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JEEIR

Journal of Emerging Economies and Islamic Research

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Institutional Determinants Of Tax Buoyancy In Developing Nations

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Abstract

This study was conducted to examine the role of institutions on tax buoyancy in a set of developing nations. The analysis of 50 nations from the time period 1996-2013 indicates that mostly institutional factors such as bureaucratic efficiency, rule of law, corruption are affecting negatively to the tax collection in these regions. Revenue from indirect taxes is more sensitive to these non-economic factors in a society. Moreover, the study suggests that nature of relationship between tax buoyancy and institutional characteristics of the system is sensitive to different categories of political regimes i.e. Democracy and Autocracy. Results showed that democracy is affecting positively to the tax collection while autocracy is having negative impact in each case i.e. direct, indirect or total tax revenues. But in autocratic regimes, proportion of indirect and direct taxes in total revenue is more than in case of democracy. Findings help to suggest that efforts should be made to democratize the political system mostly in developing world so that more and more tax revenue generation could be made possible.

Key words: Corruption, Taxes, Government Regulation, Democracy, Panel Data, Accountability

1: Introduction

Tax Bouyancy is a term used to measure and show the rate of responsiveness of taxes due to increase in Gross Domestic Product (GDP) of any nation i.e. how much tax revenues and collection is increasing due to increase in national income a nation. If the responsive rate is positive then tax system is said to be buoyant and efficient. Unfortunately developing countries are lacking this tax buoyancy in their tax systems due to less know how about tax culture. Reluctance and avoidance is also due to institutional structures of these developing economies. Hence it has been observed now that such low level of tax collection is not mainly due to lesser level of incomes rather its mainly because of many institutional hindrances which create blockade into the economic system. This is the reason that now a days Institutions are on the

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forefront of economic analysis. Therefore this study attempts to evaluate tax buoyancy not relative to GDP growth but with respect to institutional features i.e. how much these are facilitating tax collection in those nations which suffers from poor performance of their institutional set ups. A lot of literature examines the relation between particular institutions and growth. Eventually, it can be concluded that the importance of institutions is well acknowledged and being studied persistently in everyday economics within the framework of New Institutional Economics. On the other side, Romer (1986) "Endogenous Growth Model" has established that by reducing fiscal imbalance, growth can be achieved. It can be achieved either by increasing tax revenue or lowering expenditure.

Most developing countries want to be globalized so that they can integrate with international economy. However, they have to face extensive challenges in this recognition among which the most burning issue is to raise tax revenue. For increasing real GDP growth rates and per capita income, Taxation is one of the most flexible ways. It is also used to shift resources from private to public use and is considered most efficient domestic tool for the government to meet the social, political and economic goals. Moreover tax revenue can be used for various purposes such as to assign the power to the government for resource allocation, to stabilize the economy, to define market places, for provision of social development and optimal economic growth. Over the past several decades, the fiscal deficit has been a very crucial issue in most developing countries. The reason of this imbalance remained low tax revenue collection and excess increase in current expenditures by their governments. Such excess expenditures can be controlled if there is a proper check and balance in the system. And this check and balance comes through proper institutional infrastructure which could make accountable everyone for their deeds. But unfortunately developing nations are prey to their 'poor institutional trap' which is not letting them to remove such barriers to economic growth. Size of informal sector is a major attribute of developing nations in this regard. Reliance on this sector reduces the dependence on definite modern taxes like individual income tax or at whole sale level value added taxes. Informal activities contribute large share to production but they consist very small profit. However strong Tax administration may bring down tax evading entities.

Numerous studies have put a glance on institutions as determinants of revenue. Ghura (1998) found that corruption and structural reforms affect tax ratio. A rise in corruption is link with low tax revenue. For instance, Bird et al. (2004) investigate the revenue performance determinants are regulations, rule of law and corruption. Literature largely investigates the relationship between public policy and democracy. Democratization may influence the need of electorate through high taxes and higher spending (Meltzer & Richard, 1981). Democratization is positively related to the tax revenue as well indirect taxes (Boix, 2003; Kenny & Winer, 2006). Degree of political stability and corruption are important determinants of tax revenue (Bire et al., 2008; Gupta, 2007). Gupta (2007) found that the important factors which cause variation in resource mobilization of developing countries are tax revenue i.e. direct tax, indirect tax, economic as well political stability and law and order. According to report of IMF (1988) effective tax administration depends on some factors such as; a predominant money economy, a high literacy rate to provide better options for policy makers, Reliable accounting , a political system which is not dominated by wealthy people. Political factors are salso major hinders in tax policy of many countries. Successful reforms programmers suggest that a strong political will and commitment from leaders at government level is essential for tax system.

Hence it is evident from all this discussion that both taxes and institutions have a key role in any economic system. Therefore it is essential to estimate institutional determinants of tax buoyancy for those nations which are facing these institutional lapses in their economies and that's why suffering from lower tax revenues. This study aims not to find the relationship between institutional structure and tax buoyancy in these nations only rather it also intends to analyse this relationship between tax collection and institutional structures political regime wise i.e. Democracy and Autocracy.

1.1: Hypotheses:

H_1: Tax collection is sensitive to the political regimes and their institutional features.
H_2: Tax system of developing nations is regressive in nature.

2: Literature Review

Numerous researches have been conducted to study the impact of institutions on tax buoyancy.

Friedman et al. (2000) established a relationship between institutions and unofficial economy in different countries such as OECD, Latin America, formally Communist Countries of Eastern Europe and the FSU. Results indicated that poor institutions are a cause to destabilize the tax base into the unofficial economy. Tax revenue as a percentage of totals GDP reduces because entrepreneur goes under ground to lessen the burden of bureaucracy and corruption. It was concluded that comparatively uncorrupt governments can sustain high tax rates while, corrupt governments eventually becomes small governments.

Eltony (2002) also examined the determinants of tax efforts in 16 Arab countries for the period 1994-2000 by using pooled time series and cross sectional country data. Findings showed that main determinants of tax revenue share of GDP were share of mining in GDP, share of agriculture in GDP and per capita income. Additionally, share of imports, exports and outstanding foreign debt were other variables which were considered to be very important determinants. But when country specific factors were being added such as government attitude, quality of tax administration, political system and other government institutes appear important determinants of tax share as well.

Upender (2008) found that the gross tax buoyancy estimate was above unity during pre-tax reform period which showed that during pre-tax reform period, ratio to gross tax revenue to GDP was increasing along with an increase in GDP. While, the condition was reverse during post tax reforms. Additionally, it was less then unity during post tax reforms.

Bird et al. (2008) emphasized that in developing and developed nations, State is an essential factor for satisfactory level of tax efforts. Level of taxes can be enhanced by improving voice and accountability and control of corruption. Estimated results suggested that by means of improved institutions, high income countries can improve their tax performance.

Chaudhry and Munir (2010) empirically examined the determinants of low tax revenue in Pakistan. Empirical findings suggested that narrow tax base, low level of literacy, foreign aid, heavy dependence on agriculture sector and narrow tax base were determinants of low tax revenue. Additionally, broad money, trade openness and political stability were significant determinants of tax efforts in Pakistan.

Attiya and Umaima (2012) indicated that institutional factors such as bureaucratic quality, law and order and control of corruption had a significant and positive impact on tax revenue. In the same way, Garikai (2009), Qazi and Sulaiman (2010), Bonga (2009) empirically examined the determinants of tax buoyancy. Results suggested that tax buoyancy is negatively associated with monetization and other variables such as growth in agriculture and industrial sector, growth of fiscal deficit, growth of total expenditure and external aid growth can affect tax buoyancy in developing countries.

Profeta et al. (2013) recently investigated the relationship between tax revenue and political variables. They used socio-economic, political and fiscal variables as potential determinants of democracy. Others crucial variables were protection of civil liberty and political strength of democratic institutions. Empirical finding suggest significant correlation between taxes and political variables. According to country's fixed effect results, there was no significant relationship between taxes and democratic institutions.

Flachaire et al. (2013) also examined that political institutions are the main determinants of growth and economic institutions and other variables affect growth in context of institutions. Their results shed light on how in autocratic regimes, economic performance is highly sensitive to policy choices. Political institutions play a vital role to determine growth rates indirectly while, economic institutions are direct determinants of growth. Keeping in view all these past findings, now this study attempts to analyze the importance of not only quality of institutions rather incorporating the effect of various political systems in the revenue generation process of developing nations.

4: Methodology

4.1: Methodology

The general functional form of the model used in the study is as follows,

Tax Buoyancy = f (Institutions)

Here variable institutions cover various characteristics i.e. Regulatory Quality, Government Effectiveness, Rule of Law, Voice & Accountability, Control of Corruption, Democracy and Autocracy. Previously tax buoyancy has been studied by researchers (Leuthold & N'Guessan; 1986) w.r.t. the growth of national income of the nations but no such attempt has been made to incorporate these institutional factors which actually inculcate the tax culture in societies. Hence considering those factors one of the most responsible reasons for low taxation in developing nations, this study formulate these three empirical models;

$$\textbf{(Direct Taxes)}_{i,t} = \alpha_0 + \beta_1 \,\textbf{(Institutions)}_{i,t} + \varepsilon_{i,t}$$

$$\textbf{(Indirect Taxes)}_{i,t} = \alpha_0 + \beta_1 \textbf{(Institutions)}_{i,t} + \varepsilon_{i,t}$$

$$\textbf{(Total Revenue)}_{i,t} = \alpha_0 + \beta_1 \,\textbf{(institutions)}_{i,t} + \varepsilon_{i,t}$$

Pooled Ordinary Least Squares (OLS) estimation technique has been used for knowing the tax buoyancy with respect to institutional parameters. It is considered that this technique gives very consistent estimates for linear regression models. Here $\alpha_{0'}$ s are the constant terms while β_1;s are the parameters to be estimated. $\varepsilon_{i,t}$ are the error terms of which average is assumed to be zero. Each Model will be estimated for two regimes i.e. autocratic and democratic regime. Moreover to check whether the data contains either country specific or time specific effects F-Test has been applied. The basic purpose behind using it to make the choice between pooled OLS and fixed effect models in case of panel data. Its null hypothesis states that individual specific effects are not present and If H_0 is rejected under the F-test, then it means fixed effects are present in economic series and better is not to apply pooled OLS technique because estimates become biased in this way. Same procedures have been done for the analysis of data in this study too and F-Test supported pooled OLS estimation technique concluding that fixed effects are not present in these economic series.

4.2: Definition of Variables and Data Sources:

Panel data has been used for regression analysis of 50 developing countries for the time period from 1996 to 2013. Among the explanatory variables institutional variables such as Government Effectiveness, Regulatory Quality, Rule of Law, Voice and Accountability, Control of Corruption, Institutional autocracy and Democracy capture the role of quality of institutions. Data on these factors are taken from World Governance Indicator (WGI) and for measuring the extent of democracy and autocracy in political regimes, Data set of Political Institutions (DPI) is being used. Dependent variables being used in the study to observe the bouyoncy of taxes are Overall Tax Revenue, Direct tax (income tax), Indirect tax (sales tax). These are being extrscted from international financial Statistic (IFS).

5: Estimation of Results

To start the estimation procedure, first step is to know about the descriptive analysis of the dataset. Table 1.1 illustrates the summary statistics of all variables being used in the study. Such analysis helps in knowing whether the data being used in the study is balance, normality condition is getting fulfilled or detection of outliers in the the collected observations.

Table 1.1: Descriptive statistics with indirect taxes

Variables	Mean	Std. dev	Minimum	Maximum	Observations
Indirect Tax	11.4824	9.81027	-1.3	25.5	900
Direct Tax	21.93	10.627	9.9764	53	900
Total Tax	27.51079	12.79605	5.5	51.4	900
Government Effectiveness	.1925943	1.112527	-2.45	2.26	900
Ragulatory Quality	.2940121	1.073143	-2.53	2.12	900
Rule of Law	.0993967	.9855328	-2.11	1.96	900
Voice & Accountability	.1038311	1.090093	-2.28	4.08	900
Control of Corruption	-.2386275	1.017533	-3	2.46	900
Democracy	7.776772	3.356232	0	10	900
Autocracy	1.061934	2.396562	0	9	900

5.1 Estimation Results Direct Taxes

Now proceeding a step ahead, In this section the Baseline Model is being applied using Direct Taxes. For this purpose two models have been estimated using two political regime effects i.e. democracy and autocracy separately. This has been processed by applying OLS regression method for this equation:

$$\mathbf{DT_{i,t} = \alpha_0 + \beta \text{ institutions}_{i,t} + \varepsilon_{i,t}}$$

Where Direct Taxes are taken as income tax for country i collected in time period t. This variable has been regressed against various factors describing the quality of institutional infrastructure under both regimes. Results are given below in Table 1.2.

Table 1.2: Dependent variable: Direct tax (income tax)

Variables	**Model 1**	**Model2**
Constant	9.8308*** (0.000)	23.2585*** (0.000)
Government effectiveness	-.4379 (0.249)	-.1683 (0.691)
Regulatory quality	-.4667 (0.278)	-.8768* (0.068)
Rule of law	. -1.8719*** (0.000)	-2.0520*** (0.000)
Voice and Accountability	.8746** (0.016)	1.2415* (0.002)
Control of Corruption	-1.2205* (0.001)	-.7313* (0.077)
Democracy	1.5600*** (0.000)	-
Autocracy	-	-1.0728*** (0.000)
Number of observations	900	900
Countries	50	50
Sample period	1996-2013	1996-2013
R square	0.27	0.10

*** Significant at 1%, ** significant at 5%, * significant at 10% respectively. P-values are in the parentheses.

From the Table 1.2, it can be seen that two models have been run to evaluate the impact political regimes and their institutional structures on the tax collection in these developing nations. Results show that democracies and their institutional features are affecting more positively to the direct tax revenues as compared to autocracies confirming to the findings of Glaeser (2004) that autocratic regimes consume a bigger amount of resources but the direction is totally devoted to political supporters. So autocracy shows a negative tendency towards direct tax collection. Except voice and accountability, all other governance related factors are negatively affecting this tax collection in these nations and the intensity of being negative in relationship gets more in case of autocracies. It means that autocray is appearing as one of the prominent causes for the collapse of policies and rules. Government effectiveness in both cases is showing no impact on the tax collection for developing nations which is proving that in these nations political systems does not have this much credibility and this is the reason that citizens remain reluctant in paying taxes and showing cooperation with their governments. Regulatory quality is showing negative but insignificant impact on direct taxes in case of developing nations but it becomes significant in case of autocracies showing that autocratic ruler has more authority in regulating the system as compared to a ruler of democracies. And this is also one of the reason that at the initial stages of development, autocracy is being advised as a good choice for developing nations. Rule of law is showing negative and significant impact on direct tax in both cases. This is because of the reason that frequent, unpredictable and non- transparent changes in law, are quite in practice to benefit influential groups in these nations. All this makes nature of relationship negative. Accountability leads to more tax collection but in absence of accountability, public officials use their position for private interest and do open corruption. Mysterious decision making in government is very common in these developing nations. And this is why that this variable is showing inverse relationship with tax collection in this panel. Value of R square is showing that 27% variation in dependent variable is due to democracy and its related institutional features while only 10 % these factors are contributing in tax collection to GDP for autocracy regime.

5.2 Estimation With Indirect Taxes:

Here the same process has been done but after incorporating indirect tax in the equation given above. Using the same methodology and proposed variables, the results are given below in Table 1.3.

Table 1.3: Dependent variable: Indirect tax (Sales tax)

Variables	**Model 1**	**Model2**
Constant	-2.769*** (0.001)	12.5540*** (0.000)
Government effectiveness	-.4183 (0.196)	-.1517 (0.690)
Regulatory quality	.5127 (0.162)	.1181 (0.784)
Rule of law	-1.3701*** (0.000)	-1.5690*** (0.000)
Voice and Accountability	.9556*** (0.002)	1.3971*** (0.000)
Control of Corruption	-2.0868*** (0.000)	-1.6074*** (0.000)
Democracy	1.7642*** (0.000)	-
Autocracy	-	-1.3802*** (0.000)
Number of observations	900	900
Countries	50	50
Sample period	1996-2013	1996-2013
R square	0.3848	0.1466

*** Significant at 1%, ** significant at 5%, * significant at 10% respectively. P-values are in the parentheses.

Here the same exercise has been done for taking indirect taxes as dependent variable. Again two models are being run i.e. one for democracy and the other for autocracy. R- Square of both models shows improvement in its value and this confirms the perception about developing nations that these have more reliance on indirect taxes. All the signs of variables are in the same direction as in the case of Models for Direct Taxes. And again the impact of democracy and its institutional indicators are affecting more to the tax collection as compared to autocracy. F statistics are highly significant in both cases which depicts the overall goodfit of the model.

5.3 Overall Tax Revenue:

After evaluating the impact of various institutional factors separately on the tax collection from direct and indirect taxes , now here the same effect of institutional framework has been tried to analyze for overall Tax revenue.

Table 1.4: Dependent Variable= Overall Tax Revenue

Variables	**Model 1**	**Model2**
Constant	8.3095*** (0.000)	13.7405*** (0.000)
Government effectiveness	1.0509*** (0.000)	1.1244*** (0.000)
Regulatory quality	-.5028 (0.182)	-.5526** (0.060)
Rule of law	. 1.3071*** (0.000)	1.4080*** (0.000)
Voice and Accountability	-.4001 (0.101)	-.3306 (0.184)
Control of Corruption	1.2079*** (0.000)	1.4595*** (0.000)
Indirect tax	.8516*** (0.000)	.9336*** (0.000)
Direct tax	.1503*** (0.000)	.1842*** (0.000)
Democracy	.8039*** (0.000)	-
Autocracy	-	-.7472*** (0.000)
Number of observations	900	900
Countries	50	50
Sample period	1996-2013	1996-2013
R square	0.785	0.248

*** Significant at 1%, ** significant at 5%, * significant at 10% respectively. P-values are in the parentheses.

In this Table not only the effect of both political regimes and their institutional setups have been evaluated for overall tax revenue collection but also whether tax system is regressive or progressive in nature for both type of developing nations. Findings proved that in both types of regimes for these set of developing nations, the role of indirect taxes is more prominent than direct taxes confirming that tax system is regressive in these nations. But discussing individually these taxes in both Models then we see that in autocratic regimes the coefficient becomes large as compared to democracy (showing autocracies more regressive in nature). Here one more very visible change can be seen that in case of overall taxation, the impact of government effectiveness and control of corruption becomes positive. R-square of both models explain that it is democracy in which economic systems can collect more revenues through taxes relative to autocracies. In democracy taxpaying individuals directly participate in political process by having a right to vote because due to more accountability and transparency it encourages tax payer's confidence and decrease tax evasion level (Torgler, 2003; Torgler, Schaltegger, & Schaffner, 2003). Hence, it contributes to more progressive policies such as public goods transfer along with rich poor nexus (Tonizzo, 2008). Moreover share of direct taxes are 85 % while indirect taxes contribute only 15% in overall tax collection. It is evidence from massive literature that direct taxes contribute very little to tax collection in developing countries. This is due to lack of tax administration and complexities in tax system. All other variables are highly significant at 1% level of significance. Value of R square is 0.785 in model of democracy which shows that all these variables are explaining about 79% variation in dependent variable collectively. F statistics is highly significant. value which depicts that model is overall a good fit. In model 2 we regress overall tax revenue with same explanatory variables but for autocratic regimes then the results show the same trend as in case of model 1. In both models, impact of government effectiveness is significant and has positive impact on tax revenue. Accountability and regulatory quality is again showing negative impact on overall taxes in case of these nations. It is clear from Table 1.4 that regulatory quality is significant with 5% level of significance however, voice and accountability is insignificant due to above mentioned reasons. Rule of law, control of corruption, direct tax, indirect tax and autocracy all are significant at 1%. Moreover it can be seen that autocracy is contributing only 74% whereas democratic regime contributes 80%. So it is can be concluded on the basis of these results that in institutional features of democracies are more conducive for revenue generation from tax than autocratic natured institutional setups. Again F- statistics is highly significant which shows overall goodness of fit. Value of R square is again 24% here showing that only 24% variation in total tax revenue is explained by explanatory variables. Rule of law is contributing more than any other explanatory variable so it is concluded that if proper attention is being diverted in improving justice and court systems for accountability then fear of punishment can bring more and more people into tax nets in these nations.

6: Conclusion and Policy Recommendations

From the results of the study it is evident that institutions are acting as a backbone of any society. A comprehensive social and economic development is based on institutional development and efficient and competitive tax system. Taxes also play a vital and significant role in economic development. The revenues collected through different taxes help in improving the pace of development in nations. So if tax administration is not serving efficiently in economies then it means that there must exist some loophole in roadmap of the system. This study fetches these two strands of the literature and make an effort to see either they both have some significant impact on each other or not by employing Pooled Ordinary Least Squares technique for 50 cross sections from the time period 1996-2013. Motivation of study is to address lack of tax administration and institutional inefficiencies in these nations. Proxies of tax buoyancy are direct taxes, indirect taxes and total tax revenue. We use income tax as direct tax while sales tax for indirect taxes. Total tax revenue is selected as percentage of GDP. Institutional proxies contain political and governance variables such as governance effectiveness, regulatory quality, rule of law, voice and accountability, control of corruption, institutional autocracy and democracy. Results shows that in democratic political systems, institutional factors are contributing positively to the tax collection while in autocratic regimes, these are affecting negatively tax revenue generation. However all these features are contributing negatively to the tax collection of these nations. This confirms the first hypothesis of the study that institutional frameworks of different political systems matter in collecting taxes from economic system. Moreover contribution of Indirect tax in total tax collection is more as compared to direct taxes in the model specification with total tax collection. These findings confirm that the tax system of these nations is regressive in nature confirming the second hypothesis of the study. On the basis of these findings, it is recommended to the policy makers that to increase the revenues better is to focus on the institutional reforms in society. These reforms ultimately bring cultural change in the mindsets of people due to better governance and improved rule of law. Citizens in this way will feel more protected and sure about where their money is going because better governance will lead to more accountability of every person belonging to the system. Less feared and more protected citizens will contribute positively in the building of society. Moreover it has been observed that democratic systems are having more accountability and court systems as compared to autocratic regimes therefore developing countries should try to reform gradually their systems i.e. transformation from autocratic nature to democratic governments.

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Sample of Developing nations used in the study

Autocratic Nations	**Democratic Nations**
China	Bulgaria
Colombia	Chile
Egypt	Costa Rica
Ethiopia	Ecuador
Guatemala	India
Iran	Indonesia
Jordan	Latvia
Kazakhstan	Madagascar
Kenya	Malawi
Korea	Malaysia
Kirgizstan	Mauritius
Morocco	Mexico
Nepal	Mongolia
Oman	Panama
Pakistan	Peru
Qatar	Philippine
Russia	Poland
Saudi Arabia	Romania
Tunisia	Senegal
Yemen	Singapore
Armenia	South Africa
Azerbaijan	Srilanka
Cameroon	Thailand
	Trinidad and Tobago
	Turkey
	Ukraine
	Venezuela