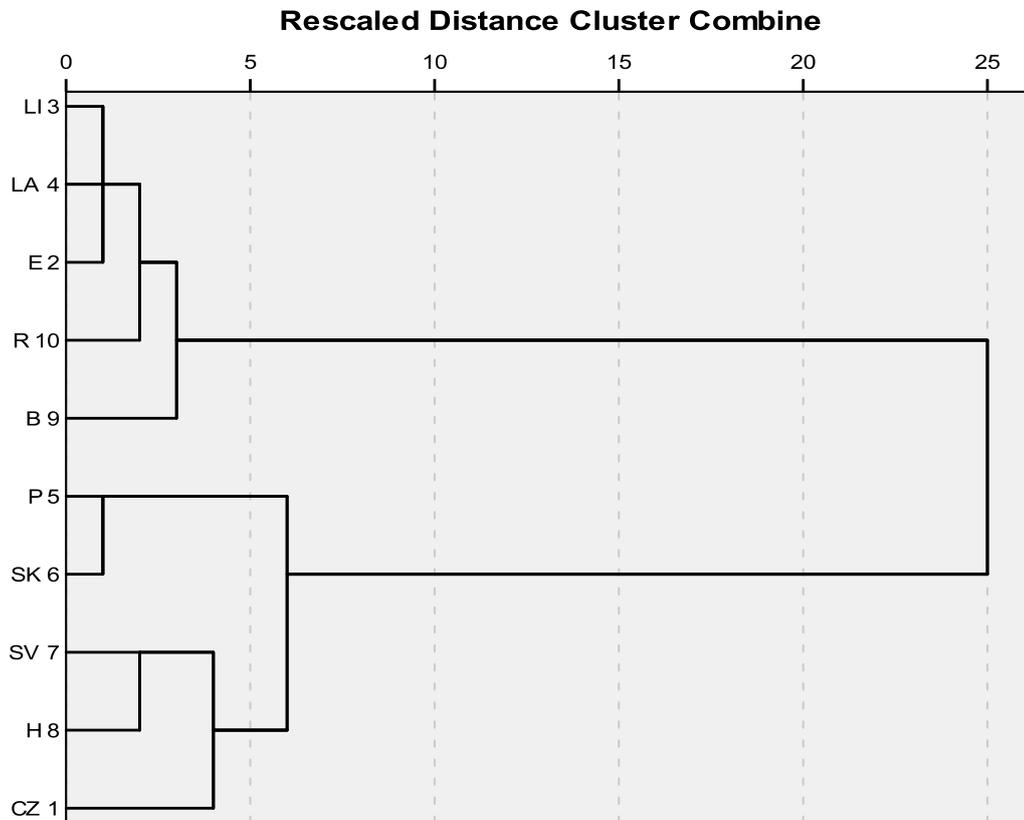
Table 1 looks at the mean values for each variable and Table 2 presents the mean differences of each country groupings. The mean implicit tax rate on labor and capital in cluster 1 is much higher than the other two, indicating the importance of direct taxes. This can be also seen from the shares of each tax category among total taxes. Between Cluster 2 and 3, the implicit rate on labor is same but there is a big divergence among implicit tax rate on capital. As can be seen from the table 2 the greatest difference between the groups comes from the share of value added taxes and implicit rate on capital given the largest divergence of mean values. The lowest differences emanate from the share of taxes on capital indicating that all countries in the region put a relatively lower burden on this type of income.

Table 1. Cluster Means

	Cluster 1	Cluster 2	Cluster 3
Implicit Rate on Labor	39.3	33.0	33.0
Share of PIT/Total Taxes	14.9	10.8	16.2
Share of PIT/GDP	5.7	3.5	4.3
Implicit Rate on Capital	21.6	19.8	10.7
Share of CIT/Total Taxes	8.7	8.3	7.8
Share of CIT/GDP	3.3	2.7	2.4
Implicit Rate on Consumption	24.1	20.5	20.2
Share of VAT/Total Taxes	20.9	24.0	28.4
Share of VAT/GDP	7.9	7.7	8.7

Table 2. Cluster Mean Differences

	C1-C2	C1-C3	C2-C3
Implicit Rate on Labor	6.4	6.3	0.0
Share of PIT/Total Taxes	4.1	-1.3	-5.4
Share of PIT/GDP	2.2	1.4	-0.8
Implicit Rate on Capital	1.8	10.9	9.1
Share of CIT/Total Taxes	0.4	0.9	0.5
Share of CIT/GDP	0.6	0.9	0.3
Implicit Rate on Consumption	3.6	3.9	0.3
Share of VAT/Total Taxes	-3.1	-7.6	-4.4
Share of VAT/GDP	0.2	-0.8	-1.0

Figure 5 repeats the clustering exercise for the informal sector and incentives for foreign capital. Still we observe three clusters but there is reordering of several countries. The first cluster has still Czech Republic and Hungary but Slovakia and Poland are also categorized here. In the second cluster we see, Lithuania, Slovenia and Romania. The third cluster includes Estonia, Latvia and Bulgaria. These results show that there is a match between the extent of the shadow economy and willingness to attract foreign capital and tax systems, however, the overlap is far from perfect. Lithuania for example compared to other Baltic States has less informality while Romania and Bulgaria have extremely big informal sectors. These results do not change when non-employment rates are not included; nevertheless the results are not robust when we consider the restrictions on capital flows. This might suggest that while some countries encourage investment

promotion agencies, they at the same time have several restrictions on capital movements.

Figure 5. Dendogram for Informal Economy and Foreign Investment

Table 3 presents the mean scores for each cluster. The share of informal sector and the rate of non-employment are highest in the third cluster whereas the first cluster has the greatest promotional activities on average. Both the restrictions and the actual capital flows are also the highest in this group indicating that the despite the qualitative limitations capital continued to come to these countries. Finally, the investment promotion activities are most extensive in the first cluster meaning that these nations attempted to draw external capital by convincing the potential investors.

Table 3. Cluster Means for Structural Variables

	Cluster 1	Cluster 2	Cluster 3
Informal	22.67	30.6	38.4
Non-employment	42.5	40.1	46.54
Promotion	2.77	1.87	2.23
Capital Flows	43.98	44.29	58.74
Restrictions	70.31	62.64	71.9

5.   Conclusions

In this paper, we evaluated the tax systems in the new EU member states by tracing the important reforms in three main components of government revenue sources; personal income, capital income, and value-added taxes. From early on, all countries adopted Western tax systems and radically transformed the previous regimes' fiscal institutions. The transition countries share a number of common features in comparison to the old EU member states. Firstly, the direct taxes have a lower percentage in total tax proceedings. Secondly, the burden on capital earnings is relatively lower than the Western European standards. And finally, some of the countries in the region levy higher rates on personal incomes and especially on labor. Overall, the implicit tax rates on capital tend to be below while implicit tax rates on consumption is above the EU averages.

Nevertheless, these countries experienced distinct changes in the fiscal realm, and from the very beginning of the transition implemented a variety of policies, which led to discrepancy across countries in terms of the share of each component in total tax revenues as well as the balance between direct and indirect sources. We identified three clear clusters; Hungary, Slovenia, Czech Republic in the first, Poland and Slovakia in the second, and Romania and Bulgaria and the Baltic States in the third group. In the first cluster, we can see that there is a lower degree of reliance on indirect taxes and higher rates of capital income taxes. The second cluster represents the intermediate cases. Baltic countries form the final cluster which exhibits very low rates of taxation on capital earnings and a much higher share of indirect taxes in the overall revenues.

The visible differences between the countries is argued to be related to the underlying the structural characteristics of the economies, particularly the scope of the

informal economy and the intensity of competition to attract foreign capital. Informality cuts down the tax base in a country since many individuals and firms escape from the formal regulations. Also, since the governments would like to motivate actors to be relocated in the formal sector, taxes cannot be increased. In the case of incentives and promotions for foreign investments, the link is obvious. The foreign investors prefer lower taxes everything else being equal; hence states compete on the basis of this in the capital markets. Nevertheless, these countries also have other structural differences such as the underlying macroeconomic variables and the extent of their integration into the world commodity and capital markets. For instance, Baltic States and Poland suffer from high levels of unemployment throughout the transition, which reduced the income tax yields. Additionally, the share of service versus industrial sectors in the economy is distinct among the new EU member states, which affect the rate of capital taxation.

Certainly, the cluster analysis is far from revealing the causal links between the macroeconomic conditions and tax systems. It merely tries to show the possible connections between these two sets of variables. Traditional regression techniques can be employed to investigate the concrete channels; however there are some data shortcomings and endogeneity issues that might impede the quality of regression techniques. Further research can try to overcome these difficulties as well as try to inspect if the stated relationships hold for other countries, especially other developing and post-communist nations who saw significant changes in their tax systems as well. Another addition can be analyzing the effects of tax systems on informal sector and foreign capital.

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Appendix

Table A1. Major Tax Reforms in Personal Income, Corporate Income, and Value Added Taxes

Country	PIT	CIT	VAT
Czech Republic	1994: 6 rates 15, 20, 25, 32, 40, 44% 1996: abolition of 40% rate 1997: abolition of 44% rate, restoring of 40% rate 2000: abolition of 40% rate 2008: flat rate 15%	1991: 55% 1993: 45%; 1994 – 1998 gradual reduction of the rate to: 35% 2000: reduction of the rate to 31% 2004: 28% rate 2008: flat rate 20%	1993: standard rate 23%, reduced rate 5%; 1995: standard rate reduced to 22% 2004: single 19% rate, lowering of registration threshold
Estonia	1993: 3 rates 16, 24 and 33% 1994: flat rate 26%	1991: 3 rates 15, 23 and 30% 1992: single 35% rate 1994: rate lowered to 26% 2000 – abolition of the tax	1991: 10% rate 1992: standard rate 18%, 1994: limiting of exemptions 2000: reduced rate 5%
Lithuania	1991: rates from 18 to 33% 1994: single 33% rate	1991: basic rate 29% 2000: rate lowered to 24%	1994: VAT basic rate 18%, reduced rate 9% 2000 – reduced rate 5% 2001 – second reduced rate 9%
Latvia	1991: 5 rates from 15 to 35% 1997: flat rate 25%	1991: 3 rates 15, 25 and 35% 1993: basic rate 25% and higher rates for financial sector and trade 1995 – single 25% rates 2001– rate reduced to 22%	1992: 10% turnover tax 1992–1993 rate raised to 12% and 18% 1995: VAT standard rate 18% 2003 – reduced rate 9%
Poland	1991 – 3 rates 20, 30 and 40% 1994 – rates raised to 21, 33 and 45% 1997–1998 – top rate reduced to 44% and 40% 1999: 3 rates 19, 30 and 40%	1992 –40% rate, 1998–2002 – gradual reduction of the rate to 27% 2004– rate lowered to 19%	1993: standard rate 22%, reduced rate 7% and numerous exemptions, 1994–2002 – gradual curtailing of exemptions

Slovakia	1993: 6 rates from 15 to47%; 1994: top rate reduced to 42%; 1999: 7 rates from 15 to 47%; 2001: top rate reduced to 42%; 2002: 5 rates from 10 to 38%; 2004: flat 19% rate	1993: 45% rate; 1994: rate reduced to 40%; 2000: rate reduced to 29%; 2001: rate reduced to 25%; 2004: rate reduced to 19%	1993: standard rate 23%, reduced rate 6%; 1999: reduced rate raised to 10%; 2003: standard rate 20%, reduced rate 14%; 2004: single 19% rate
Slovenia	1993: 6 rates 17, 35, 37, 40, 45 and 50%,	1994: 30% 1996: 25%	1999: standard rate 19% reduced rate 8% 2002 –reduced rate 8,5%
Hungary	1988: 10 rates: 20, 25, 30, 35, 39, 44, 48, 52, 56 and 60% 1990: 4 rates 15, 30, 40, 50% 1992: 3 rates: 25, 35 and 40% 1994: 2 rates added: 20 and 44% 1997: 6 rates: 20, 22, 31, 35, 39, and 42% 1999: 3 rates 20, 30 and 40%,	1989: 40 and 50% rates 1990: rates reduced to 35 and 40% 1991: 40% rate 1994: 36% 1995: 18% rate; 2002: limiting of investment deductions with turnover up to 15 million HUF, 15% rate 2004: 16% rate	1988: 3 rates 0, 15 and 25% 1993: standard rate 25%, reduced rate first 6, then 10% 1995: reduced rate raised to 12%
Bulgaria	1992: 6 rates 20%, 24%, 28%, 32%, 36% and 40% 4 rates from 20% to 40%, 2002: rates from 0% to 29% 2008: flat rate 10%	2000: 25% rate, 20% for small businesses 2002: 23.5% rate 2008: flat rate 10%	1994: 22% rate, 1999: reduced to 20%; exemptions
Romania	2003: 5 rates: 18%, 23%, 28%, 34% and 40% 2005: 16%	Up to 2000: 38% 2000: 25% rate 2005: 16%	1993: 22% rate and 11% reduced rate; 2003: 19% rate and 9% reduced rate, exemptions: financial and public utility services

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