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Trade Policy Space, Economic Growth, and Transitional Convergence in terms of Economic Development

SENA KIMM GNANGNON*
World Trade Organization, Geneva, Switzerland

Abstract

The present study proposes a quantitative measure of the concept of trade policy space and investigates its impact on countries' economic growth and transitional convergence in terms of economic development. In this study, trade policy space is considered as the room for maneuver available to a government once its current trade policy departs from the structural domestic and international factors that could influence the trade policy. The transitional convergence is defined as the catch up of a country's real per capita income with the world's average real per capita income. The empirical analysis covering 150 countries from 1995 to 2015 shows that although the trade policy space exerts a positive impact on economic growth, this positive effect depends on countries' structural policies. Furthermore, the study results indicate that the trade policy space exerts a positive and significant effect on transitional convergence, and the greater the trade policy space, the higher is the transitional convergence.

JEL Classifications: F13, F14, F63, O40
Keywords: Trade policy space, Economic growth, Transitional convergence

*** Corresponding Author: SENA KIMM GNANGNON;** World Trade Organization (WTO) Secretariat, World Trade Organization (WTO), Rue de Lausanne 154, CH-1211, Geneva 21, Switzerland. Tel: +41 (0)22 739 51 11, E-mail: kgnangnon@yahoo.fr

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I. Introduction

The policy space available to governments in both developed and developing countries to conduct trade policy–the so-called trade policy space–has attracted attention from academicians in the international trade and development. The concept of trade policy space is related to the broader concept of policy space commonly debated in the economic development literature. The concept of policy space confined only to trade and investment was defined in UNCTAD documents in 2002. This definition was officially introduced in the São Paulo Consensus of 2004 (UNCTAD 2004). The policy space related to trade and investment was defined as the scope for domestic policies, especially in the areas of trade, investment, and industrial development which might be framed by international disciplines, commitments, and global market considerations. A more limited definition of policy space related to trade (called trade policy space) often refers to the flexibilities embodied in multilateral rules contained in the WTO Agreements and Decisions in favor of developing countries –the so-called Special and Differential Treatment (SDT) to developing countries. Other flexibilities in WTO Agreements apply to both developed and developing countries alike. The SDT measures include, for example, the possibility for governments to enjoy the difference between the applied tariffs and the bound tariffs commitments at the WTO that could be used to address their development needs. Other SDT measures include flexibilities on subsidies, performance requirements measures on trade and investment, quantitative restrictions contained in the General Agreement on Trade in Services (GATS), and the General Agreement on Tariffs and Trade (GATT), the Agreement on Trade and Investment Measures (TRIMS), and in the Agreement on Subsidies and Countervailing Measures (SCM).

In the field of international trade and development, there is an ongoing debate on whether multilateral trade agreements have restricted countries' policy space, specifically, since the creation of the WTO. Some authors have shared the view that the WTO reflects the economic interests of rich countries and undermines the ability of developing countries to create and upgrade their industries, to promote technological development, and to strengthen their domestic markets (e.g., Wade 2003, Chang 2002, DiCaprio and Gallagher 2006, UNCTAD 2006, Mayer 2009, Santos 2012 and Rowden 2015). Other researchers have argued that there is tendency to exaggerate the constraints imposed by WTO rules on the policy space of countries, notably developing countries (e.g., Aggarwal and Evenett 2014 and Chang 2015). Santos (2012) contends that several mechanisms of protection that existed under the GATT could be used in a different legal form under the WTO rules. Similarly, UNCTAD (2014: Chapter V) has highlighted that although the Uruguay Round Agreements (URAs) that led to the creation of the WTO have reduced the policy space available to WTO members, some flexibilities have been retained for these members. In addition, regional trade agreements[1] (RTAs) have considerably reduced the policy space that was maintained under the multilateral

[1] According to UNCTAD (2014: Chapter V), North–South Agreements contain a larger number of both WTO-plus and WTO-extra provisions than either North–North or South–South Agreements. These provisions cover coopetition policy, investment and capital movement, government procurement, labor mobility and environmental standards. UNECA (2016) has provided concrete examples on how RTAs such as Economic Partnership Agreements could restrict more policy space than WTO rules.

trade regime. It's a recent report by UNECA (2015: Chapter 5, p157) stressed that the main concern for Africa in terms of policy space relates to RTAs, which might further limit policy options for industrialization. As several African countries are least developed countries (LDCs), which are favorably treated under the WTO rules, the UNECA report has concluded that the loss of policy space for African economies has so far been relatively insignificant.

Van der Ven (2017, p75) debated that the complexity of WTO rules and their economic effect may lead a country, in good faith, to adopt policies that are inconsistent with WTO rules. Based on case studies from three non-LDCs African countries (Ghana, Kenya, and Namibia) on industrial policy priorities and key trade and investment laws and regulation, she concluded that Africa's industrialization is not genuinely restricted by the shrinking of the WTO policy space. Thus, from her perspective, a key impediment to the implementation of industrial policy objectives in Africa was the lack of policy alignment and understanding of the WTO policy space. The Overseas Development Institute (ODI 2007) argues that there are benefits that can be derived precisely from the restriction of trade policy space arising from the constraints imposed by international rules, including international trade obligations. The underlying rationale is that international regulations provide an international commitment (lock in), which is more stable than domestic regulation.

While several studies examining the impact of domestic trade policy liberalization on economic growth have reported mixed evidence, there has been no study on the impact of trade policy space on economic growth. In terms of trade liberalization on economic growth, studies by Papageorgiou *et al.* (1991), Salinas and Aksoy (2006), Wacziard and Welch (2008), Chang *et al.* (2009), Christiansen *et al.* (2013), and Naito (2017) have reported a positive impact, while those by Greenaway *et al.* (1997), Greenaway *et al.* (1997), and Greenaway *et al.* (1998, 2002) have reported a mixed effect. Chang *et al.* (2009) have particularly shown that the positive growth effect of trade openness may be significantly improved if certain complementary reforms are undertaken.

In addition to that on the trade policy space, there is ongoing debate on the economic convergence. This reflects a catch-up effect, that is, LDCs' real per capita income will tend to grow at faster rates than relatively developed economies (e.g., Barro and Sala-i-Martin 1991, 1992 and Sala-i-Martin 1994 for the Bêta-convergence and Sigma-convergence tests). Similarly, Philipps and Sul (2007) have proposed the concept of transitional convergence. For a group of countries within a panel dataset, this concept helps to analyze a country's transition in terms of the real per capita income compared with the cross-section average. This refers to a catch-up process whereby a country's real per capita income would catch up with the other countries' real per capita income, notably, to converge toward the world's average real per capita income.

The present study examines the impact of trade policy space on countries' economic growth and transitional convergence in terms of economic development. It investigates how the trade policy space available to governments influences countries' economic growth as well as the catching-up process of their real per capita income with respect to the world's average real per capita income. This is perhaps the first study that addresses this issue. Extant empirical studies do not have a quantitative measure of trade policy space required

for this analysis. Therefore, a definition of trade policy space (that mainly reflects a "De jure trade policy" rather than a "De facto trade policy space") is used in the present study, which slightly differs from the earlier definitions. In particular, trade policy space is defined in relation to the structural factors that influence its design by governments. Indeed, to define trade policy stance in order to address short-term and long-term development challenges, governments implicitly or explicitly consider several structural factors, both domestic and international, that shape the design of current trade policy viewpoint. In this context, trade policy space is defined in the present study as the room for maneuver available to a government once its current trade policy deviates from the structural domestic and international factors that influence it.

The international trade theory has shown that the gains associated with trade liberalization include, *inter alia*, greater economies of scale and scope, including export industries, reduction in market power in protected markets, facilitation of knowledge and technology spillovers, greater variety and quality of imported goods available to domestic producers and consumers, and promotion of export-platform FDI inflows (e.g., Lee 1995, Falvey *et al.* 2012). Other gains are relating to improvement in institutional and governance quality, including lower corruption, rent-seeking, and smuggling.

The present study postulates that the trade policy space available to a government would generate gains that are similar to those associated with trade policy liberalization, especially if these measures adopted by the government are coherent and consistent with the countries' international, regional, and bilateral commitments, including with regard to the WTO. For example, depending on the trade policy space available to countries, the latter could combine different measures, including subsidies for export promotion and measures on requirements of local content, export performance, and relating to intellectual property rights in order to attract foreign direct investments, promote innovation, facilitate transfer of technology, and ultimately promote industrialization. All these measures would lead to higher economic growth and greater transitional convergence in terms of economic development.

The empirical analysis relies on a panel dataset of 150 countries (both developed and developing countries) from 1995 to 2015. A two-step generalized methods of moments (SGMM) approach is used to examine the impact of trade policy space on countries' economic growth and transitional convergence in terms of economic development. The study results show that the trade policy space exerts a positive and significant impact on economic growth across the full sample, as well as over across subsamples. In addition, this impact depends on countries' structural policies, such as their levels of financial development, financial openness, education, and institutional and governance quality. Finally, a nonlinear relationship exists between trade policy space and transitional convergence. In particular, trade policy space exerts a positive and significant effect on transitional convergence. Moreover, a greater trade policy space leads to higher impact on transitional convergence.

The following sections present an in-depth analysis. Section 2 proposes a quantitative measure of trade policy space. Section 3 examines the impact of trade policy space on economic growth. Section 4 provides an in-depth analysis by investigating whether this impact depends on countries' structural policies, while Section 5 examines the impact of

trade policy space on countries' transitional convergence. Section 6 concludes.

II. Measure of Trade Policy Space

The present study aims to quantify trade policy space at the macroeconomic (aggregate) level.

As noted earlier, "De Jure trade policy space" is defined as the space, that is, the room of maneuver available to a government to devise its trade policy, given the domestic and international structural factors that could influence the trade policy stance. Drawing from the literature on the macroeconomic determinants of trade policy (e.g., Svaleryd and Vlachos 2002, Ancharaz 2003, Milner and Kutoba 2005, Rose 2013, and Gnangnon 2017a), the present study considers the following as structural domestic factors: the level of financial openness (capital account openness), the depth of financial development, the (economic) development level, the size of population, and the institutional and governance quality. International structural factors include the level of multilateral trade liberalization and terms of trade. Considering these factors, the indicator of trade policy space would reflect the influence of other complex factors, such as the extent of constraints imposed by countries' nontrade international, regional, and bilateral obligations influencing the current trade policy, those imposed by development aid providers,[2] and partially those imposed by bilateral and regional agreements: the higher these constraints, the lower the trade policy space.

Based on the literature on the determinants of trade policy, this study postulates the following model:

$$\begin{aligned} DTP_{it} = {} & \alpha_0 + \alpha_1 DTP_{it-1} + \alpha_2 MTP_{it} + \alpha_3 FINOPEN_{it} + \alpha_4 FINDEV_{it} \\ & + \alpha_5 Log(GDPC)_{it} + \alpha_6 Log(POP)_{it} + \alpha_7 TERMS_{it} \\ & + \alpha_8 INST_{it} + \mu_i + \omega_{it} \end{aligned} \quad (1)$$

where *i* represents a country's index and *t* denotes the time-period. To estimate model (1), the study uses an unbalanced panel dataset comprising 150 developed and developing countries from 1995 to 2015, based on data availability. In (1), α_0 to α_8 are the parameters to be estimated. μ_i are the countries' fixed effects; ω_{it} is a well-behaving error term.

"*DTP*" is the index of domestic trade policy, while "*MTP*" is the index of multilateral trade policy. *DTP* is the index of "Freedom to trade internationally" (Miller *et al.* 2017), which is a major component of the Heritage Foundation's Index of Economic Freedom. It reflects the absence of tariff and nontariff barriers that affect imports and exports of goods and services. Its computation is based on two components: trade-weighted average tariff rate and nontariff barriers (NTBs). The extent of NTBs has been determined on the basis of the available quantitative and qualitative information. NTBs include restriction on quantity, price, regulatory, investment, and customs, as well as direct government interventions. This

[2]This is specific to trade policy space for developing countries.

score is graded on a scale of 0~100, with a rise indicating lower trade barriers, that is, higher trade liberalization, while a decrease reflects rising trade protectionism.

Following recent literature (e.g., Ratnaike 2012 and Gnangnon 2017a, 2017b, 2017c, 2017d, 2017f, 2018a and 2018b), this study computes the indicator of multilateral trade policy. In particular, *MTP* is computed for a given country as the average trade freedom score of the rest of the world, that is, for all the other countries (except for the concerned country) for which data exist. *MTP* is therefore a proxy of the level of international trade barriers faced by a given country in acceding to other countries' markets, i.e., the international trade market.

In model (1), the right-hand side variables include the level of MTP and the terms of trade ("*TERMS*"), which act as international structural factors that would influence domestic trade policy. The extent of financial openness (capital account openness) ("*FINOPEN*"), the depth of financial development ("*FINDEV*"), the economic development level ("*GDPC*"), the size of population "*POP*," and the institutional and governance quality ("*INST*") represent the domestic structural factors. The institutional and governance quality has been measured using factor analysis, mainly the principal component analysis (*PCA*) (e.g., Globerman and Shapiro 2002) (Appendix 1).

Multilateral trade liberalization is likely to have a positive impact on domestic trade policy liberalization (Gnangnon 2017a). Rise in real per capita income probably would be associated with higher domestic trade policy liberalization (Rodrik 1995 and Svaleryd and Vlachos 2002). Greater depth of financial development is likely to positively influence domestic trade policy liberalization (Svaleryd and Vlachos 2002). Improvement in terms of trade could exert a positive or negative impact on domestic trade policy liberalization (Gnangnon 2017a). A higher financial openness is likely to positively affect domestic trade policy liberalization because of the close positive link between financial openness and trade liberalization or openness (Obstfeld and Rogoff 2000, Lane and Milesi-Ferretti 2003, Vo and Daly 2007). Better governance and institutional quality would encourage trade policy liberalization (e.g., Jansen and Nordås 2004, Gnangnon 2017a). Finally, the study considers the size of the population, which reflects a country's size. Following previous studies (e.g., Rodrik 1997), this study postulates that larger economies tend to be relatively close compared to smaller economies. Therefore, it suggests that the increase in the population size could be associated with the adoption of trade restrictive measures.

Appendix 1 describes all the variables in model (1). Appendix 2 lists countries considered for the estimation of this model. Appendix 3 reports descriptive statistics on the variables used in model (1).

From model (1), the indicator of trade policy space (also referred to as "De Jure Trade Policy Space") is measured as the gap (or space) between the current and the predicted level of trade policy, given the structural domestic and international factors highlighted earlier. Hence, the De Jure Trade Policy Space ("*TPSPACE*") is measured by $TPSPACE = {DTP}/{\widehat{DTP}}$ (2), where DTP represents the current level of trade policy $\widehat{DTP}$ and is the predicted values of DTP based on the estimation of Equation (1). An increase in the values of this indicator reflects greater trade policy space and lower values of this index reflect a shrinking of the trade policy space.

To calculate the indicator "TPSPACE," model (1) is estimated by the two-step generalized methods of moments (SGMM) approach proposed by Arellano and Bover (1995) and Blundell and Bond (1998) for dynamic panels with a large cross section and small-time dimension. The SGMM involves a combination of an equation in differences and an equation in levels where lagged first differences are used as instruments for the levels equation and lagged levels are used as instruments for the first-difference equation. This estimator helps deal with several endogeneity concerns that could arise from model (1). These endogeneity issues are related to the presence of the one-year lag of the dependent variable as a regressor, which is correlated with the unobserved country-specific effects, as well as the eventual reverse causality from the dependent variable to a number of regressors, including *"FINPOL," "FINDEV,"* and *"GDPC."* Therefore, in the estimation of model (1), these three variables are considered as endogenous. The variable *"INST"* has been considered as exogenous for two reasons: first, it changes little over time; second, the use of the factor analysis severely mitigates the endogeneity concern that could arise from the reverse causality from the dependent variable to the *"INST"* variable (a similar argument in Portugal-Perez and Wilson 2012). The other variables are considered exogenous. Table 1 provides the results of the estimation.

Table 1. Estimating the level of trade policy space

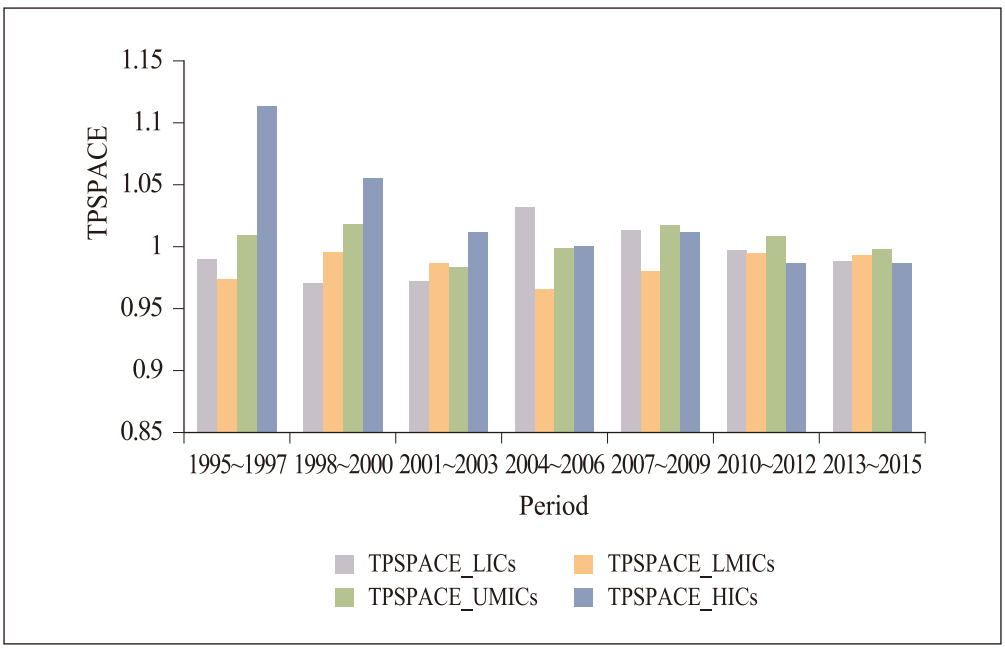
(Two-Step System GMM)

VARIABLES	*DTP*
	(1)
DTP_{t-1}	0.515*** (0.00513)
MTP	0.512*** (0.0121)
FINOPEN	0.0845*** (0.00400)
FINDEV	0.0166*** (0.00165)
Log(GDPC)	0.263** (0.130)
Log(POP)	-0.131* (0.0747)
TERMS	-0.00361** (0.00147)
INST	0.0675 (0.133)
Constant	-6.404*** (1.275)
Observations - Countries	2,196 – 150
Number of Instruments	134
AR1 (*P*-Value)	0.0000
AR2 (*P*-Value)	0.8876
AR3 (*P*-Value)	0.6529
OID (*P*-Value)	0.1429

(Note) **p*-value<0.1; ***p*-value<0.05; ****p*-value<0.01. Robust Standard Errors are in parenthesis. In the two-step system GMM estimations, the variables *"FINPOL", "FINDEV"*, and *"Log(GDPC)"* have been considered as endogenous. The other variables have been considered as exogenous.

To check the validity of the SGMM estimator, the results of the three diagnostic tests are reported in Table 1. These include the Arellano-Bond test of first-order serial correlation in the error term (AR(1)) and no second-order autocorrelation in the error term (AR(2)). We also present the results of no third-order autocorrelation in the error term (AR(3)). The last diagnostic test is the Sargan test (OID) of over-identifying restrictions, which determines the validity of the instruments used in the estimations. The results indicate a *p*-value for the AR(1) test equal to 0 (lower than 1% level of statistical significance), and *p*-values for AR(2) and AR(3) tests higher than 0.10 (i.e., the 10% level). In addition, the *p*-value of the OID test is higher than 0.10, and the number of instruments is lower than the number of countries used in the analysis (as suggested by Roodman 2009). Incidentally, the one-year lag of domestic trade policy is positively and significantly associated with the current domestic trade policy, which suggests the existence of a state-dependence path of domestic trade policy. All these outcomes confirm the appropriateness of the SGMM estimator to estimate model (1). With regard to the estimates presented in Table 1, it is observed that MTP liberalization, financial openness, financial development, and the real per capita income positively and significantly (at least at the 5% level) influence domestic trade policy liberalization. Terms of trade improvements exert a negative and significant effect on domestic trade policy liberalization, while the population size affects it negatively and significantly, but only at the 10% level. Institutional and governance quality does not appear to exert a significant impact on domestic trade policy.

Figure 1. Comparative evolution between "*TPSPACE*" over sub-samples



(Source) Author

Figure 1 is a graphical representation of the indicator of trade policy space across subsamples, defined based on the World Bank classification. These subsamples include the low-income countries (LICs), the lower-middle-income countries (LMICs), the upper-middle-income countries (UMICs), and the high-income countries (HICs). Figure 1 is constructed using seven nonoverlapping subperiods of 3-year average data including 1995~1997, 1998~2000, 2001~2003, 2004~2004, 2007~2009, 2010~2012, and 2013~2015, because these subperiods are used to examine the impact of trade policy space on economic growth and transitional convergence. At first glance, Figure 1 suggests that, in comparison with the other subsamples, HICs have experienced the highest trade policy space during the subperiod 1995~1997. However, this policy space has diminished over time such that in the last subperiod, all the subsamples have shown almost a similar level of trade policy space. The trade policy space in LICs has slightly declined from 1995~1997 to 2001~2003, and rebounded in 2004~2006 to reach its highest level over the entire period. From 2004~2006 to 2012~2015, LICs' trade policy space has slightly declined. For LMICs and UMICs, trade policy space has fluctuated over the period.

III. Empirical Analysis of the Impact of Trade Policy Space on Economic Growth

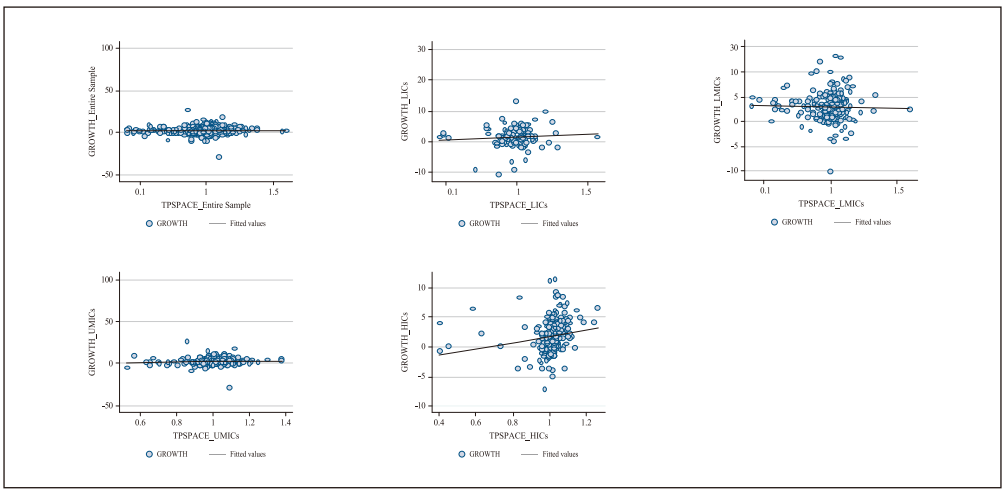
This section presents the model specification used to explore empirically the effect of trade policy space on economic growth. It then interprets the results of the estimations.

A. Empirical model

Before laying out the model specification for the analysis of the impact of trade policy space on economic growth, it is useful to examine graphically the relationship between the trade policy space indicator and economic growth (denoted *"GROWTH"*) over the full sample, as well as over the subsamples of LICs, LMICs, UMICs, and HICs.

Figure 2. Correlation pattern between *TPSPACE* and *GROWTH*

(over the entire sample as well as sub-samples, non-overlapping periods of 3-year average)



(Source) Author

Figure 2 presents these different correlation patterns.[3] It could be observed that while there are correlation patterns between *TPSPACE* and *GROWTH* over the full sample, LMICs and UMICs are not clear-cut, the correlation pattern appears to be loosely positive for LICs and strongly positive for HICs.

The standard growth literature was examined to investigate empirically the impact of trade policy space on economic growth,[4] and the following variables, in addition to the trade policy space indicator, were considered as controls in the relevant model specification: gross fixed capital formation as a share of GDP (as a measure of the level of domestic investment), government spending (government expenditure over GDP), human capital accumulation (proxied by the gross secondary school enrolment ratio), financial development, financial openness, inflation rate, and the institutional and governance quality.

Therefore, the following model (2) is postulated:

$$\begin{aligned} GROWTH_{it} = {} & \beta_0 + \beta_1 GROWTH_{it-1} + \beta_2 TPSPACE_{it} + \beta_3 GFCF_{it} \\ & + \beta_5 GOVCONS_{it} + \beta_5 EDU_{it} + \beta_6 FINDEV_{it} \\ & + \beta_7 FINOPEN_{it} + \beta_8 Log(INFL)_{it} + \beta_9 INST_{it} + \vartheta_i \\ & + \varphi_t + \varepsilon_{it} \end{aligned} \tag{2}$$

[3] It is important to note that the correlation patterns in the different graphs of Figure 1 are linear. We have checked for the existence of a nonlinear correlation pattern, but have not found the existence of such a nonlinear pattern.

[4] An important volume of the economic literature has explored the macroeconomic factors that could affect countries' economic growth or per capita income. Chirwa and Odhiambo (2016) have provided a survey of this literature.

where *i* represents a country's index and *t* denotes the time period. The same panel dataset as the one used to estimate model (1) was used. It is an unbalanced panel dataset comprising 150 countries from 1995 to 2015. However, to mitigate the impact of business cycles on variables at hand, seven non-overlapping subperiods of 3-year average data were used. These subperiods include 1995~1997, 1998~2000, 2001~2003, 2004~2004, 2007~2009, 2010~2012 and 2013~2015. β_0 to β_9 are parameters to be estimated. ϑ_i are the countries' fixed effects; φ_t are the time effects and represent global shocks that affect all countries together. ε_{it} is a well-behaving error term.

The dependent variable "*GROWTH*" denotes a country's economic growth rate. "*TPSPACE*" is the key variable of interest. The other variables are described in Appendix 1. Appendix 2 presents the list of countries contained in the full sample used to estimate model (2); Appendix 4 lists the countries in the subsamples, and Appendix 5 displays descriptive statistics on the variables of model (2).

Several endogeneity concerns plague the estimation of model (2). These include the endogeneity problem associated with the presence of the one-period lag dependent variable as regressor, the endogeneity issue related to the reverse causality from the dependent variable to several regressors, including "*INF*," "*GFCF*," "*GOVCONS*," "*EDU*," "*FINDEV*," and "*FINPOL*." Accordingly, model (2) is estimated using the SGMM estimator employed for estimating model (1), while treating all the aforementioned potential endogenous variables as endogenous in the regressions. Similarly, the variable *INST* has been considered as exogenous.

B. Interpretation of results of estimations

Table 2 presents the outcome of the estimation of the different variants of model (2), including model (2) as its stands, and model (2) in which a dummy is included once to represent a category of countries, along with its interaction with the *"TPSPACE"* variable.

Table 2. Impact of trade policy space on economic growth

(Two-Step System GMM)

VARIABLES	*GROWTH*				
	(1)	(2)	(3)	(4)	(5)
$GROWTH_{t-1}$	0.0766*** (0.00942)	0.0740*** (0.00926)	0.0763*** (0.00847)	0.0651*** (0.00780)	0.0585*** (0.00798)
TPSPACE	5.147*** (1.154)	9.606*** (0.989)	3.199*** (0.856)	9.478*** (0.934)	4.863*** (0.897)
[LIC][TPSPACE]*		-5.108*** (1.451)			
[LMIC][TPSPACE]*			8.083*** (1.630)		
[UMIC][TPSPACE]*				-9.444*** (1.634)	
[HIC][TPSPACE]*					2.169 (1.406)
LIC		2.537* (1.499)			
LMIC			-8.143*** (1.684)		
UMIC				9.265*** (1.704)	
HIC					1.350 (1.388)
Log(INF)	-0.596*** (0.107)	-0.814*** (0.0775)	-0.714*** (0.0754)	-0.901*** (0.0752)	-0.517*** (0.0784)
GFCF	0.0906*** (0.00494)	0.0929*** (0.00366)	0.0852*** (0.00417)	0.106*** (0.00339)	0.0930*** (0.00396)
GOVCONS	-0.130*** (0.0215)	-0.111*** (0.0147)	-0.124*** (0.0143)	-0.110*** (0.0188)	-0.0949*** (0.0192)
EDU	0.0106** (0.00515)	-0.0176*** (0.00457)	0.00143 (0.00358)	0.000726 (0.00393)	-0.000569 (0.00529)
FINDEV	-0.0314*** (0.00361)	-0.0382*** (0.00244)	-0.0372*** (0.00267)	-0.0347*** (0.00307)	-0.0346*** (0.00286)
FINPOL	-0.00712** (0.00281)	-0.00835*** (0.00253)	-0.00535*** (0.00187)	-0.00689*** (0.00205)	-0.0107*** (0.00192)
INST	0.254*** (0.0871)	0.465*** (0.0572)	0.328*** (0.0600)	0.357*** (0.0780)	-0.342*** (0.0785)
Constant	-1.303 (1.070)	-2.726*** (0.774)	1.835** (0.930)	-4.819*** (0.906)	-1.335 (0.954)
Observations – Countries	726 - 150	726 - 150	726 - 150	726 - 150	726 - 150
Number of Instruments	119	133	133	133	133
AR1 (*P*-Value)	0.0000	0.0000	0.0000	0.0000	0.0000
AR2 (*P*-Value)	0.4084	0.3421	0.2367	0.3862	0.3004
AR3 (*P*-Value)	0.6784	0.5626	0.5158	0.4773	0.4992
Sargan (*P*-Value)	0.3547	0.3520	0.1810	0.3668	0.3165

(Note) *p-value<0.1; **p-value<0.05; ***p-value<0.01. Robust Standard Errors are in parenthesis. In the two-step system GMM estimations, the variables *"FINOPEN", "DDTP","FINDEV", "GFCF", "INFL", "GOVCONS", "IGDPC"* and *"EDU"* and the interaction variables have been considered as endogenous. The other variables have been considered as exogenous. Time dummies have been included in the regressions. The regressions have used 2 lags of dependent variable as instruments and 3 lags of endogenous variables as instruments in order to limit the proliferation of instruments in this regression.

Table 2 reports the results of the diagnostic tests to check the validity of the two-step system GMM approach. the results suggest that the p-values relating to the AR(1) are 0 across all columns, whereas those associated with the AR (2) and AR(3) tests are higher than 0.10. Moreover, the p-values associated with the Sargan test are higher than 0.10. Incidentally, the coefficient of the one-year lag of the dependent variable is positive and statistically significant at the 1% level. This indicates a state-dependence path in the economic growth rate. In addition, the number of instruments is consistently lower (across all columns) than the number of countries. Taken together, these results confirm the validity of the two-step system GMM approach used for the empirical analysis.

In Table 2, results in column [1] suggest that trade policy space positively and significantly influences economic growth rate.[5] In particular, a 1-point increase in the index of trade policy space is associated with a 5.15 percentage point increase in the economic growth rate. Estimates relating to control variables in column [1] reveal that financial development and financial openness are negatively and significantly associated with lower economic growth rate. While these outcomes are an average across the entire sample, which is highly heterogeneous, comprising both developing and developed countries, they could therefore reflect differentiated impacts across countries in the entire sample. They could also reflect some findings in the empirical literature that financial openness negatively influences economic growth (Christiansen *et al.* 2013), and that excessive finance could hinder economic growth (Arcand *et al.* 2015). At the same time, higher education, higher investment, and better institutional and governance quality positively influence economic growth rate, whereas lower inflation exerts a negative impact on economic growth rate. Government consumption is negatively associated with economic growth rate. Results concerning control variables in the other columns (columns [2] to [5]) are broadly congruent with those reported in column [1]. These other columns show the impact of trade policy space on economic growth rate in LICs, LMICs, UMICs and HICs. The net impact of trade policy space on economic growth rate in LICs, LMICs, UMICs and HICs is, respectively, given by 4.498 (=9.606−5.108), 11.282 (=3.199+8.083), 0.034 (=9.478−9.444), and 4.863. This signifies that a 1-point increase in the index of trade policy space is positively associated with a 4.498 percentage point increase in economic growth rate in LICs, a 11.282 percentage point increase in LMICs, a 0.034 percentage point increase in UMICs and a 4.863 percentage point increase in HICs. Hence, LMICs enjoy the highest positive impact of trade policy space

[5] It is worth noting here that we checked the existence of a nonlinear effect of trade policy space on economic growth by introducing in model (2) the square term of the *TPSPACE* variable. However, we did not find a robust and significant nonlinear effect of *TPSPACE* on economic growth.

on economic growth rate, followed by HICs and LICs, whose magnitudes of the positive impact are similar. UMIC*s* appear to exhibit the lowest positive impact of trade policy space on economic growth rate. However, these figures reflect an average over each category of countries and probably hide differentiated impact across countries in each category of countries.

IV. Further Analysis on the Impact of Trade Policy Space on Economic Growth

In addition to the impact of trade policy space on economic growth over the entire sample, as well as differentiated impacts over subsamples of countries, this section presents an in-depth analysis of whether the impact of trade policy space on economic growth over the entire sample depends on a number of domestic structural policies. Several past studies (e.g., Chang *et al.* 2009, Eicher and Schreiber 2010, Christiansen *et al.* 2013) have emphasized the importance of structural factors influencing countries' trade policy liberalization on their economic growth. Therefore, this study examines whether the impact of trade policy space, which is a derivative of countries' current trade policy, on economic growth depends on countries' domestic structural policies, such as financial openness (capital account openness), financial development, the level of education, and the level of institutional and governance quality. Based on the past studies, this study postulates that greater extent of capital account openness would provide countries with opportunities to rely on capital inflows, including FDI, to increase the (positive) impact of trade policy space on economic growth rate. Similarly, deepening financial development would allow better allocation of credit to international traders, thus increasing the impact of trade policy space on economic growth rate. It is also postulated that the higher the education level, the higher would be the positive impact of trade policy space on economic growth rate, given the crucial role that human capital accumulation plays in promoting countries' international trade as well as economic growth. In other words, in a context of greater trade policy space, the availability of a higher skilled population would contribute to enhancing countries' participation in international trade, as better skilled population would generate higher productivity, and hence promote economic growth. Finally, the higher the institutional and governance quality, the higher is the (positive) impact of trade policy space on economic growth rate.

To test empirically whether the impact of trade policy space on economic growth rate depends on each of these structural policies, four different variants of model (2) are estimated, in which the interaction between the "*TPSPACE*" variable and each of these four structural policy variables ("*FINOPEN," "FINDEV," "EDU,"* and *"INST"*) are included. Each of these variants of model (2) are estimated by means of the SGMM. Table 3 reports the results of these estimations. The outcomes of the diagnostic tests to check the validity of the SGMM approach are reported at the bottom of the four columns of Table 3. All these tests confirm the validity of this estimator.

Table 3. Does the impact of trade policy space on economic growth depend on structural policies?

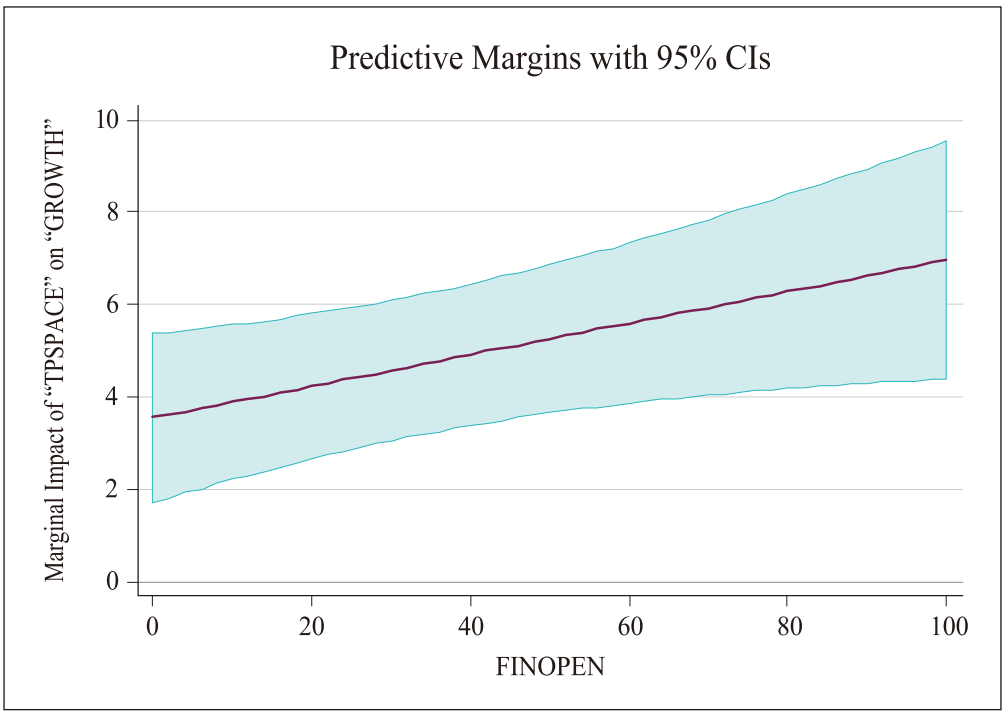
(Two-Step System GMM)

VARIABLES	GROWTH	GROWTH	GROWTH	GROWTH
	(1)	(2)	(3)	(4)
$GROWTH_{t-1}$	0.0617***	0.0628***	0.0669***	0.0683***
	(0.00602)	(0.00767)	(0.00643)	(0.00886)
TPSPACE	3.561***	1.747*	-11.01***	8.340***
	(0.930)	(0.950)	(1.794)	(1.257)
[FINPOL][TPSPACE]*	0.0341**			
	(0.0157)			
[FINDEV][TPSPACE]*		0.123***		
		(0.0190)		
[EDU][TPSPACE]*			0.257***	
			(0.0257)	
[INST][TPSPACE]*				2.923***
				(0.484)
FINPOL	-0.0421***	-0.00507**	-0.00493**	-0.00596*
	(0.0156)	(0.00238)	(0.00203)	(0.00347)
FINDEV	-0.0334***	-0.157***	-0.0325***	-0.0312***
	(0.00304)	(0.0196)	(0.00258)	(0.00341)
EDU	0.0188***	0.0117***	-0.239***	0.00738
	(0.00399)	(0.00434)	(0.0289)	(0.00592)
INST	0.158**	0.152**	0.0772	-2.644***
	(0.0654)	(0.0639)	(0.0663)	(0.471)
Log(INF)	-0.640***	-0.804***	-0.805***	-0.661***
	(0.0739)	(0.0735)	(0.0738)	(0.0961)
GFCF	0.0939***	0.0877***	0.0919***	0.0943***
	(0.00313)	(0.00441)	(0.00416)	(0.00482)
GOVCONS	-0.102***	-0.0955***	-0.107***	-0.148***
	(0.0202)	(0.0191)	(0.0199)	(0.0254)
Constant	-0.662	1.178	14.09***	-4.855***
	(0.957)	(0.906)	(1.826)	(1.254)
Observations - Countries	726 - 150	726 - 150	726 - 150	726 - 150
Number of Instruments	133	133	133	120
AR1 (P-Value)	0.0000	0.0000	0.0000	0.0000
AR2 (P-Value)	0.3105	0.3811	0.2436	0.5785
AR3 (P-Value)	0.6727	0.5489	0.6381	0.8755
Sargan (P-Value)	0.2310	0.3308	0.2728	0.2696

(Note) *p-value<0.1; **p-value<0.05; ***p-value<0.01. Robust Standard Errors are in parenthesis. In the two-step system GMM estimations, the variables *"FINOPEN", "DDTP","FINDEV", "GFCF", "INFL", "GOVCONS", "IGDPC"* and *"EDU"* and the interaction variables have been considered as endogenous. The other variables have been considered as exogenous. Time dummies have been included in the regressions. The regressions have used 2 lags of dependent variable as instruments and 3 lags of endogenous variables as instruments in order to limit the proliferation of instruments in this regression.

In Table 3, the key coefficients of interest in each of these columns include the coefficient associated with the *"TPSPACE"* variable and the interaction term relating to the interaction variable between the *"TPSPACE"* and the structural policy variable considered. In column [1], the coefficient of the *"TPSPACE"* variable is positive and statistically significant at the 1% level, and the interaction term associated with the variable *"[FINPOL]*[TPSPACE]"* is positive and statistically significant at the 5% level. This implies that the impact of trade policy space on economic growth rate is always positive and statistically significant, and the higher the degree of capital account openness, the greater the positive impact of trade policy space on economic growth. As this outcome does not necessarily reflect the same pattern for various levels of capital account openness, Figure 3 is presented at the 95% confidence intervals, the evolution of the marginal impact of *"TPSPACE"* on *"GROWTH"* for various levels of *"FINOPEN."* From the descriptive statistics provided in Appendix 5, the values of *"FINPOL,"* values are seen to vary between 0 and 100, with the average value being 52.15. At the same time, the values of *"FINDEV"* range between 0.001% and 250%, with an average value amounting to 47.9%. For *"EDU,"* values range between 5.4% and 164.9%, with an average value being 76.25. Finally, the values of *"INST"* range between −5.13 and 4.8, with an average amounting to -0.028.

Figure 3. Marginal impact of *TPSPACE* on *GROWTH* for varying levels of *FINOPEN*

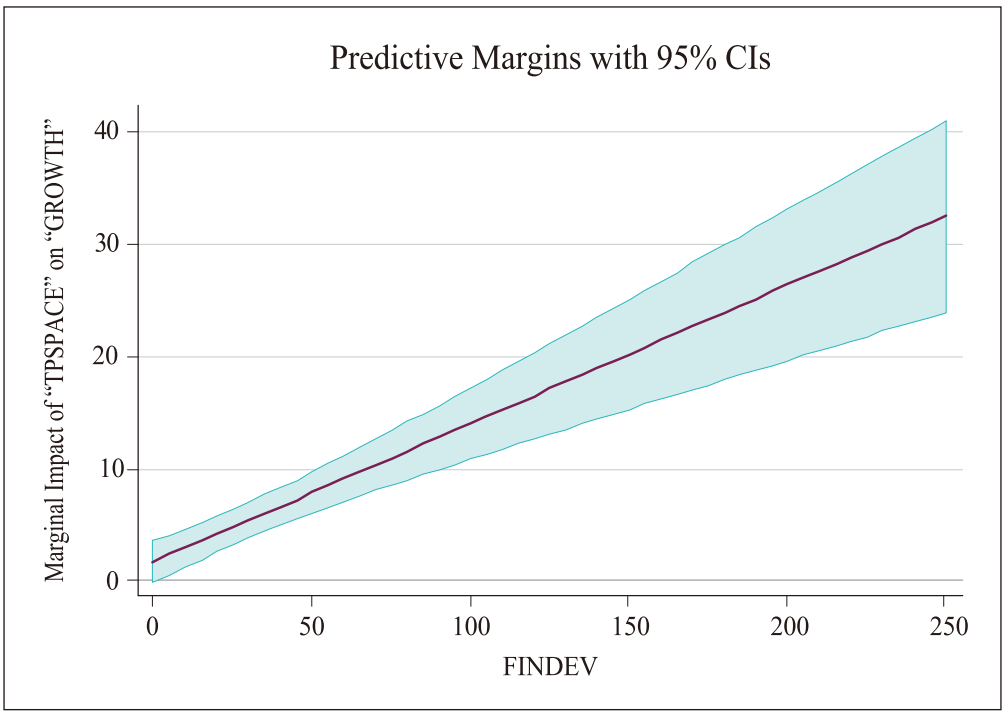


(Source) Author

The statistically significant effects at the 95% confidence intervals are those encompassing only the upper and lower bounds of the confidence interval that are either above or below the zero line. Figure 3 suggests that this marginal impact is always positive and statistically significant. Furthermore, it increases as countries further liberalize their capital account. This implies that countries having a higher degree of capital account openness enjoy a higher positive impact of trade policy space on economic growth than countries having a lower degree of capital account openness.

Considering the results in column [2], the coefficient of the *"TPSPACE"* variable appears to be positive and statistically significant only at the 10% level, and the interaction term associated with the variable *"[FINDEV]*[TPSPACE]"* is positive and statistically significant at the 5% level. These two results also tend to suggest that the greater the financial development depth, the higher the positive impact of trade policy space on economic growth rate.

Figure 4. Marginal impact of *TPSPACE* on *GROWTH* for varying levels of *FINDEV*



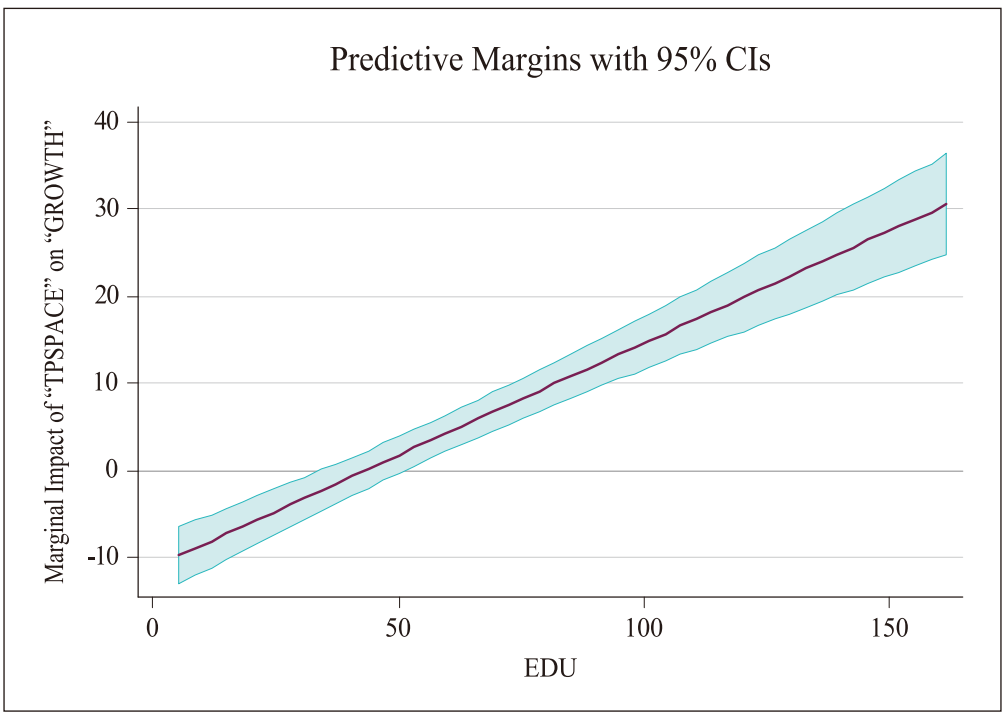
(Source) Author

Figure 4 shows, at the 95% confidence intervals, the evolution of the marginal impact of *"TPSPACE"* on *"GROWTH"* for various levels of *"FINDEV"*. Figure 4 shows that the marginal impact of trade policy space on economic growth is always positive and almost always statistically significant. Furthermore, the impact increases as countries experience greater depth of financial development. This signifies that countries with a higher degree of financial development experience a higher positive impact of trade policy space on economic growth than countries having a lower level of financial development.

Results in column [3] show that the coefficient of the *"TPSPACE"* variable is negative and statistically significant at the 1% level, whereas the interaction term associated with the variable *"[EDU]*[TPSPACE]"* is positive and statistically significant at the 1% level. These two results suggest that the total (average) impact of trade policy space on economic growth rate decreases as the level of education (gross secondary school enrolment rate) increases and changes sign as well, that is, it becomes positive when the education level exceeds a certain threshold. This threshold is given as 42.84% (=11.01/0.257). Hence, countries with gross secondary school enrolment rate lower than 42.84% experience, on average, a negative impact of trade policy space on economic growth rate. Moreover, the higher the education level, the lower is the reducing impact of trade policy space on economic growth

rate. Similarly, countries having a level of gross secondary school enrolment rate higher than 42.84% enjoy, on average, a positive impact of trade policy space on economic growth rate. Furthermore, the higher the education level, the greater is the positive impact of trade policy space on economic growth rate. This confirms the study hypothesis that, from the perspective of greater trade policy space, better educated people would contribute to enhancing firms' productivity, hence, promoting countries' economic growth. Thus, in countries that enjoy a higher trade policy space, firms would be able to benefit from the availability of better-educated people to enhance their productivity and improve their participation in international trade, which will ultimately promote economic growth.

Figure 5. Marginal impact of *TPSPACE* on *GROWTH* for varying levels of *EDU*



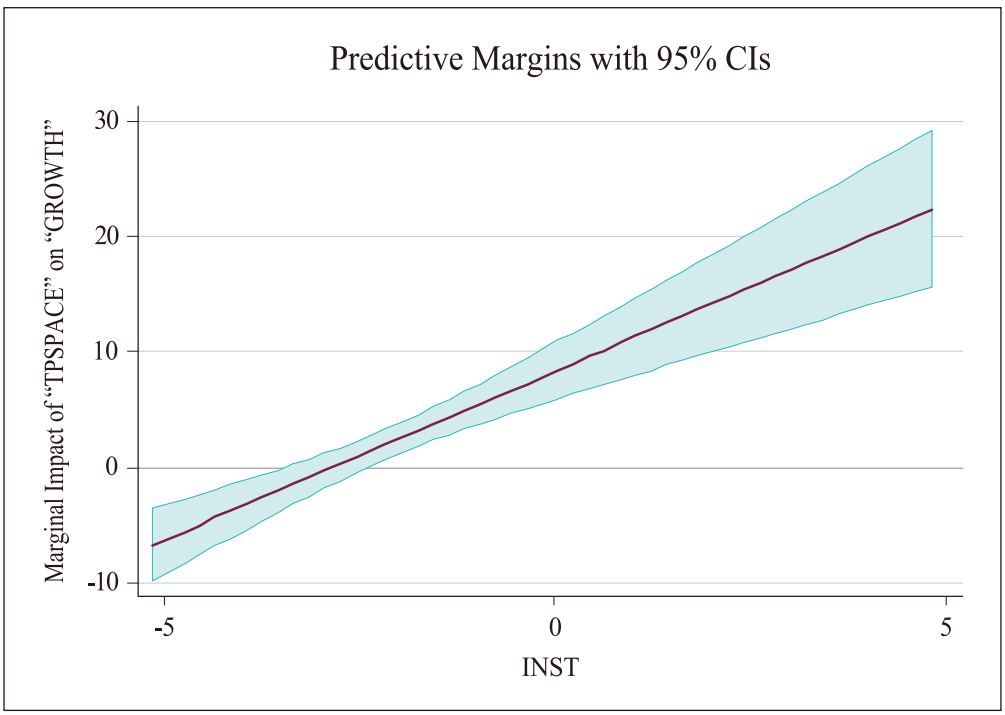
(Source) Author

Figure 5 shows the evolution of the marginal impact of *"TPSPACE"* on *"GROWTH"* for various levels of *"EDU"* at the 95% confidence intervals. Figure 5 suggests that this marginal impact could be positive or negative, and it increases as countries experience higher education level. However, it is not always statistically significant. In particular, it is statistically nonsignificant when the gross secondary school enrolment rate is from 34.1% to 50.06%. Hence, countries having a gross secondary school enrolment rate lower than 34.1% experience a negative and significant impact of trade policy space on economic growth.

Therefore, the higher the education level, the lower is the reducing impact of trade policy space on economic growth. Meanwhile, countries with gross secondary school enrolment rate higher than 50.06% enjoy a positive and significant impact of trade policy space on economic growth. Moreover, the higher the education level, the higher is the positive impact of trade policy space on economic growth.

Finally, considering the key coefficients of interest reported in column [4] of Table 3. It appears that both the coefficient of the *"TPSPACE"* variable and the interaction term relating to the variable *"[INST]*[TPSPACE]"* are positive and statistically significant at the 1% level. These imply that the higher the institutional and governance quality, the higher the positive impact of trade policy space on economic growth rate.

Figure 6. Marginal impact of *TPSPACE* on *GROWTH* for varying levels of *INST*



(Source) Author

Figure 6 shows the evolution of the marginal impact of *"TPSPACE"* on *"GROWTH"* for various levels of *"INST"* at the 95% confidence intervals. Figure 6 indicates that this marginal impact could be positive or negative, and increases as countries experience higher quality of institutions and governance. However, it is not always statistically significant. It is statistically nonsignificant when the level of institutional and governance quality is higher

than (or equal to) −3.35 but strictly lower than −2.35. It is worth recalling that the values of the variable representing institutional and governance quality range between −5.13 and 4.80. Thus, countries with a level of institutional and governance quality lower than the threshold -3.35 experience a negative and significant impact of trade policy space on economic growth. When countries included in this category improves the quality of their governance and institutions, the reducing impact of trade policy space on economic growth diminishes. In contrast, countries that enjoy a level of governance and institutional quality higher than the value −2.35 experience a positive impact of trade policy space on economic growth. For this set of countries, the better the institutional and governance quality, the higher is the positive impact of trade policy space on economic growth.

V. Empirical Analysis of the Impact of Trade Policy Space on Countries' Transitional Convergence

This section describes the measure of transitional convergence in terms of economic development and presents the model specification that aids in understanding how it is affected by trade policy space. The results of the estimations are then interpreted.

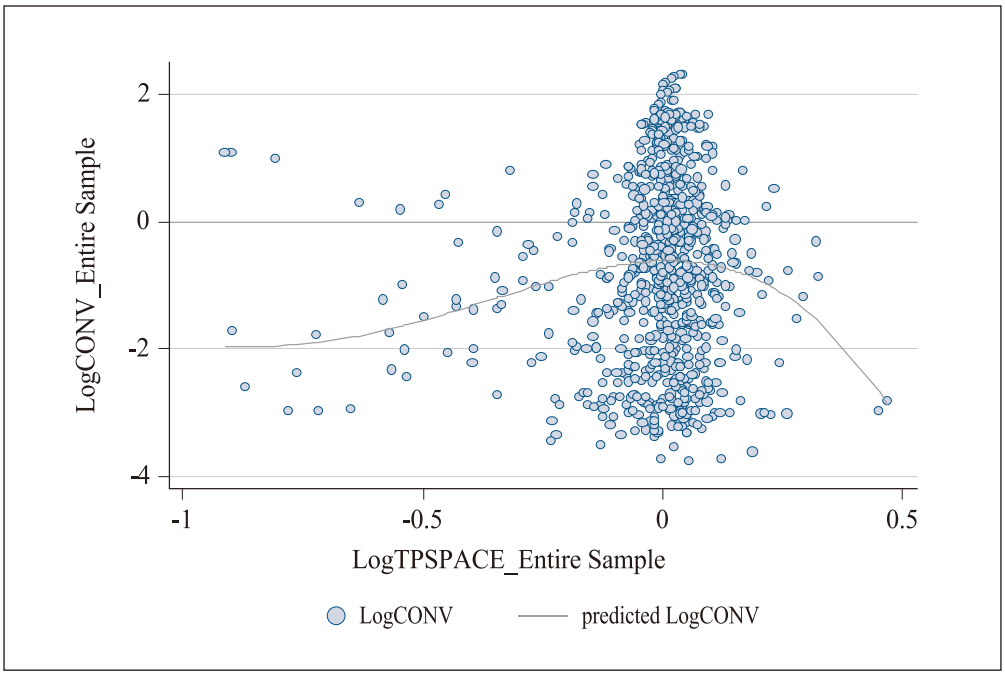
For the sake of simplicity, "transitional convergence in economic development across countries" is referred to as "transitional convergence."

A. Empirical model

As noted earlier, the study adopts the approach proposed by Phillips and Sul (2007) to test for convergence in panel data, that is, the evolution of the individual transition path compared to the cross-section average (once the common growth component is eliminated). From the perspective of the current analysis, the indicator of transitional convergence indicator (*"CONV"*) is measured for a country *i* in a year *t* using the following Equation (3): $CONV_{it} = \frac{GDP_{it}}{AVGDP_t}$ (3), where subscript *i* denotes the country and *t* refers to the time period. GDP_{it} is the real per capita income of a country *i* in a year *t*. $AVGDP_t$ is the cross section (panel average) of real per capita income in a year *t.* This indicator uses the same sample used in models (1) and (2), i.e., the panel comprising 150 countries from 1995 to 2015. For a given country in a given year, higher values of the *CONV* indicate that the economic development of this country (proxied by its real per capita income) is converging toward the world's average real per capita income. This implies that this country is catching up with the rest of the world in terms of economic development.

Figure 7 elucidates the relationship between the transitional convergence indicator and the trade policy space indicator. The cross plot between the variables *"CONV"* and *"TPSPACE"* over the full sample is presented. Figure 7 suggests a likelihood of a nonlinear relationship between countries' trade policy space and their transitional convergence path.

Figure 7. Correlation pattern between *TPSPACE* and *CONV* over the entire sample



(Source) Author

The impact of trade policy space on countries' transitional convergence is based on the standard growth literature. The same variables as those in model (2) are used. In addition, Figure 7 shows that a nonlinear relationship might exist between trade policy space and transitional convergence. Therefore, both the *TPSPACE* and its square term in the model is included to examine the impact of trade policy space on the transitional convergence.

Against this background, the following model (4) is postulated:

$$\begin{aligned} Log(CONV)_{it} = {} & \varphi_0 + \varphi_1 Log(CONV)_{it-1} + \varphi_2 Log(TPSPACE)_{it} \\ & + \varphi_3 Log(TPSPACE)_{it}^2 + \varphi_4 Log(GFCF)_{it} \\ & + \varphi_5 Log(GOVCONS)_{it} + \varphi_6 Log(EDU)_{it} \\ & + \varphi_7 Log(FINDEV)_{it} + \varphi_8 FINOPEN_{it} \\ & + \varphi_9 Log(INFL)_{it} + \varphi_{10} INST_{it} + \vartheta_i + \varepsilon_{it} \end{aligned} \quad (4)$$

where *i* represents a country's index and *t* denotes the time period. The same panel dataset as for model (2) is used. φ_0 to φ_{10} are parameters to be estimated. ϑ_i are the countries' fixed effects; ε_{it} is a well-behaving error term.

The dependent variable *"CONV"* denotes the indicator of transitional convergence described earlier. *"TPSPACE"* is the key variable of interest.

Appendix 1 describes the variables used in model (4); Appendix 2 lists the countries contained in the full sample used to estimate model (4); and Appendix 5 displays descriptive statistics on the variables of model (4).

Similar to model (2), model (4) is estimated using the SGMM estimator, where the variables of interest, that is, the *TPSPACE* variable and its square term, along with the regressors *"INF," "GFCF," "GOVCONS," "EDU," "FINDEV,"* and *"FINPOL"* are considered as endogenous. Using the SGMM estimator, the outcomes of estimations without/and with the square term of the *TPSPACE* indicator are reported. This helps in understanding how the inclusion of the square term of *TPSPACE* in model (4) influences the dependent variable compared to the situation of a linear model with only the *TPSPACE* indicator included in the model.

B. Interpretation of the empirical results

Table 4 presents the results of the estimation of model (4) using the SGMM. The results of the diagnostic tests that help check the appropriateness of the SGMM estimator are presented as well.

The *p*-values for AR(1) is lower than 5%, and those for AR(2) and AR(3) tests are higher than 0.10 (i.e., the 10% level). In addition, the *p*-value of the OID test is higher than 0.10, and the number of instruments is lower than the number of countries used in the analysis, as suggested by Roodman (2009). There is a state-dependence path in the *CONV* indicator.

Column [1] of Table 4 suggests that trade policy space exerts a positive and significant effect on countries' transitional convergence, as the coefficient of the *TPSPACE* is positive and statistically significant at the 1% level. In other words, trade policy space is conducive to countries' transitional convergence, that is, it helps countries catch up in terms of economic development with the other countries of the world. Moreover, column [2] of Table 4 suggests that the coefficient of the square term of the *TPSPACE* variable is also positive and statistically significant. This therefore indicates a nonlinear relationship between trade policy space and countries' transitional convergence. These outcomes imply that greater trade policy space consistently induces higher transitional convergence, and the greater the level of trade policy space, the higher is the transitional convergence toward the world's average real per capita income. This suggests that the impact of trade policy space on transitional convergence is positively and increasingly dependent on the extent of trade policy space.

Table 4. Impact of trade policy space on transitional convergence in real per capita income

(Two-Step System GMM)

VARIABLES	*Log(CONV)*	*Log(CONV)*
	(1)	(2)
$Log(CONV)_{t-1}$	1.452*** (0.0221)	1.455*** (0.0170)
$Log(CONV)_{t-2}$	-0.464*** (0.0225)	-0.465*** (0.0175)
Log(TPSPACE)	0.0381** (0.0155)	0.0696*** (0.0155)
$[Log(TPSPACE)]^2$		0.0689*** (0.0213)
Log(INF)	-0.00891*** (0.00262)	-0.00510*** (0.00191)
Log(GFCF)	0.0809*** (0.00992)	0.0764*** (0.00757)
Log(GOVCONS)	-0.0330*** (0.00881)	-0.0295*** (0.00392)
Log(EDU)	0.0424*** (0.00947)	0.0273*** (0.00751)
Log(FINDEV)	-0.0310*** (0.00450)	-0.0255*** (0.00330)
FINOPEN	-0.000397*** (7.52e-05)	-0.000170*** (4.79e-05)
INST	0.0127*** (0.00281)	0.00937*** (0.00195)
Constant	-0.200*** (0.0455)	-0.167*** (0.0344)
Observations - Countries	618 - 150	618 - 150
Number of Instruments	110	123
AR1 (*P*-Value)	0.0167	0.0162
AR2 (*P*-Value)	0.4384	0.5337
AR3 (*P*-Value)	0.8197	0.6441
OID (*P*-Value)	0.1752	0.2373

(Note) **p*-value<0.1; ***p*-value<0.05; ****p*-value<0.01. Robust Standard Errors are in parenthesis. In the two-step system GMM estimations, the variables *"TPSPACE"*, its square term, *"INF", "GFCF", "GOVCONS", "EDU", "FINDEV"*, and *"FINPOL"* have been considered as endogenous. The other variables have been considered as exogenous. Time dummies have been included in the regressions. We use one and two-year lags for the dependent variable as explanatory variables in order to meet the requirements of the diagnostic tests relating to the two-step system GMM approach. In the regressions, we have used 2 lags of dependent variable as instruments and 2 lags of endogenous variables as instruments in order to limit the proliferation of instruments in this regression.

Figure 3 shows the nonlinear impact of trade policy space on transitional convergence. It shows the marginal impact of *TPSPACE* on *CONV* for various values of *TPSPACE* and that it is always positive and statistically significant. This therefore confirms the finding that the higher the trade policy space, the higher the transitional convergence toward the world's

average real per capita income. This conclusion applies to all countries contained in the full sample under analysis.

Results pertaining to control variables in columns [1] and [2] are similar. Focusing on the results presented in column [2], which are preferred estimates in this study, it is observed that transitional convergence is positively and significantly driven by higher gross fixed capital formation, higher accumulation of human capital, lower inflation, and better institutional and governance quality. Government consumption exerts a negative and significant impact on transitional convergence. Meanwhile, financial development and openness negatively and significantly influence the transitional convergence. These results are nearly consistent with the findings of Christiansen *et al.* (2013), which show that financial openness negatively influences economic growth and that excessive finance could hurt economic growth (Arcand *et al.* 2015).

VI. Conclusion

The present study proposed a quantitative measure of trade policy space and examined its impact on countries' economic growth and transitional convergence in terms of economic development. Transitional convergence refers to the convergence of a country's real per capita income toward the world's average real per capita income. Trade policy space is defined as the room of maneuver (or space) available to a government to conduct its trade policy once the structural domestic and international factors that could influence this trade policy are considered. The empirical analysis covers a sample of 150 countries from 1995 to 2015. Results show that trade policy space exerts a positive impact on economic growth over the full sample and subsamples of LICs, LMICs, UMICs, and HICs. LMICs appear to experience the highest positive impact of trade policy space on economic growth rate, followed by HICs and LICs. UMICs have experienced the lowest positive impact of trade policy space on economic growth. The empirical analysis also shows that the impact of trade policy space on economic growth depends on countries' structural policies, namely, their levels of financial development, financial openness, education, and institutional and governance quality. Finally, the study results indicate a nonlinear relationship between trade policy space and transitional convergence, whereby trade policy space exerts a positive and significant effect on transitional convergence, and the greater the trade policy space, the higher is countries' transitional convergence.

This study analysis therefore underlines the importance of trade policy space as defined in this study for economic growth and economic development in developed and developing countries alike. For example, lower constraints imposed by countries' nontrade international, as well as regional and bilateral, obligations allow countries to enjoy greater trade policy space, which, if appropriately used, contributes to promoting economic growth, and ensuring countries' transitional convergence in terms of economic development. Appropriate use of the available trade policy space, while meeting international trade commitments (including *vis-à-vis* the WTO), could include the combinations of policy measures such as export subsidies,

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use of available tariff water, measures on local content requirements and export performance requirements, and measures related to intellectual property rights, with a view to, *inter alia*, enhancing FDI inflows, promoting innovation, facilitating transfer of technology, and strengthening industrialization.

The positive effects of trade policy space on economic growth and transitional convergence in terms of economic development are further refined when countries implement structural policies such as greater financial openness, a greater depth of financial development, better education, and better institutional and governance quality.

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Appendix 1: Definitions and sources of the variables used in the analysis

Variable	Definition	Source
GROWTH	Growth rate of the real per capita Gross Domestic Product (GDP) (constant 2010 US dollar), in percentage.	World Development Indicators (WDI) World Bank, 2017
GDPC	Real per capita GDP (constant 2010 US dollar)	WDI
CONV	This is the index of transitional convergence.	Author's calculation (see Section 3 of the text).
TPSPACE	This is the index of trade policy space.	Author's calculation (see Section 2 of the text).
DTP	This is the domestic trade policy indicator. It is a component of the Heritage Foundation's Index of Economic Freedom. It is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services. Its computation is based on two components: trade-weighted average tariff range and non-tariff barriers (NTBs), the extent of latter having been determined on the basis of quantitative and qualitative available information. NTBs include quantity restrictions, price restrictions, regulatory restrictions, investment restrictions, customs restrictions, and direct government interventions. This score is graded on a scale of 0-100, with a rise indicating lower trade barriers, i.e., higher trade liberalisation, while a decrease reflects rising trade protectionism.	Heritage Foundation http://www.heritage.org/issues/economic-freedom see Miller *et al.* (2017)
MTP	Average Trade Policy of the Rest of the World. For a given country, this variable has been calculated as the average trade freedom score of the rest of the world (for countries for which data exist).	Author's calculation based on Heritage Foundation data.
GFCF	Gross fixed capital formation (% of GDP)	WDI
EDU	Gross secondary school enrolment (in %)	WDI

(continued)

Variable	Definition	Source
FINOPEN	This is the measure of de jure financial openness.	This index has been computed by Chinn and Ito (2006) and updated in July 2017. Its value ranges between 0 and 1. We have multiplied by 100 so as to ensure a coherence with the trade policy variable defined below (which is also a measure of a de jure trade policy, whose value range between 0 and 100) See: http://web.pdx.edu/~ito/Chinn-Ito_website.htm
FINDEV	It represents the measure of the depth of financial development. It is measured by the Domestic credit to private sector (% of GDP).	WDI
INFL	This is the inflation annual rate (%). It is primarily the inflation based on consumer prices, where missing data is replaced by the inflation based on GDP deflator.	Author's calculation based on data extracted from the WDI.
GOVCONS	General government final consumption expenditure (% of GDP)	WDI
POP	Total population	WDI
INST	This is the variable capturing institutional quality in a given country. It has been computed by extracting the first principal component (based on factor analysis) of the following six indicators of governance. These indicators are respectively denoted "PolStab", "RegQual", "Rulelaw", "GovEff", "VoiceAcc" and "Cor". "PolStab" is the measure of political stability and absence of violence/terrorism. "RegQual" stands for Regulatory Quality index. "Rulelaw" represents the Rule of Law index. "GovEff" is the Government Effectiveness index. "VoiceAcc" is the index of Voice and Accountability; "Cor" is the index of corruption. It is worth noting that higher values of the index "INST" are associated with better governance and institutional quality, while lower values reflect worse governance and institutional quality.	Data on the components of "INST" has been extracted from World Bank Governance Indicators developed by Kaufmann, Kraay and Mastruzzi (2010) and updated in 2018.

Appendix 2: List of countries contained in the entire sample

Entire Sample				
Albania	Colombia	Guinea-Bissau	Malaysia	Senegal
Algeria	Comoros	Guyana	Mali	Seychelles
Angola	Congo, Dem. Rep.	Honduras	Malta	Sierra Leone
Argentina	Congo, Rep.	Hong Kong SAR, China	Mauritania	Slovak Republic
Armenia	Costa Rica	Hungary	Mauritius	Slovenia
Australia	Cote d'Ivoire	Iceland	Mexico	South Africa
Austria	Croatia	India	Moldova	Spain
Bahamas, The	Cyprus	Indonesia	Mongolia	Sri Lanka
Bahrain	Czech Republic	Iran, Islamic Rep.	Morocco	St. Lucia
Bangladesh	Denmark	Ireland	Mozambique	St. Vincent and the Grenadines
Barbados	Djibouti	Israel	Namibia	Suriname
Belarus	Dominica	Italy	Nepal	Swaziland
Belgium	Dominican Republic	Jamaica	Netherlands	Sweden
Belize	Ecuador	Japan	New Zealand	Switzerland
Benin	Egypt, Arab Rep.	Jordan	Nicaragua	Tajikistan
Bhutan	El Salvador	Kazakhstan	Niger	Tanzania
Bolivia	Equatorial Guinea	Kenya	Nigeria	Thailand
Botswana	Eritrea	Korea, Rep.	Norway	Togo
Brazil	Estonia	Kuwait	Oman	Tonga
Bulgaria	Fiji	Kyrgyz Republic	Pakistan	Trinidad and Tobago
Burkina Faso	Finland	Lao PDR	Panama	Tunisia
Burundi	France	Latvia	Paraguay	Turkey
Cabo Verde	Gabon	Lebanon	Peru	Uganda
Cambodia	Gambia, The	Lesotho	Philippines	Ukraine
Cameroon	Georgia	Liberia	Poland	United Kingdom
Canada	Germany	Libya	Portugal	United States
Central African Republic	Ghana	Lithuania	Romania	Uruguay
Chad	Greece	Macedonia, FYR	Russian Federation	Venezuela, RB
Chile	Guatemala	Madagascar	Rwanda	Yemen, Rep.
China	Guinea	Malawi	Saudi Arabia	Zimbabwe

Appendix 3: Descriptive statistics on variables used in the model (1)

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
TPC	2,916	68.294	15.401	0.000	95.000
TPW	3,150	67.227	6.453	56.388	75.582
FINPOL	3,122	52.181	36.866	0.000	100.000
FINDEV	3,056	47.842	44.719	0.001	312.118
GDPC	3,136	11556.26	15923.88	115.7941	91594.18
TERMS	2,775	108.699	31.361	21.397	290.904
POP	3,146	4.03e+07	1.45e+08	69670	1.37e+09
INST	2,543	-0.028	2.184	-5.406	4.885

(Note) Statistics concern annual data over the period 1995~2015.

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Appendix 4: List of countries contained in the sub-samples used in the analysis

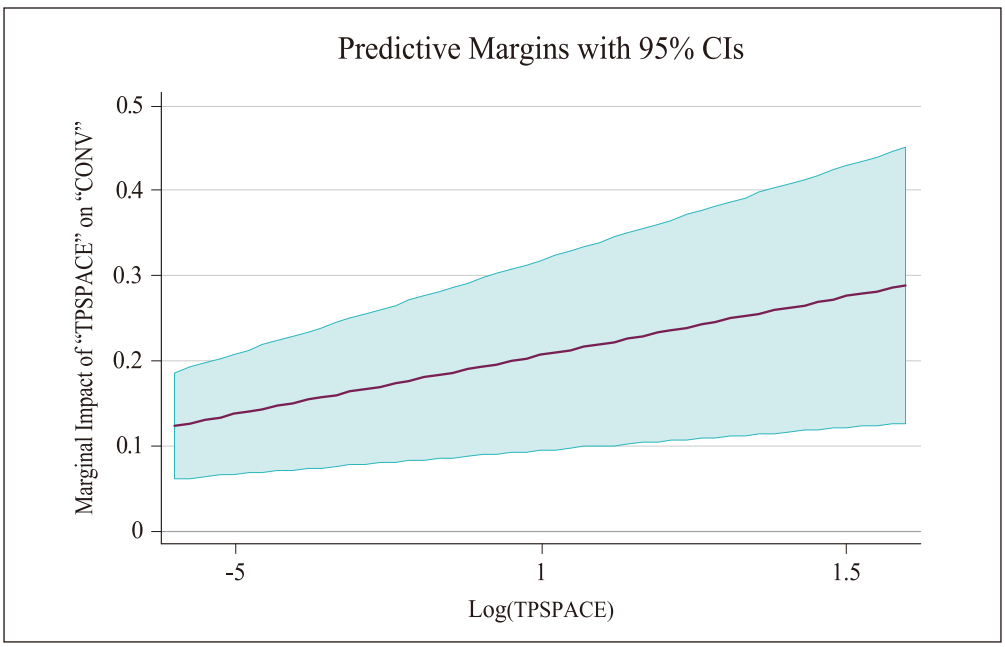
LICs	LMICs	UMICs	HICs
Benin	Armenia	Albania	Australia
Burkina Faso	Bangladesh	Algeria	Austria
Burundi	Bhutan	Angola	Bahamas, The
Central African Republic	Bolivia	Argentina	Bahrain
Chad	Cabo Verde	Belarus	Barbados
Comoros	Cambodia	Belize	Belgium
Congo, Dem. Rep.	Cameroon	Botswana	Canada
Eritrea	Congo, Rep.	Brazil	Chile
Gambia, The	Cote d'Ivoire	Bulgaria	Croatia
Guinea	Djibouti	China	Cyprus
Guinea-Bissau	Egypt, Arab Rep.	Colombia	Czech Republic
Liberia	El Salvador	Costa Rica	Denmark
Madagascar	Ghana	Dominica	Estonia
Malawi	Guatemala	Dominican Republic	Finland
Mali	Honduras	Ecuador	France
Mozambique	India	Equatorial Guinea	Germany
Nepal	Indonesia	Fiji	Greece
Niger	Kenya	Gabon	Hong Kong SAR, China
Rwanda	Kyrgyz Republic	Georgia	Hungary
Senegal	Lao PDR	Guyana	Iceland
Sierra Leone	Lesotho	Iran, Islamic Rep.	Ireland
Tanzania	Mauritania	Jamaica	Israel
Togo	Moldova	Jordan	Italy
Uganda	Mongolia	Kazakhstan	Japan
Zimbabwe	Morocco	Lebanon	Korea, Rep.
	Nicaragua	Libya	Kuwait
	Nigeria	Macedonia, FYR	Latvia
	Pakistan	Malaysia	Lithuania
	Philippines	Mauritius	Malta
	Sri Lanka	Mexico	Netherlands
	Swaziland	Namibia	New Zealand
	Tajikistan	Panama	Norway
	Tonga	Paraguay	Oman
	Tunisia	Peru	Poland
	Ukraine	Romania	Portugal
	Yemen, Rep.	Russian Federation	Saudi Arabia
		South Africa	Seychelles
		St. Lucia	Slovak Republic
		St. Vincent and the Grenadines	Slovenia
		Suriname	Spain
		Thailand	Sweden
		Turkey	Switzerland
		Venezuela, RB	Trinidad and Tobago
			United Kingdom
			United States
			Uruguay

Appendix 5: Descriptive statistics on variables used in models (3) and (4)

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
GROWTH	1,047	2.435	4.103	-29.011	71.453
GDPC	1,047	11552.710	15909.530	158.034	90205.310
CONV	1,047	1.306	1.796	0.021	10.065
TPSPACE	883	0.998	0.119	0.401	1.597
INF	1,049	20.136	263.800	-6.934	8162.226
GFCF	1,027	22.523	10.109	2.234	175.290
GOVCONS	1,033	15.914	5.664	4.005	58.891
EDU	912	76.167	30.927	5.391	164.907
FINDEV	1,030	47.871	44.468	0.001	250.600
FINPOL	1,048	52.150	36.428	0.000	100.000
INST	1,045	-0.028	2.185	-5.134	4.801
POP	1,049	4.03e+07	1.45e+08	69862.33	1.36e+09

(Note) Statistics are calculated using non-overlapping sub-periods of 3-year average data over the period 1995~2015.

Appendix 6: Marginal impact of *TPSPACE* on *CONV* for varying levels of *TPSPACE*



(Source) Author