THE ROLE OF FISCAL SPACE IN ATTRACTING FDI

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ABSTRACT

Attention has been given to the attraction of foreign direct investments for many countries worldwide. The main objective of this paper is to examine the relationship between fiscal space and FDI in a number of developing countries. A principal component analysis across official development assistance (ODA), domestic revenue mobilization, deficit financing whether domestic or foreign, and reprioritization and efficiency of expenditures has been used to derive an overall fiscal space index. Subsequently, a FE-GLS model has been employed for a panel data of 50 developing countries over the period from 2000 to 2016. The regression shows that fiscal space and its four pillars have positive, significant impact on attracting FDI.

Contribution/ Originality: The paper contributes the first logical analysis of how fiscal space affects FDI. This study contributes in the existing literature as previous studies usually use an indicator as a proxy of fiscal space while this study uses principal component analysis across official development assistance, revenue mobilization, deficit financing, and reprioritization and efficiency of expenditures in order to derive an overall fiscal space index.

1. INTRODUCTION

Developing countries suffer from shortfall in domestic savings and export earning which are not contributing to the growth of domestic capital stock. This shortage can be lessened through attracting foreign direct investment. International flows of foreign direct investment get significant attention of policy makers all over the world. Governments employ various incentives in order to attract more FDI. Fiscal space can be one of the tools used by governments in order to attract FDI.

Fiscal space is a crucial element employed by policy makers to achieve development. It would be converted by governments to investments in productive assets and human capital. Public Investment in health care, education and infrastructure using fiscal space would help to increase productivity. This means that government expenditures should be directed to public investments that contribute to medium-term growth which in turn attract more domestic and foreign investments. Therefore, fiscal space helps public expenditures to crowd in domestic and foreign investments (Debrun et al., 2006; Handley, 2009; Martin and Kyrili, 2009).

The paper contributes the first logical analysis of the impact of fiscal space on FDI. This study uses principal component analysis to find an index for fiscal space. The rest of this paper is structured as follows. Section 2

highlights the theoretical background that links FDI and fiscal space. Section 3 estimates the relationship between fiscal space and FDI. It includes sources of data, principal component analysis that is used to find fiscal space, in addition to the econometric model. Finally, section 4 includes conclusion and policy implications.

2. FISCAL SPACE DEFINITION, COMPONENTS AND RELATION WITH FDI

According to Roy *et al.* (2007) fiscal space can be defined as the funds that is available to government as a result of specific policy actions for boosting resource mobilization, and the reforms necessary to assure the institutional, governance and economic effectiveness of these policy actions, for a specified set of development objectives (Roy *et al.*, 2007).

There are four main pillars that can be targeted by governments to create fiscal space which can be used to finance public expenditure. These pillars are: official development assistance, mobilization of domestic revenue, deficit financing whether domestic of foreign, and reprioritization and efficiency of expenditures (Aguzzoni, 2011).

The first pillar of fiscal space is the official development assistance (ODA). Official development assistance (ODA) or foreign aid is considered to be an external source of enhancing domestic savings and promoting economic growth. An increase in ODA would help in financing expenditures needed to meet Millennium Development Goals (MDG) targets (Weeks and McKinley, 2009; Aguzzoni, 2011; Donaubauer *et al.*, 2016).

The effect of ODA on FDI is ambiguous. According to (Doornbosch and Steenblik, 2007; Selaya and Sunesen, 2012) FDI and ODA are considered to be complements. Targeting development assistance may assist in enhancing FDI flows and generate savings and investment. ODA is used to support or develop institutions and policies in developing countries, hence create favorable environment for attracting FDI Selaya and Sunesen (2012) shows that aid invested in complementary inputs draws in FDI.

Other studies such as that of (Beladi and Oladi, 2006; Harms and Lutz, 2006) show that ODA and FDI are substitutes. Foreign aid will shift all factors from the tradable sectors to the public sector. Availability of aids may avoid governments from carrying out necessary reforms. As a result, aid may hinder rather than attract foreign investors (Economides *et al.*, 2008) believe that ODA diverts resources from productive activities to unproductive activities. In another word, ODA crowds out FDI.

The second pillar is mobilization of tax revenue. Tax reform has played a role in improving the investment climate. Taxation is a source of fund for governments that can be used to invest in development, achieve sustainable growth in infrastructure, reduce corruption, attract foreign direct investments (FDI) and acquire transparent financial systems (Fakile *et al.*, 2014).

From another point of view, domestic resource mobilization is expected to have negative impact on FDI as when governments reduce tax rates or provide tax holidays or any incentives, all these actions will attract investments but reduce resource mobilization (Culpeper, 2008).

The third pillar of fiscal space is deficit financing which is external and domestic borrowing. Foreign borrowing is an important source of fund for governments that can be used to increase fiscal space but it adds to the debt burden. Additionally, governments can use domestic financing through borrowing from commercial banks and private sector, although this source is preferable as it does not add up to foreign debt but it reduces the amount of credit available to private sector (Azam and Khan, 2011; Alagidede, 2016) studied the relationship between debt and foreign direct investment. They realized that debt affects FDI negatively.

Finally, the fourth pillar is the reprioritization and efficiency of expenditures. Revenues collected by government are used to increase public investments and infrastructure. In order to maximize benefit from these resources, governments should invest in low-cost, high-impact projects. Government investments will be directed to projects that help to promote sustainable growth and hence attract FDI (Ortiz *et al.*, 2015; IMF, 2016).

3. METHODOLOGY

3.1. Data and Variables

This study depends on a panel data for 50 developing countries over the period from 2000 to 2016. In order to find fiscal space, data for the four pillars has been collected where domestic revenue mobilization has been represented by tax revenue as a percentage of GDP; Deficit financing is proxied by net lending, and reprioritization and efficiency of expenditures is represented by government expenditure as a percentage of GDP. All the data were extracted from the World Bank database. With respect to model estimation, data for GDP growth rate, inflation rate and FDI have been collected from World Bank database.

3.2. Principle Component Analysis

Fiscal space has no available or given data, as a result principal component analysis will be used to find a linear combination of the four main pillars (official development assistance (ODA), domestic revenue mobilization, deficit financing, and reprioritization and efficiency of expenditures) which affect fiscal space. Principal component analysis (PCA) is a statistical method which is used to transform a number of correlated variables into a smaller number of uncorrelated components in such a way that the first principal component account for the largest possible variance from the original data set and each consecutive component shows a variance smaller than that of the earlier component (Jolliffe, 2002).

$$fiscal = a_1 ODA + a_2 tax + a_3 lend + a_4 gov + \varepsilon \qquad (1)$$

Table-1. The Eigen values and % of variance for each principal component

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.523	38.078	38.078	1.523	38.078	38.078
2	1.064	26.605	64.683	1.064	26.605	64.683
3	.947	23.674	88.357			
4	.466	11.643	100.000			

Extraction Method: Principal Component Analysis.
Source: Derived by the author using SPSS

It can be noticed from table (1) that, the cumulative variance proportion of one principal component (the 1st principal component C1) is 38.078 %; the cumulative variance proportion of the first two principal components (C1 and C2) is 64.683 %. The table also shows that, the Eigen values of the first two components is greater than one. Then, only the first two principal components will be used to find fiscal space. The equations of the first two components are as follows:

$$C1 = -0.404 \ ODA + 0.868 \ tax + 0.011 \ lend + 0.779 \ gov \qquad (2)$$
$$C2 = 0.591 \ ODA + 0.122 \ tax + 0.822 \ lend + 0.159 \ gov \qquad (3)$$

Therefore, we can add them to find fiscal space as follows:

$$Fiscal = 0.187 \ ODA + 0.99 \ tax + 0.833 \ lend + 0.938 \ gov \qquad (4)$$

This means that all the four pillars have positive impact on fiscal space. Using the actual data of the four pillars, fiscal space can be found by substituting in equation (4).

3.3. Model Specification

This paper examines the relationship between FDI and fiscal space in 50 developing countries over the period from 2000 to 2016. A GLS model has been employed in order to remove the presence of heteroscedasticity in panel data. The basic specification of model is as follows:

$$FDI_t = \beta_0 + \beta_1 fiscal_t + \beta_2 gdp_t + \beta_3 inf_t + \beta_4 \ FDI_{t-1} + \epsilon \qquad (5)$$

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Where:

FDI is foreign direct investment as a percentage of GDP; fiscal is fiscal space calculated using principal component analysis; gdp is the GDP growth rate; FDI_{t-1} is the lagged FDI and inf is the inflation rate.

3.4. Model Estimation

Before discussing the model estimation, we need to consider the issue that variables may be non-stationary, causing the results of the regression to be spurious. This study employed a panel unit root test which had been developed by Levin *et al.* (2002) in order to test the stationarity of the variables.

Table-2. Panel Unit Root Test Results

Variable	τ-statistics	P-value
FDI	−5.31723	0.0000
Fiscal	−2.37719	0.0087
GDP	−8.09435	0.0000
Inf	−237.987	0.0000

Source: Derived by the author using E-views

Table (2) shows that the null hypothesis of unit root is rejected and the alternative is accepted for all variables. This means that all variables are stationary or integrated of order zero I (0).

The second step after examining stationarity of variables is to test whether the fixed effect or the random effect is more appropriate to this study, using Hausman test. The main objective of this test is to identify whether there is a significant correlation between unobserved country-specific effects and the explanatory variables or not. If the null hypothesis is rejected, then the fixed effect will be more appropriate and vice versa (Baltagi, 2008).

Table-3. Random Effects-Hausman Test

Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	130.382245	4	0.0000

Source: Derived by the author using E-views

Hausman test result, shown in table (3), indicates that fixed effect is more appropriate in this study than random effect, as the null hypothesis has been rejected.

Finally, the model will be estimated. Table (4) shows the impact of fiscal space on FDI using GLS technique for 50 developing countries over the period from 2000 to 2016.

The regression in table (4) shows that fiscal space has a positive significant impact on FDI. If fiscal space increases by $1, then FDI will increase by $0.0326.

Returning to the components of fiscal space, represented in equation (4), fiscal space can be replaced by its pillars. This means that if ODA increases by $1, then FDI will increase by $0.00561. With respect to tax revenue, external finance and prioritization and efficiency of expenditure, if any one of them increases by $1, FDI will increase by 0.0297, 0.02499 and 0.02814 respectively. It can be concluded that the most important pillar in affecting fiscal space and hence FDI is tax revenue mobilization, followed by prioritization and efficiency of expenditure, external finance and finally ODA respectively.

The regression shows that inflation, GDP growth rate and lagged FDI have positive and significant impact on FDI. Therefore, if inflation, GDP growth rate or lagged FDI increases by $1, FDI will increase by $0.015, $0.135 and $0.515 respectively.

Table-4. Panel data estimates for the impact of fiscal space on FDI

Dependent Variable: FDI				
Method: Panel EGLS (Cross-section weights)				
Sample (adjusted): 2001 2015				
Periods included: 15				
Cross-sections included: 50				
Total panel (balanced) observations: 750				
Linear estimation after one-step weighting matrix				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI(-1)	0.515821	0.030541	16.88964	0.0000
FISCAL	0.032611	0.015137	2.154310	0.0316
GDP	0.135296	0.017734	7.629316	0.0000
INF	0.015772	0.008178	1.928649	0.0542
C	0.648223	0.437403	1.481982	0.1388
	Effects Specification			
Cross-section fixed (dummy variables)				
	Weighted Statistics			
R-squared	0.793953	Mean dependent var		7.002205
Adjusted R-squared	0.778262	S.D. dependent var		5.519297
S.E. of regression	3.037313	Sum squared resid		6420.789
F-statistic	50.60122	Durbin-Watson stat		2.030051
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.668319	Mean dependent var		4.649579
Sum squared resid	6811.013	Durbin-Watson stat		1.902975

Source: Derived by the author using E-views

4. CONCLUSION

The main objective of this chapter is to investigate the linkage between fiscal space and FDI for a panel data of 50 developing countries over the period from 2000 to 2016. In order to find fiscal space a principal component analysis has been employed. Afterward, a fixed effect generalized least squares technique has been used in the regression analysis.

The regression indicates that all the variables under consideration have positive and significant impact on FDI. By analyzing the four pillars of fiscal space, it was found that the effect of the four pillars on FDI can be ranked from the highest effect to the lowest as follows: tax revenue, external finance and prioritization and efficiency of expenditure, and finally ODA.

The main findings of this paper emphasize that first, fiscal space affects FDI positively, subsequently in order to increase fiscal space fiscal conditions should be improved in order to attract more investments. Moreover, governments should bring more transparency to public expenditure as this will help to crowd in private (domestic and foreign) investments. Second, tax revenue mobilization is the most important pillar in increasing fiscal space and hence in attracting FDI, then policy makers can improve tax administration and make tax reform in order to increase tax revenues without increasing tax burden.

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