FISCAL POLICY - EXPORTS NEXUS IN NEPAL: AN ECONOMETRIC ANALYSIS WITH GRAVITY MODELLING APPROACH

Ramesh C. Paudel

WORKING PAPER SERIES

Tribhuvan University, Kathmandu

Centre Department of Economics

October 2024

CEDECON/TU/WP/03

FISCAL POLICY - EXPORTS NEXUS IN NEPAL: AN ECONOMETRIC ANALYSIS WITH GRAVITY MODELLING APPROACH

Ramesh Chandra Paudel

The author is an Associate Professor of economics at the Central Department of Economics, Tribhuvan University (TU), Kirtipur Kathmandu, Nepal. His specialization is Macroeconomics, Monetary Economics, Fiscal Policy, International Trade, Human Development, Time series and Panel Data analysis, Microeconomics, and Landlocked economies. He can be reached at Ramesh.paudel@cdec.tu.edu.np

ISBN: 9789937174466

9789937174466

October 2024
Contact email: ramesh.paudel@cdec.tu.edu.np

DECLARATION AND COPYRIGHT STATEMENT

Working papers from CEDECON are distributed for discussion and feedback purposes. The ideas and arguments presented in this working paper, including any errors and omissions, are solely the responsibility of the author(s). The department has suggested ensuring that the document is free from plagiarism issues. In the event of any issues arising in this matter, the author(s) shall bear responsibility for the consequences henceforth.

The department does not endorse any viewpoints expressed in this working paper.

Central Department of Economics
TRIBHUVAN UNIVERSITY
GPO Box: 3821, Kathmandu, Nepal
Tel: (977-1) 4330950 / 4333616
Fax: (977-1) 4333539
E-mail: info@cdec.tu.edu.np

Abstract

This paper provides evidence that fiscal policy directly affects a country's export performance by studying the nexus between fiscal policy and export performance in the context of Nepal. Fiscal policy, the major branch of macroeconomics, also works as the engine of the political economy and plays a vital role in improving the export level in general. Following this background, Nepal's export performance has not met the expectations of the policymakers and other stakeholders despite various attempts in the policy setting. Also, the nexus between fiscal policy and exports has not been systematically investigated in the Nepalese context yet. Therefore, this chapter aims to perform this important task. It is observed that the changes in the policy variables have not meaningfully resulted in accelerating Nepalese exports. Improvements in the quality of manufacturing and service infrastructures, not just the infrastructure for residential and residential purposes, may be responsible for faster export growth. Also, the results suggest that the country should avoid a debt-based economy to boost export performance. Also, all the fiscal policy indicators must be managed to target better export performance.

Keywords: Export Trade, Fiscal Policy, Nepal

JEL Classification: F14, E62, O53

1. Introduction

This chapter provides a few shreds of evidence that fiscal policy can directly affect export performance after analysing the association of Nepal’s major fiscal policy variables with export performance. Fiscal policy is considered an effective tool to implement governments’ overall strategies on national issues because fiscal policy is not only a major branch of macroeconomics but also is practically a political economics that reflects the economic strength under the existing political system of a country (Arestis 2012). Paudel & Verma (2016) suggest the fiscal policy should have a clear direction to promote both private and public investment so that the business environment, via which, economic growth can be accelerated. Therefore, fiscal policy should directly address a nation's national issues of economic development. Export is such an issue in the context of Nepal because of various reasons including its role in overall economic development and uplifting the living standard of people via employment generation and increasing productivity of the production factors in the country.

Nepal’s export performance has been a serious concern for a long time as it has not met the expectations of the policymakers and other stakeholders despite various policies, strategies, plans, and program initiatives to enhance the export level. For example, Nepal entered the era of globalization and reform quite earlier than many neighbours in the region. Nepal documented many trade policies in different years, such as trade policy 2015, and developed many strategies to boost export performance in recent decades. For example, diagnostic trade integration studies 2004, Nepal trade integration strategy- 2010, and Nepal trade integration strategy -2016 are such key documents. Different five-year plans also have a similar focus on trade and export performance issues for about four decades now.

The discussion on the relationship between fiscal policy and export performance is not new, however, not many studies have attempted to investigate this relationship directly in a systematic way in the context of Nepal. Despite many attempts to analyze the determinants of the export performance of Nepal, the debate over whether fiscal policy plays any role in improving the export performance of Nepal remains a doubtful and unsolved issue, for which this chapter attempts to analyze the nexus between the fiscal policy (proxied by major fiscal policy variables) and export performance of Nepal.

To do so, first I document the fiscal policy variables and exports trends and patterns to show how these variables have emerged and moved over time. Then, I investigate the role of selected fiscal variables in export performance using the gravity modelling technique in Nepal's export data. The main finding from this chapter suggests that Nepal should move away from the debt-based economy to boost export performance. All the fiscal policy indicators need to be managed more efficiently to boost the export performance of the country. As explained by the estimated results, Nepal's fiscal policy has not played a key role to boost export performance.

This chapter proceeds as follows. Fiscal policy variables and exports trends and patterns are discussed in Section Two before briefly reviewing the literature on the field in Section Three. Section Four covers the research methodology of this chapter. Section Five is about the estimated results and discussion, and Section Six concludes with some policy inferences.

2. Trends of major fiscal policy variables and exports

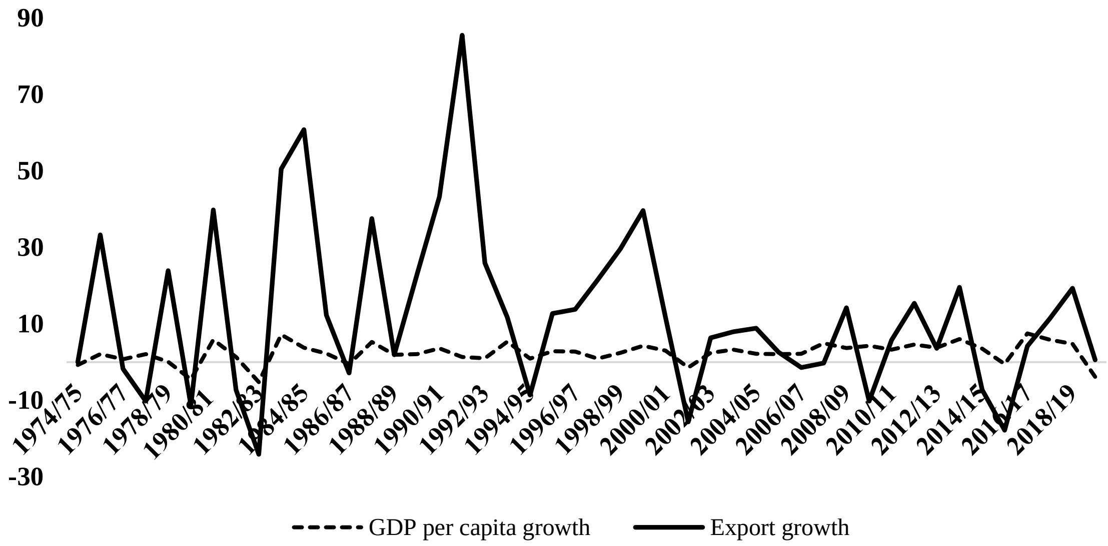
This section highlights the trend of major fiscal variables and export for the longest possible period. A notable point is that the two major variables: inflation and exchange rates are largely dependent on the Indian context because of our exchange rate system and the volume of international trade with India. Therefore, they need a separate analysis and have been ignored here in the analysis.

GDP per capita and export growth

To observe the relationship between national income and export, the trend of the growth of gross domestic product (GDP) per capita and exports are important indicators noting a point that per capita GDP is normally taken as a proxy of economic growth in the growth literature. On the other hand, in the literature on international trade, GDP per capita is taken as a proxy for the quality of the infrastructure. Generally, the perception is that the higher level of per capita GDP of a country can offer the quality infrastructure that is much needed for better export performance.

Figure 1 shows the trends of the growth of GDP per capita and export for the period of the fiscal year 1974/75 to 2019/20. It is noted that the per capita GDP growth rate has not contributed to export growth as the export growth rate has fluctuated like a random walk. However, there are only a few fiscal years when the per capita GDP growth rate is negative and exports growth is positive. There are many fiscal years both per capita GDP and export growth remain negative, for example, the fiscal years 1979/80, 1982/83, and many others. In the fiscal year 1981/82, the per capita GDP grew by about one and a half per cent but export growth remained negative marking about seven and a half per cent. Always during the period, the per capita GDP remained up and down within the borderline of 10 per cent and negative six per cent, while the case of exports growth is a wider borderline, such as 86 per cent to negative 26 per cent. For the majority of the fiscal years, both of these variables have been recorded with positive growth.

Figure 1: GDP per capita and export growth rate (%)



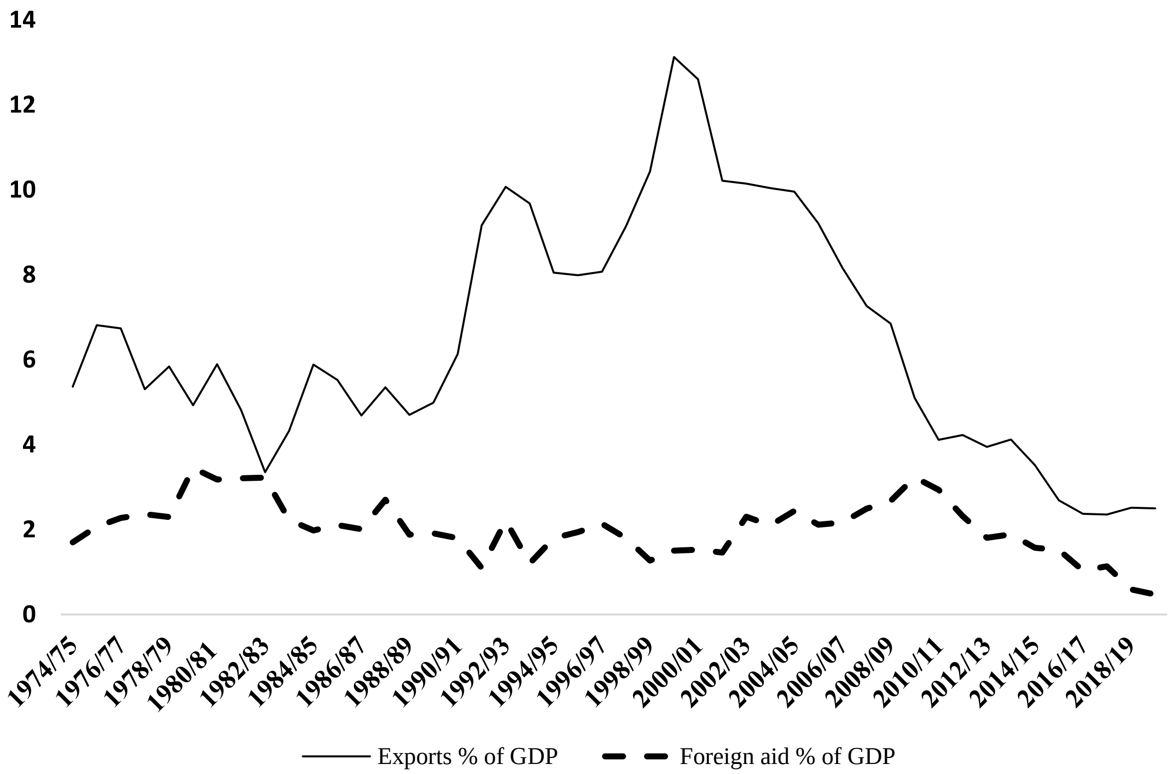
Source: Author’s presentation based on data from Nepal Rastra Bank (2020)

Foreign aid and exports

Foreign aid has been observed as one of the major fiscal variables in developing countries for about a half-century now. Nepal also has been receiving foreign aid for more than five decades in different forms. Figure 2 shows the share of exports and foreign aid as a share of GDP measured in per cent to indicate how efficiently the foreign aid has been utilised to improve the exports, which is one of the major concerns of the policymakers in the country. The data shows that foreign aid has remained below five per cent of Nepal’s GDP throughout the period and has a normal fluctuation between a half per cent to three and a half per cent. In recent years, say for this decade, the share of aid seems to be declining.

The share of exports does not seem encouraging. The very upsetting part is that it has declined more sharply during the last decades despite various efforts from the government side. The figure shows that this share increased impressively with some fluctuation from 1988/89 to 1999/2000 maintaining the peak in 1999/2000 with a record of about 13 per cent of GDP. Then, it has gradually declined to two and a half per cent in 2019/20. Again, not so visible relationship is found between these two economic variables.

Figure 2: Exports and foreign aids as per cent of GDP (%)



Source: Author's presentation based on data from Nepal Rastra Bank (2020)

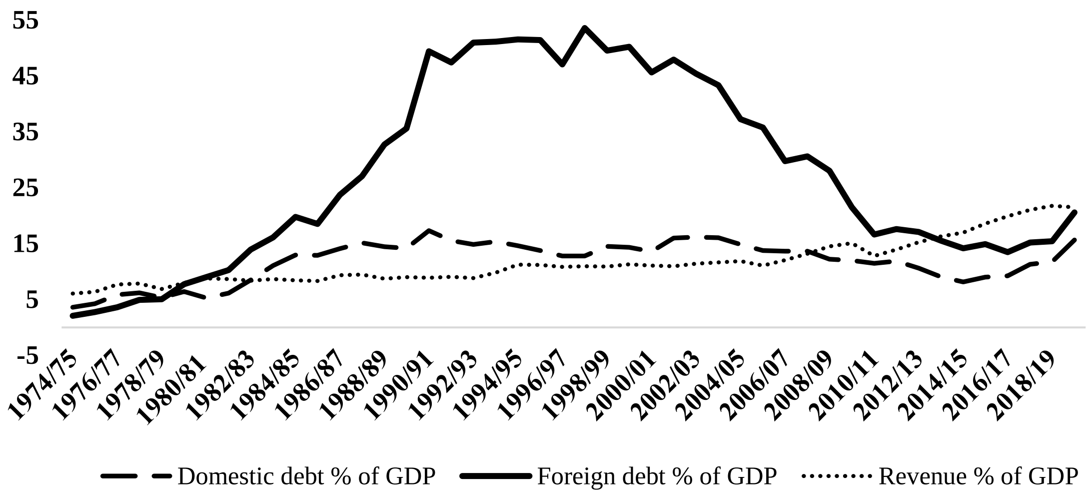
Domestic debt, foreign debt and revenue

The government collects money in the form of domestic debt, foreign debt and different types of revenues to spend in different headings and to meet the budgetary requirements. In this regard, Figure 3 shows the trend of these sources in Nepal compared to the per cent of GDP.

It seems that Nepal is heavily relying on foreign debt since the early 1980s when the foreign debt had overshot revenue and domestic debts. The volume of foreign debt increased to about 54 per cent in the early 2000s when the country was suffering from political turmoil, then started declining gradually until 2016/17 to about 16 per cent with some fluctuations in different fiscal years. Since 2016/17, it started to increase again and now it is above 20 per cent of GDP. The fastest growth of foreign debt was noticed in the mid-1980s.

The domestic debt to GDP share stands below 20 per cent throughout the selected period and seems to fluctuate normally. Since the fiscal year 2007/08, the share of revenue has overshot both domestic and foreign debts. For the last fiscal year, the revenue to GDP share remains about 22 per cent.

Figure 3: Domestic debt, foreign debt and revenue as per cent of GDP (%)



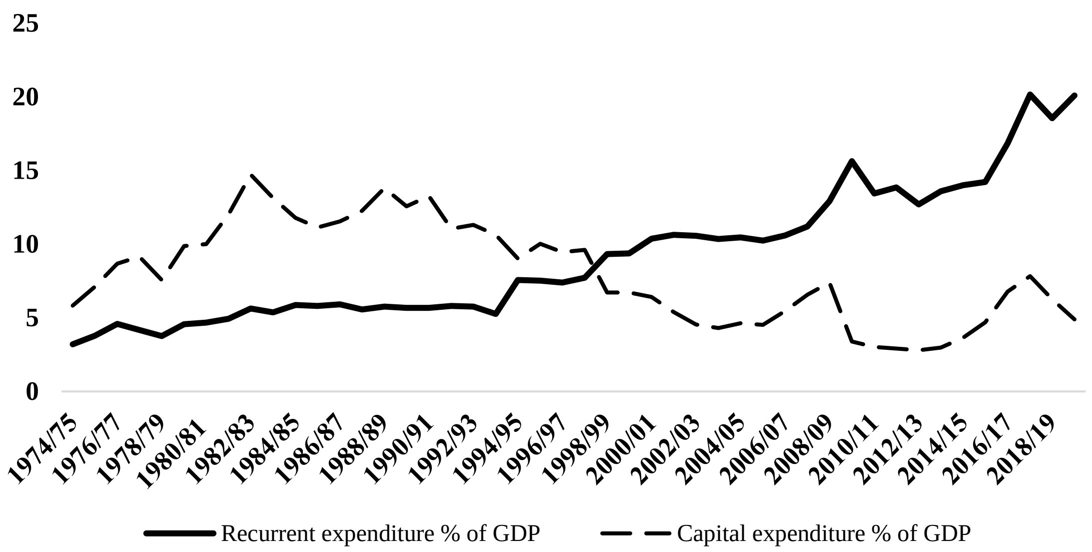
Source: Author’s presentation based on data from Nepal Rastra Bank (2020)

Capital and recurrent expenditure

Capital expenditure and current expenditure are two broad categories of government expenditures. Generally, the higher the capital expenditure refers to the higher degree of development tasks are completed. Capital expenditure is the proxy of development expenditure, while recurrent expenditure is an administrative expenditure, which is assumed that does not directly contribute to the developmental tasks of the nation. Therefore, the policymakers and stakeholders prefer a higher amount of capital expenditure compared to that of recurrent expenditure. If we stand on the same point, capital expenditure is more desirable in the country.

Figure 4 is about the trend of the capital and recurrent expenditure of Nepal for the selected period. As can be seen in the figure, the share of capital expenditure is higher than the share of recurrent expenditure until the late 1990s, then it has downturned compared to the recurrent expenditure. In the recent decade, the gap between these two expenditures is widened as a faster inclination of recurrent expenditure is observed.

Figure 4: Capital and recurrent expenditure as per cent of GDP (%)



Source: Author’s presentation based on data from Nepal Rastra Bank (2020)

3. A brief literature review

This section makes a brief review of the literature to find out the research gap. Both thematic and chronological review approaches are adopted. Not many research works have been done to investigate the nexus between fiscal policy and export performance. The literature indicates that the nexus of the set of fiscal variables on exports has not been examined but this nexus between exports and one or two fiscal variables has been examined widely in the literature. Nepal’s exports in terms of the set of fiscal policy variables seem an untouched area of research until now. This chapter attempts to explore the ideas on the nexus between fiscal policy and export performance by reviewing the relevant literature related to the theoretical framework, international context, and national contest focusing on major fiscal policy variables in brief.

3.1. Government expenditure, revenue, aid, debt, and exports

Paudel, Thapa-Parajuli et al. (2020), using annual time-series data of Nepal, shows a strong association between energy consumption and export performance. Electricity remained a long-time setback for the industrial sector in Nepal, when the electricity supply has increased in the country it has a multidimensional effect on building infrastructure and increasing productivity of human resources in many respects. Here, the construction of the hydropower projects is relevant to investment, and the consumption of electricity until now is a current expenditure. But even it being a current expenditure contributes to increasing the productivity of human resources as well as the source of energy for the firms. Therefore, the positive association is well explained.

Tagkalakis (2015), using the data from Greece for the post-2000 period, finds that the reduction in government spending reduces demand. Contradictorily, Budha (2014) finds that the government expenditure, exports, and GDP impact negatively on the imports from India to Nepal. Dao (2014) states that the positive relationship between the GDP and export performance can be more tied as a result of public expenditure focusing on filling the investment gap. Ilegbinosa, Uzomba et al. (2012), using time-series data from Nigeria from 1986 to 2010, investigate the impact of macroeconomic variables on non-oil export performance, and finds that exchange rate, government capital expenditure, and government recurrent expenditure are positively related to non-oil exports.

Gupta (2007), using panel data from different developing countries finds that foreign aid, foreign debt, and the share of direct and indirect taxes have a direct impact on exports but the directions of the impact are not unique. Emran (2005) suggests that a reduction in the export tax promotes export performance but the strategy should be to reduce the export tax and offset the increase in production tax to keep the producers’ prices unchanged. It means direct tax revenue has a negative association with the export performance of a country.

Roper and Love (2002) investigate the role of innovations on export performance in the UK and German manufacturing plants and find that the spending on innovation makes a positive contribution to the export capacity of both countries’ manufacturing plants. This refers to the fact that government expenditure plays a role in exports.

3.2. Investment and exports

FDI and exports, investment and exports, tax and exports. Conconi, Sapir et al. (2016) find that most of the firms serve the market via export to the host countries at the initial stage, and later they invest as the FDI. Dao (2014) states that the contribution of a country's GDP is positive to boost export performance and this positive contribution can be increased by foreign aid or investment. Kahrl and Roland-Holst (2008) suggest that the exports sectors are the largest demander of energy in China and an energy investment contributes to increasing the export performance in many respects.

Girma, Kneller et al. (2005) investigate the impact of foreign direct investment on export using firm-level data and find the positive contribution of FDI to exports. Almost in a similar track, Rob and Vettas (2003) explore that FDI results in increasing the exports in a country either by increasing exports by utilizing resources or by creating productive capacity and lowering the marginal costs of the existing other firms in the country.

Even in the country-specific case of China, Zhang and Song (2001), using panel data set from the provincial level of China from 1986 to 1997, state that exports and inward FDI into China have substantially increased due to the open door policy adopted by the Chinese government. This role of the investment seems to be consistent in the very earlier period in the advanced economies while this was not the case in developing countries as discussed in Lipsey and Weiss (1981).

This brief literature survey suggests that the overall impact of macroeconomic variables on the export performance of Nepal has not been investigated systematically yet using the recent data for a concrete policy inference. However, such an impact on economic growth has widely been discussed in the case of Nepal. This study aims to fill up this vacant in the trade literature of Nepal.

4. Research Methodology

This study adopts a quantitative research approach based on secondary data in a panel structure. The estimation is made by employing the gravity modelling technique in the various specification of the model to robustness check. The model consists of the main variables of interest (major fiscal policy variables) along with other control variables as discussed in the next subsection.

4.1 The model and variables

The gravity modelling technique is applied to examine the impact of fiscal policy on the export performance of Nepal. The gravity model was first introduced in economics by Walter Isard in 1954 in a journal article [see Isard (1954)]. This model is as stated in equation (1):

$$F_{ij}=G.(M_iM_j) / D_{ij} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

where F refers to trade flows between country *i* to *j*, G is a constant that represents an intercept in the equation, M is the economic dimension of the importing and exporting countries, and D is the distance between two trading countries. If this is a linear equation, the model can be transformed into the log form and indicates that economic dimensions may have different relationships.

The gravity model has been widely used in the applied trade economics literature and the relevant economic dimensions have been clearly explained in Tinbergen (1962), which states the gravity model for trade flows analysis in the form of equation (2).

$$\text{Trade}_{\text{ij,t}} = \alpha + \beta_1 GDP_{i,t}.GDP_{j,t} + \beta_2 POP_{i,t}.POP_{j,t} + \beta_3 Dist_{ij,t} + \epsilon_t \ldots\ldots\ldots\ldots\ldots\ldots.(2)$$

where, in addition to the details of equation (1), the multiplication of trading partners' GDP and population clearly define the market dimension capturing the market size. The last term is an error term. The notations *i* is the exporting country, *j* is the importing country and *t* refers to the time of the transaction (year in case of annual data). The coefficient of the distance (Dist) is negative as more distance means more costs that restrict or lower the trade flows.

In the literature on international trade, the gravity model has been a workhorse and has been augmented to examine the determinants of trade performance (Bergeijk and Brakman 2010). As we know that the supply-side constraints are more crucial than the demand-side constraints in the case of Nepal, the focus of this study is to analyse the supply-side factors that are related to the fiscal policy variables to impact export performance. Therefore, the augmented gravity model is as given in equation (3).

$$LEXPORTS_{ij,t} = \beta_1 + \beta_2\, LDDEBT_{i,t} + \beta_3\, LFDEBT_{i,t} + \beta_4 LCUREXP_{i,t} + \beta_5 LCAPEXP_{i,t} + \beta_6 LTREV_{i,t} + \beta_7 LNTREV_{i,t} + \beta_8 LGCAPFRM_{i,t} + \beta_9 LDIST_{ij,t} + \varepsilon_t \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (3)$$

where LEXPORTS refers to annual exports to each partner country measured in Rupees (Rs.) in the natural log form. The first notation on the right-hand side, β_1, is an intercept. The rest of the variables except LDIST are also measured in Rs. transforming into the natural log form. These variables, LDDEBT, LFDEBT, LCUREXP, LCAEXP, LTREV, LNTREV, and LDIST, refer to Nepal's domestic debt, foreign debt, current expenditure, capital expenditure, tax revenue, non-tax revenue, and distance from the major business city of Nepal to the major business city of partner countries, respectively. The distance is measured in Kilometers for the distance between the business cities of Nepal and trading partners. We believe that these independent variables other than distance cover the major fiscal policy variables. The last term is an error term as stated earlier.

The expected signs for β_2 and β_3 are positive if they contribute to export performance, otherwise negative. The negative signs of these variables would mean these debts are not used to build the export base. The signs of β_4 and β_5 are expected to be positive because the current expenditure would inject money into the business sector by saving the injected money into the industry for exportable goods and the capital expenditure can contribute to building the infrastructure required for exports. The signs of β_6 and β_7 are expected to be negative as the tax and non-tax revenue administration restricts the exporters' production activities in many respects, such as government takes their earnings as tax, penalties, and fines on exporters on some occasions-renewal of their business registration, pollution charges, etc. and these result to increase the costs to exports. The expected sign of β_9 positive as the gross capital formation would help to increase the exports via boosting the investment. The sign of β_9 is expected to be negative as the distance results in to increase in the trade costs.

To check whether the estimated results are robust, we add more variables to the equation to estimate. First, we add the natural log of foreign aid (LFAID) and foreign direct investment net inflow (LFDIINFL) both measuring in Rupees. These two variables are also important fiscal policy variables. Then in the next estimation, we add the natural log of per capita GDP (LGDPPC) measured in Rupees. This variable is a proxy of infrastructure quality and capacity. Finally, at the last estimation, we employ a dummy variable-landlockedness, which captures if Nepal's trading partner is a landlocked country. In the dummy variable, it values 1 if the partner country is landlocked and 0 if the partner country is not landlocked.

4.2 Data and their sources

This study covers the exports to 80 countries for the period of 2009-2020. These selected countries have continuously imported from Nepal every year some amount of goods in the covered period.[1] These countries imported a total of about 99.50 per cent of Nepal's exports in 2020 while this was about 99.20 per cent in 2009. It shows the concentration has increased but negligibly.

The main sources of data are the publications from different bodies of Nepal's government. The data for exports are collected from Trade and Export Promotion Centre (2021), the data for domestic and foreign debt, tax and non-tax revenue, current and capital expenditure, and foreign aid are collected from Nepal Rastra Bank (2017) and Nepal Rastra Bank (2020). The data for foreign direct investment net inflows and per capita GDP are collected from the World Bank (2020) in Nepalese Rupees.

There are some data gaps in some of the selected independent variables that need careful attention, and an approach is needed to use in the estimation. The data for foreign direct net inflows, revenue, and expenditure were not available for the year 2020 in the main sources and were collected from the Nepal Rastra Bank (2020) and the Ministry of Finance (2021). The gravity data for the distance and landlockedness of the partner countries were collected from CEPII (2012). All the data, where relevant, are in nominal value to make consistency among the variables. Once the data are compiled from the given sources all the data except for the landlockedness dummy, are transformed into the natural log.

4.3 Econometrics

Many previous studies have estimated the gravity equations using either pooled ordinary least squares (POLS) estimation, fixed effect (FE) estimation, or random effects (RE) estimation (Paudel and Cooray 2018). In this chapter, the variables of interest are all the fiscal variables used in the model. Also, as gravity modelling is applied, the distance variable is of interest. In addition, the dummy variable for partners' landlockedness is also of interest in this study as it

---

[1] Nepal's partners are: India, U.S.A., Germany, U.K., Turkey, France, Japan, Canada, Australia, China P. R., Italy, Bangladesh, Netherlands, Switzerland, Kenya, Denmark, Hongkong, SAR of China PR, U.A.E., Indonesia, Belgium and Luxembourg, Spain, Austria, Sweden, Norway, Korea R., Malaysia, Russia, Czech Republic, New Zealand, Pakistan, Vietnam, Sudan, Taiwan, China, Finland, Singapore, Ireland, Thailand, Bhutan, South Africa, Qatar, Portugal, Poland, Hungary, Brazil, Greece, Slovenia, Mexico, Latvia, Uganda, Iceland, Chile, Sri Lanka, Romania, Lithuania, New Caledonia, Slovakia, Israel, Philippines, Egypt, Kuwait, Saudi Arabia, Estonia, Mauritius, Iran, Croatia, Colombia, Lebanon, Uruguay, Ukraine, Brunei, Bulgaria, Bahrain, Cyprus, Costarica, Morocco, Congo, Mangolia, Maldives, Tanzania, and Afghanistan, respectively based on the volume of exports.

would suggest whether exporting to the landlocked country makes any difference. Therefore, distance and landlockedness are time-invariant variables used in this study.

We cannot estimate the coefficients of time-invariant variables using FE. Therefore, we initially estimate the model with the Fixed Effect estimation method and then estimate the model using the Random Effect estimation method following the standard practice of gravity modelling technique. We start by estimating the benchmark model as of equation (3) and include the additional variables as explained earlier.

5. Results and discussion

This section focuses on the discussion of the econometric results linked with the literature and provides the economic sense of the estimated results. Then, discusses the major findings from the study and robustness check of the estimated results before moving on to what the stakeholders think about the role of the fiscal policy and export performance in Nepal.

5.1 Results interpretation

Table 1 presents the results of econometric estimation using the gravity modelling technique. First, we estimate the model using fixed-effect estimation, and the results are given in the first numerical column (FE). Then, the same specification of the model is estimated using the random effect (RE) estimation method for which results are given in the column (RE1). For the robustness check of the estimated results, I estimate the different alternate specifications of the model under RE, and the results are presented in the columns named RE2, RE3 and RE4.

The results from the fixed effect estimations show that domestic debt (LDDEBT) has a strong negative association with Nepal's exports. A one per cent increase in domestic debt reduces the exports on average by almost one and a quarter per cent holding other variables in the model constant. The reason for this might be that the debt collected from the government results in investment insufficiency in the business sector, reducing money circulation to the productive private sectors involved in the exports. The results for the foreign debt (LFDEBT) variable seem not significant statistically but economically it has a negative impact indicating a kind of Dutch disease story.

The role of another fiscal policy variable, current expenditure (LCUREXP) has a strong association with exports (LEXPORT). It shows that on average more than a two per cent increment in the exports if a one per cent increase is made in the current expenditure other things remain the same in the model. The reason for this may be that the current expenditure spent on the economy increases the money circulation in the economy which helps to increase the household saving and by then the investment required for entrepreneurs.

On the other hand, capital expenditure (LCAPEXP) has a strong negative association with export performance. The results suggest that a one per cent increase in capital expenditure causes to decline the export by almost one per cent. However, these results are not consistent when foreign aid (LFAID), per capita GDP-the infrastructure dummy (LGDPPC) and Landlockedness (LLOCKED) of the partners are included. It indicates that the capital expenditure is not related to the quality infrastructure, rather it discourages exports. Largely, this is against the expectation based on the literature, but it knocks that the way we have spent the capital expenditure needs to be substantially improved so that it will have a positive impact. Also, as of the system today, most of the capital expenditure is concentrated in a few hands of the economy that holds the earnings in the unproductive sector and some of the major portions might go overseas either as a form of capital flight or as the source of importing the construction materials. It shows that the money in the hands of ordinary people contributes as a portion of savings then to the investment required for boosting the export performance as stated earlier.

The results also suggest that the taxation and revenue policy variables do not have a direct significant impact on the export performance of the country. Both tax and non-tax revenues (LTREV and LNTREV) do not have direct significant distortion on the export performance. As usual in other many countries' cases, the distance (LDIST) has a negative and statistically significant impact on export performance and the magnitude seems to be about one per cent negative impact. Domestic credit to the private (LDMCRPRIVS) sector does not have a significant impact, rather it has a negative impact but is statistically not significant. The impact of foreign direct investment (LFDI) is positive in all cases and statistically significant in one case indicating an impact of about 0.20 per cent. It is noteworthy that FDI, rather than foreign aid, has a positive impact on export performance.

Table 1: Gravity model's estimation results

Dependent variable: LEXPORT-exports log	(FE)	(RE1)	(RE2)	(RE3)	(RE4)
LDDEBT:domestic debt-log	-1.25***	-1.25***	-1.71***	-1.29**	-1.29**
	(0.427)	(0.428)	(0.519)	(0.539)	(0.539)
LFDEBT: foreign debt-log	-0.10	-0.10	-0.15	-0.12	-0.12
	(0.841)	(0.841)	(1.033)	(1.032)	(1.032)
LCUREXP: current expenditure-log	2.64***	2.64***	2.45**	2.03**	2.03**
	(0.977)	(0.978)	(0.977)	(0.961)	(0.961)
LCAPEXP: capital expenditure-log	-0.95**	-0.95**	-0.78*	-0.62	-0.62
	(0.417)	(0.417)	(0.420)	(0.432)	(0.432)
LTREV: Tax revenue-log	0.38	0.38	1.29	0.63	0.63
	(0.451)	(0.451)	(0.926)	(0.832)	(0.832)
LNTREV: non-tax revenue-log	0.11	0.11	-0.64	-0.80	-0.80
	(0.453)	(0.453)	(0.656)	(0.682)	(0.682)
LDIST: distance -log	(dropped)	-0.86*	-0.86*	-0.86*	-0.91**
		(0.455)	(0.455)	(0.456)	(0.460)
LDMCRPRIVS: domestic credit to private-log			-0.45	-0.62	-0.62
			(0.926)	(0.965)	(0.966)
LFDINFL: FDI net inflow-log			0.19*	0.01	0.01
			(0.111)	(0.114)	(0.114)
LGCAPFRM: Gross capital formation-log	-0.412	-0.42			
	(0.338)	(0.338)			
LFAID: foreign aid-log			-0.23	-0.46	-0.46
			(0.326)	(0.375)	(0.375)
LGDPPC: per capita GDP-log				1.11*	1.11*
				(0.574)	(0.574)
LLOCKED: partner's landlockedness-dummy					-0.50
					(0.719)
Number of observations	*960*	*960*	*960*	*960*	*960*
Number of groups	*80*	*80*	*80*	*80*	*80*
F-/Wald-Statistics	*2.71*	*21.59*	*28.26*	*32.25*	*32.35*

Note: ***, **, and * indicate the results are significant at 1%, 5% and 10% level of significance. The robust standard errors are reported in the parenthesis.

5.2 Robustness check

I conducted the econometric estimation including many variables in the benchmark model and different methods as reported in Table 1. The estimated coefficients for the variables of interest, particularly the fiscal variables, are not meaningfully different in all specifications. The magnitudes of the coefficients are slightly changed in different specifications, but the levels of significances have maintained a level of consistency indicating the estimated results are robust and the findings are credible. The F-statistics in the panel analysis show that the fitness of the model is statistically significant. These results have remained meaningfully the same even though the covered period is reduced, which covers 2010 to 2019.

6. Conclusions and policy inferences

6.1 Conclusions

This section concludes with a summary followed by recommendations for policy inferences from the finding of the study. The main objective of this chapter is to examine the role of fiscal policy variables in international trade, focusing on export performance, noting the concerns raised by various stakeholders on the poor export performance of the country for a long time now. For this purpose, a thorough analysis of the association of exports and fiscal policy variables has been made using an advanced econometric methodology for trade flows analysis.

The results suggest that domestic debt, current expenditure, capital expenditure, and FDI inflows are major fiscal variables to impact Nepal's export trade. The role of current expenditure is very strong and positive, while the role of FDI is consistently positive but the significance is not consistent in all specifications. The FDI results show that there is room to improve the efficiency of FDI attraction and mobilization for the shake of export performance in the country. Normally, relying on current expenditure to boost the export performance is not a good way for a better economy in the long run but this has resulted in the case of other fiscal variables are not in the fitted form to boost exports.

Both types of debt hurt export performance, suggesting that either the debt is to be utilized to motivate the production activities or this to be reduced to a minimal level. Also, the awareness to be taken while making the capital expenditure. The more capital expenditure is made without a focused plan, the more distortion in exports will be there in the country. Therefore, at this stage, two challenges are to be well considered. First, increase the capital expenditure both widely and wisely in the country so that the projects are performed timely, and second, all the capital expenditure should be made focusing to boost the production capacity of the country so that more exports are possible. This can be done only by spending on quality-focused, rather than only quantity-focused, infrastructures.

6.2 Policy inferences

The main policy inferences from this chapter are threefold. First, the country should remain away from a debt-based economy to boost export performance. If debt priority is given, foreign debt should be a priority so that productive sectors do not face the problem of liquidity or shortages of investment. Second, the capital expenditure needs to be made more wisely in the planned way to make the quality infrastructures that are required to enhance the production bases that will help to boost the export performance of the country. Third, focus more on FDI attraction rather than foreign aid, the easy money has not resulted in entrepreneurship in the country. The FDI will help to enter new technology and extend the production bases to improve the export situation. Therefore, all the fiscal policy variables need to be properly managed to extend the export bases in the economy.

Reference

Arestis, P. (2012). "Fiscal policy: a strong macroeconomic role." Review of Keynesian Economics(1): 93-108.

Bergeijk, P. A. G. V. and S. Brakman, Eds. (2010). The Gravity Model in International Trade: Advances and Applications, Cambridge University Press, Cambridge.

Budha, B. B. (2014). "The role of expenditure components in Nepal's import from India." South Asia Economic Journal **15**(1): 37-54.

CEPII (2012). The CEPII Gravity Dataset http://www.cepii.fr/anglaisgraph/bdd/gravity.asp (Accessed on 16/06/2021).

Conconi, P., A. Sapir and M. Zanardi (2016). "The internationalization process of firms: From exports to FDI." Journal of International Economics **99**: 16-30.

Dao, M. Q. (2014). "Exports, imports, government consumption and economic growth in upper-middle income countries." Progress in Development Studies **14**(2): 197-204.

Emran, M. S. (2005). "Revenue-increasing and welfare-enhancing reform of taxes on exports." Journal of Development Economics **77**(1): 277-292.

Girma, S., R. Kneller and M. Pisu (2005). "Exports versus FDI: an empirical test." Review of World Economics **141**(2): 193-218.

Gupta, A. S. (2007). "Determinants of tax revenue efforts in developing countries." IMF Working Papers **2007**(184).

Ilegbinosa, I., P. Uzomba and R. Somiari (2012). "The impact of macroeconomic variables on non-oil exports performance in Nigeria 1986-2010." J Econ. Sustain. Dev **3**(5): 27-40.

Isard, W. (1954). "Location theory and trade theory: short-run analysis." The Quarterly Journal of Economics: 305-320.

Kahrl, F. and D. Roland-Holst (2008). "Energy and exports in China." China Economic Review **19**(4): 649-658.

Lipsey, R. E. and M. Y. Weiss (1981). "Foreign production and exports in manufacturing industries." The review of Economics and Statistics: 488-494.

Ministry of Finance (2021). Economic Survey (Nepali version). G. o. N. Ministry of Finance, Kathmandu. Kathmandu, Nepal.

Nepal Rastra Bank (2017). A Handbook of Government Finance Statistics, Nepal Rastra Bank, Baluwatar, Kathmandu, Nepal.

Nepal Rastra Bank (2020). Current Macroeconomic and Financial Situation. Baluwatar, Kathmandu, Nepal.

Nepal Rastra Bank (2020). Economic Report, Nepal Rastra Bank, Kathmandu, Nepal.

Paudel, R. C. and A. Cooray (2018). "Export performance of developing countries: Does landlockedness matter?" Review of Development Economics **22**(3): 1-27.

Paudel, R. C., R. Thapa-Parajuli and M. Alharthi (2020). "Electricity Consumption and Export Performance: Evidence from Nepal." International Journal of Energy Economics and Policy **10**(6): 529-535.

Paudel, R., & Verma, R. (2016). Fiscal Policy on Economic Growth: Endogenous Models from Sri Lanka. *SCMS Journal of Indian Management*, *13*(2): 5-16

Rob, R. and N. Vettas (2003). "Foreign direct investment and exports with growing demand." The Review of Economic Studies **70**(3): 629-648.

Roper, S. and J. H. Love (2002). "Innovation and export performance: evidence from the UK and German manufacturing plants." Research policy **31**(7): 1087-1102.

Tagkalakis, A. O. (2015). "Fiscal policy, net exports, and the sectoral composition of output in Greece." International economics and economic policy **12**(4): 521-539.

Tinbergen, J. (1962). Shaping the World Economy; Suggestions for an International Economic Policy, The Twentieth Century Fund, New York, USA.

Trade and Export Promotion Centre (2021). Nepal Trade Information Portal, Government of Nepal, Kathmandu.

World Bank (2020). World Development Indicators. Washington, D.C., World Bank, http://data.worldbank.org (accessed on 11/12/2021).

Zhang, K. H. and S. Song (2001). "Promoting exports: the role of inward FDI in China." China Economic Review **11**(4): 385-396.

CEDECON/TU/WP/03

9789937174466

Central Department of Economics
TRIBHUVAN UNIVERSITY
GPO Box: 3821, Kathmandu, Nepal
Tel: (977-1) 4330950 / 4333616
Fax: (977-1) 4333539
E-mail: info@cdec.tu.edu.np