The Role of Cooperatives, Remittances, and Infrastructure in Export Performance of Nepal: ARDL Approach of Cointegration

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Abstract

Cooperatives, remittances, and foreign direct investment (FDI) are crucial source of funds required for better entrepreneurships, which combinedly along with the quality of infrastructure can contribute to enhance the supply side factors of the export performance. Due to the well perceived role of cooperatives, Nepal's constitution 2015 mentions this sector as one of the three pillars of the national economy while around 30 percent of Nepal's GDP comes from remittances. As the country lacks the domestic sources for investment, FDI has become an indispensable part of the development sources of the developing countries in the recent decades. This paper analyzes the role of cooperatives, remittances, FDI and infrastructure in export performance of Nepal using the Autoregressive Distributive Lag (ARDL) approach of cointegration as suggested by the properties of the time series data for the period of 26 years from 1993 to 2018. The major finding shows that the cooperatives have not contributed to export performance as expected, however the role is positive. The remittances have a strong negative role on export performance, which is largely impacted by the number and quality of the infrastructure. The role of FDI is also negative and might be due to insufficient volume to contribute substantially. This fact seeks the urgent attention from the policy makers to make the country more investment friendly.

Keywords: Export performance; Cooperatives; Remittances; Infrastructure; Nepal.

1. Introduction

Cooperatives, remittance, and foreign direct investment (FDI) are crucial source of funds to enhance the supply side factors of the better export performance. Due to the well perceived role of cooperatives, Nepal's constitution 2015 mentions the cooperative sector as one of the three pillars of the national economy. On the other hand, about 30 percent of Nepal's GDP comes from remittances, particularly since 2002 this has become one of the most important phenomena of Nepalese economy. As the country lacks the domestic sources, particularly investment, FDI has become an indispensable part of the development sources of the developing countries in the recent decades. Nepal, at present, is giving special attention to accelerate the economic growth intending to graduate to a middle-income country by 2030 (COPAC, 2015).

When we talk about the export performance of Nepal, the progress is not impressive and the policy makers in the field are not satisfied on the achievement. Nepal entered into the World Trade Organization (WTO) guidelines and the country is known as one of the earlier entrants in the liberalization and reform era in the region, but the progress is very slow and in fact it is far below than the expectation from the stakeholders (Paudel, 2016;2019).

Against this background, the belief of the political leadership may be that cooperatives' development will make more exports friendly environment supporting small and medium scale business, manufacturing, and service sector by fulfilling immediate capital needs. Probably, this is one of the major expectations to accept it as one of the three pillars of the Nepal's national economy in the country's supreme legal document-Nepal's Constitution 2072 BS (2015 AD). Also, the development of the cooperatives can ease the citizens' life supporting to fulfill urgent financial needs so that there can be sort of productivity growth to improve the export performance. However, the cooperative sector's contribution in export performance in the context of Nepal has not been examined systematically yet.

Remittance has become one of the major sources of Nepal's national economy, particularly since 2002 onwards as the data indicate. In the last one decade, the contribution of remittance in Nepal's GDP seems around 30 percent on average. But the question comes to the stakeholders' mind that has the remittance contributed to develop the entrepreneurship in the country or just facilitating the household expenditure boosting imports as it is normally said that imports in Nepal are fed by remittance but not sure how the role is on exports. In fact, due to emphasis in imports, it might have a negative role in exports. This role has not been systematically examined yet in the context.

Similarly, the role of foreign direct investment (FDI) in the export performance is well discussed in the literature and the contribution from FDI comes from capital and know how (technological) transfer from FDI origin country to

FDI host country. Nepal yet has not become an attractive country for FDI because of various reasons, such as, unstable political scenario for long time, policy inconsistency, lack of the quality governance, poor quality of infrastructure, geographical constraints to result high trade costs and lack of appropriate strategies; even there are so many favorable factors, such as, large market access, cheap labor, suitable climate, natural resources, demographic dividend and many other things.

Therefore, the role of cooperatives, remittance and FDI along with the infrastructure in export performance is an interesting area of research in the context of Nepal. Against this background, this paper aims to make a systematic study on the contribution of the cooperatives, remittance and FDI along with the infrastructure in the export performance of Nepal. For this purpose, this study uses the relevant annual timeseries data employing Autoregressive distributed lag (ARDL) approach of cointegration, which provides both long-run and short-run coefficients despite the different order of cointegration of the variables, such as, I(0) and I(1).

The findings of this paper reveal that the cooperatives, remittance and FDI along with infrastructure have a robust long-run relationship with the export performance but with no good news from these regressors except the proxy of the infrastructure. The results indicate that cooperatives have a positive role but not statistically significant, while the remittance and FDI have statistically significant but negative role in the export performance. Rather, infrastructure quality has a strong positive role in the export performance. The finding suggests that infrastructures' improvement with a focused priority and attracting the quality foreign direct investments might contribute to improve the export performance in the country.

This paper is divided into five sections. After setting the introductory context, Section 2 highlights the issues of cooperative to set the broader context. Section 3 reviews the literature discussing the role of cooperatives, remittance and FDI in export performance both in the global and national context. Section 4 discusses about the research methodology and the final section concludes.

2. Context of Cooperatives, Remittance, FDI and Infrastructure

Generally, it is said that the cooperatives not only create the conductive environment for economic development activities; but also, it lubricates the trend of self- help, self-responsibility, equality, equity, solidarity, and democracy. Cooperative societies are autonomous enterprises with joint ownership and democratically controlled system, which can help to create entrepreneurship that can be a way to improve the exports (Majee and Hoyt, 2011).

The history of cooperatives goes back to the early 1760s, when some people formed 'Fenwick Weavers' Society in Scotland (ICA, 2018). They first started a cooperative business selling handmade cottage items at a discounted price. In the town of Rochdale, Lancashire, North England; a group of 28 poor artisans working in the cotton mills established the first cooperative society in 1844, and the society was honored as "Rochdale Equitable Pioneers Society". They further decided to work together combining their scarce resources focusing on four items of transaction, such as, oatmeal, flour, sugar, and butter in lower price in the society. They respected each other's views, maintained openness, worked hard with honest, shared profit in equitable base among the society members. Every customer of the shop became a member of the society and the popularity went up, business flourished (ICA, 2018). Now a days, cooperatives have become a global phenomenon of the economies.

If we look back at the history of the cooperatives in Nepal, we see that Nepalese people started cooperating each other following their tradition, such as, being organized in Guthi (Trust for social and cultural protection), Dhikuti (collecting petiodic amount to loan the members who bids the highest amount based on the necessity), Dharmabhakari (collection of excess grain to fulfill others shortcomings), Paincho (borrowing stuffs for short time), Parma (working in collaboration) as discussed in Paudel and Khanal (2015). However, if we look at the first formal cooperative in Nepal, it seems the co-operative credit society with unlimited liability in the Chitwan District. It worked as the part of a flood relief and resettlement program in the locality. Legally recognized after the first Co-operative Societies Act of 1959 (Government of Nepal, 2017). After the restoration of democracy in 1990 cooperative movement took the pace and expanded rapidly throughout the country, particularly after the introduction of new cooperative act came in 1992.

The data show that total of 34512 cooperatives of different sectors are running in the country, and their nature are not unique and working in different areas, such as, saving and credit, agriculture, and multipurpose cooperatives. Some of them are working in dairy products, vegetables, fruits, and different needs based on the local requirements. More than 3400000 members are organized with nominal lead by the women. Share capital and saving amount mobilization is more than Rs.367 billion (Ministry of Cooperatives and Poverty Alleviation, 2017). In fact, this money is scattered penny collection of local marginalized individuals too. It shows the high potentiality of capital formation in the country.

We present a picture showing a trend of cooperatives' members and their share capital in Figure 1 for the period of 1993-2018. It shows the incremental tendencies for both variables, but the share capital accumulation is increasing at a faster speed with a greater fluctuation than the members of the cooperatives. Also, we note from the figure that the gap between number of the members and their share capital is increasing year by year indicating a trend for rich people to being organized. Figure 2 shows the growth in cooperative societies. It also indicates that the qualitative capital formation via cooperatives is possible in the years to come.

Figure-1. Cooperatives' members and capital, 1993-2018
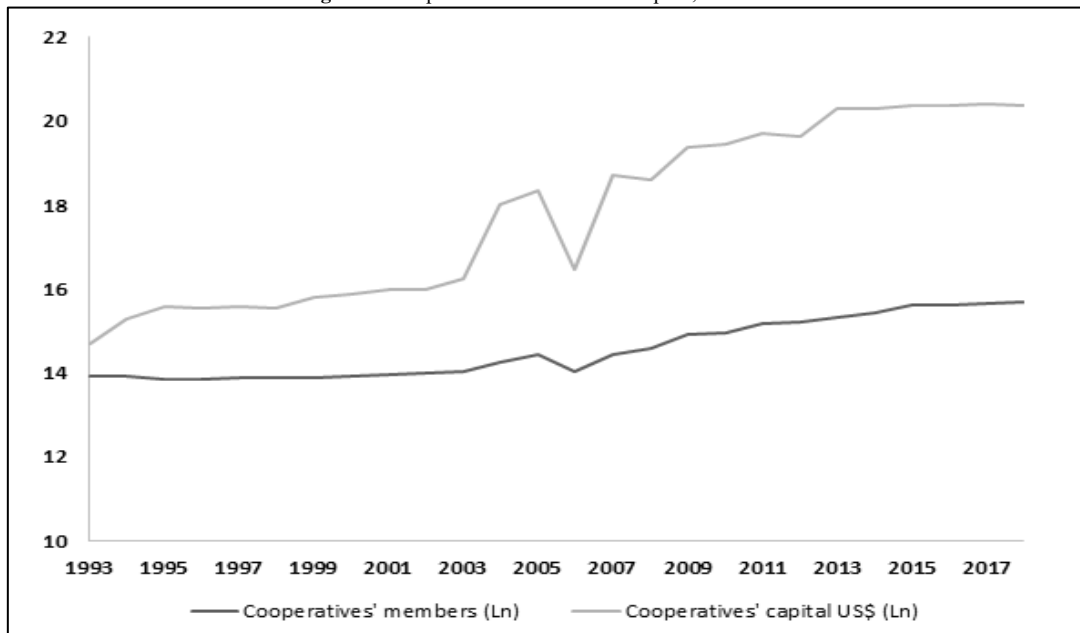
Source: Department of Cooperative, Government of Nepal

We present trends of exports, cooperatives' capital, remittances, and per capita GDP as a proxy of infrastructure for the duration of 1993-2018 in Figure 2. The key information from this figure is that Nepal's exports less than the amount of remittances receipts. Also, this trend is there for long time, say since 2005, almost has become one and half decades. The exports trend seems to follow up the trend of the per capita GDP, particularly since 2003. The remittance inflow has increased visibly since 2001 due to climax of the political turmoil that compelled many youths leaving the country for the foreign employment. The increased capital of the cooperatives seems unable to improve the export performance visibly.

Figure-2. Exports, cooperatives' capital, remittances, and per capita GDP, 1993-2018
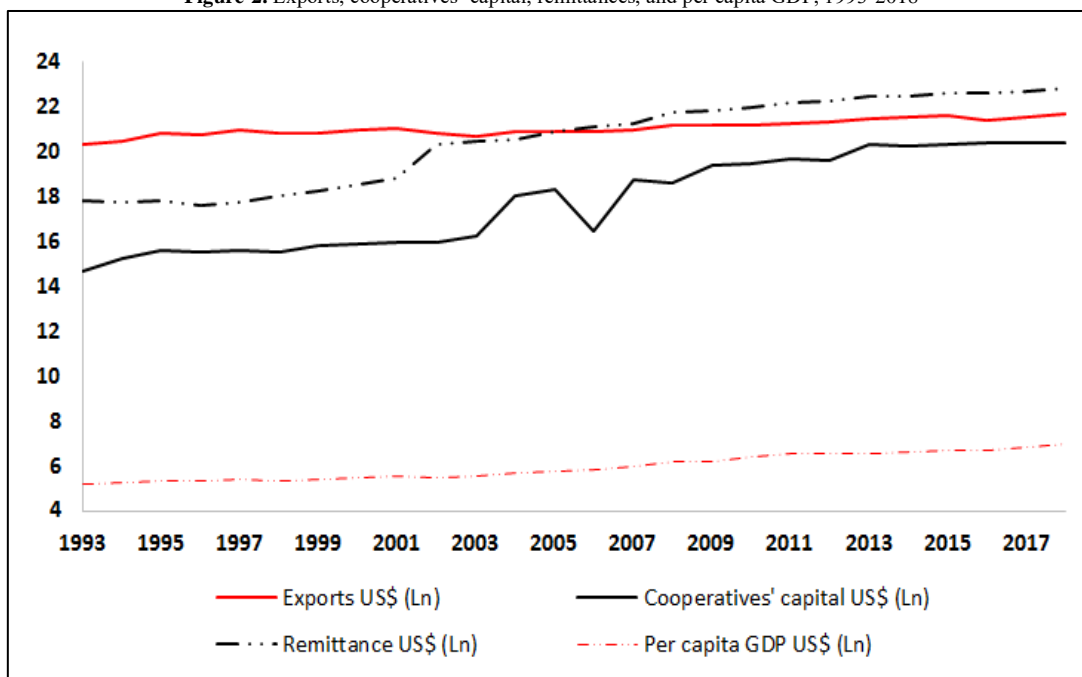
Source: Department of Cooperative, Government of Nepal

We present the share of exports and FDI in GDP in Figure 3. Due to the visibility issues due to gap in exports and FDI, we present FDI in the right axis. The data show that FDI net inflows share in GDP was even negative during 2000 to 2006 with exception in 2001, 2003 and 2005. The average share of these two variables, share of exports and FDI in GDP, over the entire period seem to be 15.73 percent and 0.26 percent, respectively. The maximums of these variables are recorded about 26 percent of exports in 1997 and about 0.80 percent in 2018, respectively. The share of FDI seems very nominal, even the share of exports is not that impressive compared to that of other landlocked developing countries for the recent years. We find the declining trend of the share of exports over the period, recording just about nine percent in 2018.

Figure-3. Share of Exports and FDI in GDP measured in percent, 1993-2018
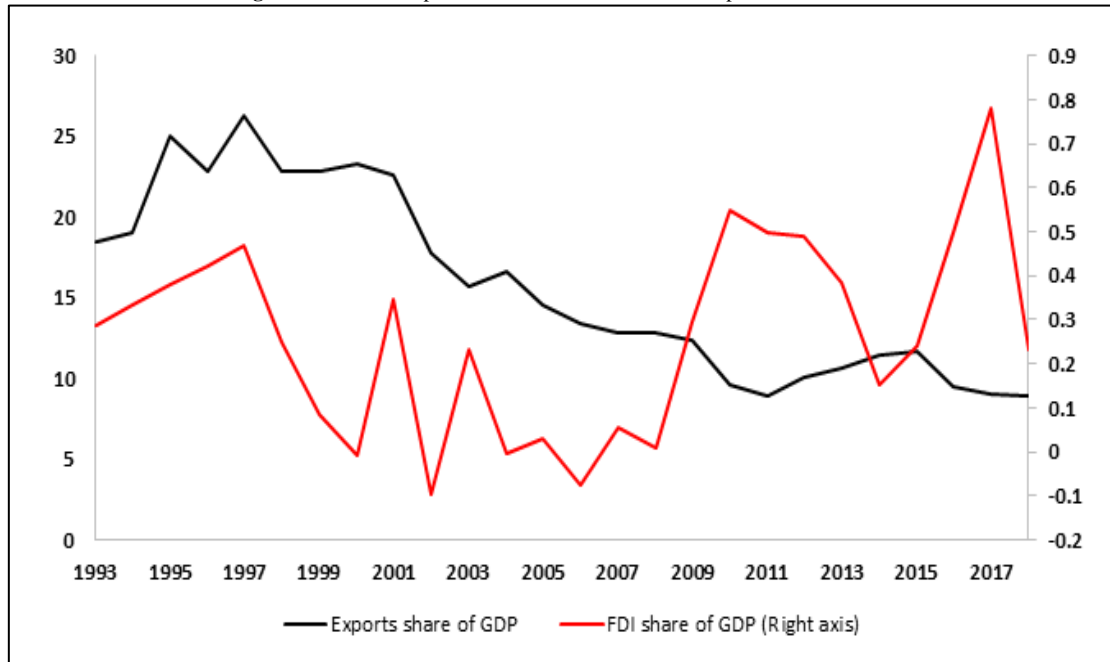
Source: World Development Indicators (World Bank, 2019)

3. Brief Literature Review

3.1. Cooperatives and Export Performance

There are few studies focused on come cooperatives and export performance. However, some of the studies have analyzed the dominant types of cooperatives' role in the export performance in the relevant country's case. Some of these studies are focused on the role of agriculture cooperatives, saving and credit cooperatives, multipurpose cooperatives, and not much about the role of cooperatives in aggregate.

Bartlett *et al.* (1992), analyze the difference between the performance of private firms and cooperatives in Italy and finds the higher level of productivity, less income differentials among the organizations, better industrial relations and more labour intensive production methods in the cooperatives than in the private firms.

Mauget and Declerck (1996), analyzing the role of agriculture cooperatives in European countries, suggests that concentrating on the partnership of national production forces to boost the exports. However, the role of cooperatives on exports are different in countries to countries cases largely depending on how these are managed in the country.

Ruben and Heras (2012), using the primary data for 500 coffee farmers organized in the coffee cooperatives, analyses the performance of the cooperatives and finds that market involvement is important to improve the cooperatives' role in the production and exports. Agbo *et al.* (2015), suggest that cooperatives provide more benefits to the members rather than doing business directly by individuals in many respects. Similarly, Royer *et al.* (2017), employing the data from Ethiopia, suggests that a partnership between a domestic trading firms and a cooperative union can enhance the supply side base so that export performance can be improved.

Valette *et al.* (2018), uses the French wine industry to examine the survival rates of cooperatives and finds that cooperatives survive longer than corporations as cooperatives work more efficiently to compete in the exportable markets following a organizational system.

These representative studies suggest that the cooperatives have a positive contribution in the export performance in different countries cases considering the verities of cooperatives in the context.

3.2. Remittances and Export Performance

Kandil and Mirzaie (2008) finds that remittances increase export growth in Tunisia but not same in other countries, such as, Jordan and Egypt in the study. Bayangos and Jansen (2011), studies the impact of remittance on the competitiveness in Philippines and suggest the negative impact in the export performance. Similarly, Chowdhury and Rabbi (2014) investigate the impact of workers' remittance in Bangladesh using annual data for the period of 1971-2008, and suggest that the remittances inflows causes to loose the export competitiveness in line with the story of Dutch disease having negative impact in the export performance.

Shamim *et al.* (2015), detects the negative effect of remittances on export performance in the long run using the annual data from Pakistan. Jena and Sethi (2020), using the annual data for South Asian countries for the period of 1993-2017, suggest that remittance inflows are affecting export performance negatively during the study period.

Most of these studies have shown the negative impact of remittances inflows on export performance in different countries cases tying up with the Dutch disease story. Normally, the remittances inflows cause to increase the foreign reserves resulting the appreciation of domestic currency in the international market, which results import cheaper and export more expensive so that it harms the export performance of a country in general.

3.3. Nepalese Context

There is no single study in the Nepalese context that deals about the cooperatives and export performance. There are very few studies related with the cooperatives conducted in the context of Nepal, but their focus is different than the export performance. Most of the studies relate with the cooperatives on economic development.

Paudel and Khanal (2015) conduct an empirical research using five years of data and find that for the existence of cooperatives entity; adequate credit to deposit ratio must be maintained to contribute to economic development. Cooperatives moving towards the expansion with greater and efficient monitoring mechanism would contribute to faster economic development (COPAC, 2015).

Puri and Walsh (2018), studies on impact of good governance on performance of cooperatives in Nepal based on Bagmati and Karnali province. For this purpose, the study collects total of 400 sample members and inquiries from total of 18 cooperative societies. This research finds that the performance, participation, and professionalization were significant for the economic development. Also, this study warns stakeholders to make more transparent and legitimate to shape the error free cooperative activities.

Tiwari and Nepal (2018), suggest that the member of lower cast woman, labor, and peasants are indiscriminately benefitted by small farmer cooperatives in the remote regions of the country. Socio economic condition of the members found significant relating with income generating activities. Further, it has work for the gender balance in many cases. However, women's role in decision making was analyzed thematically in post conflict environment of Nepal and the results suggest that the women are lagged in decision making role then men in cooperative societies. The role of cooperatives would be better established if it can connect the issue of women empowerment in the financial and economic issues (Dhakal, 2018).

The clear literature gap is that the role of cooperatives in export performance of Nepal has not been systematically analyzed yet. This scenario justifies the need of research explaining the role of cooperatives in export performance of Nepal.

4. Research Methodology

This study is focused on the overall contribution of the cooperatives, remittances, FDI and infrastructure in export performance employing the secondary data for the period of 26 years from 1993 to 2018.

4.1. The Model

We estimate the following benchmark model to investigate the role of cooperatives, remittance, FDI and infrastructure in the export performance as in equation (1):

$$\text{LEXPORT}_t = \beta_0 + \beta_1 \text{LCOOPCAP}_t + \beta_2 \text{LCOPMEM}_t + \beta_3 \text{LREMIT}_t + \beta_4 \text{FDI}_t + \beta_5 \text{LGDPPC}_t + u_t \ldots\ldots\ldots\ldots (1)$$

Where, t refers to year and the value is 1 to 26, LEXPORT is natural log of export in US\$ is dependent variable. β_0 is constant intercepts and positive; β_1, β_2, β_3, β_4, and β_5 are coefficients of independent variables, LCOOPCAP is the natural log value of cooperatives' capital measured in US\$, LCOPMEM is the natural log of the number of the cooperatives' members, LREMIT is the natural log value of remittance measured in US\$, FDI is the share of foreign direct investment in GDP measured in percentage, LGDPPC is the natural log value of per capita gross domestic product measured in US\$ as a proxy of infrastructure. We expect here all the coefficient of the independent variables to be positive.

4.2. Econometrics

The association of the variables in the model with export performance is analyzed using a cointegration test based on autoregressive distributed lag (ARDL) approach. The ARDL approach of cointegration is best suitable in our case because of three reasons: first, this approach addresses the issues caused by the mix of I(0) and I(1) independent variables. Second, it addresses the issues of serial correlation. Third, the same model gives us the long run and short run relationship of the variables. For time series data cointegration become a strong statistical tool for long. In our model, Exports, GDP per capita, remittance are I (1) while other variables such as FDI and cooperatives' capital are I (0). In this situation, ARDL approach of cointegration minimizes the error using the dynamic model (Paudel, 2007; Paudel and Kankesua, 2009; Pesaran *et al.*, 2001). Equation 1 has been converted into Equation 2 to capture the dynamic impact in the form of Auto Regressive Distributed Lag Model.

$$\Delta\text{LEXPORT}_t = \alpha_{1i} + \alpha_1 \text{LCOOPCAP}_{t\_1} \alpha_{1i} + \alpha_2 \text{LCOPMEM}_{t\_1} + \alpha_3 \text{LREMIT}_{t\_1} + \alpha_4 \text{FDI}_{t\_1}$$

$$+ \alpha_5 \text{LGDPPC}_{t\_1} + \sum_{i=1}^{26} \tau_i \Delta\text{LEXPORT}_{t\_1} + \sum_{i=1}^{26} \gamma_i \Delta \text{LCOOPCAP}_{t\_i} + \sum_{i=1}^{26} \theta_i \Delta \text{LCOPMEM}_{t\_i}$$

$$+ \sum_{i=1}^{26} \delta_i \Delta\text{LREMIT}_{t-i} + \sum_{i=1}^{26} \varphi_I \Delta \text{FDI}_{t\_i} + \sum_{i=1}^{26} \emptyset_i \Delta \text{LGDPPC}_{t\_i} + v_t \ldots\ldots\ldots\ldots (2$$

Operator Δ indicates the first order differential variable. α_1, α_2, α_3, α_4 and α_5 are the coefficients of first order variables. τ_i, γ_i, θ_i, δ_i, φ_i, and $\emptyset_i$ are the parameters of error correction model, v_t is vector of random error.

4.3. Data and Sources

Mainly two data sources are used for this study: first, Ministry of Land Management, Cooperatives and Poverty Alleviation, Cooperative department for cooperative related data; and, World development indicators (World Bank,

2019) for the rest of the variables. The study period was chosen from 1993 to 2018. Time is chosen in which the cooperatives environment was flourished after the restoration of democracy. Few observations of remittance and cooperatives data were to be interpolated based on 5 year moving average.

4.4. Results

We first start testing the unit root to know the time series properties of the data, that is whether each series is integrated and has a unit root using Dickey-Fuller test (DF), augmented Dickey-Fuller (ADF) test and the Phillips and Perron (PP). Then, we proceed for the cointegration test based on ARDL approach to cointegration.

4.4.1. Unit Root Test

We follow the standard technique and procedure for the unit root tests. The test results are achieved assuming the presence of a unit root (non-stationary variable) in the null hypothesis (H0) and no unit root (stationary variable) in the alternative hypothesis (H1). For this, a decision is made based on the calculated statistic and McKinnon's critical value; that is, if the calculated statistic is higher than McKinnon's critical value, then H0 is not rejected, and the considered variable is non-stationary (has a unit root). We observed in level and then in first differences to make the test systematic and reliable, including the intercept and time trend, because this is the most flexible specification of the test, as illustrated in equation (3).

$$\Delta Z_t = \alpha_1 + \alpha_{2t} + \gamma Z_{t-1} + \sum_{j=1}^{k} \beta_j \Delta Z_{t-j} + \varepsilon_t \dots\dots\dots\dots\dots\dots (3)$$

Where, Δ is the first difference operator, Z is the variable of interest, α_1 is the intercept, t is the time, ΔZ the augmented terms, k is the appropriate lag length of the augmented terms and ε is the white noise error term. The ADF test is essentially the test of significance of the coefficient γ in the above equation. The DF test is performed without the augmented term. To select the lag length k, we start with a maximum lag of 4 and pare it down to the appropriate lag by examining the Schwarz Criterion (SC).

The unit root tests result for all dependent and independent variables are presented in Table 1. Following the standard practice, the DF, ADF and PP tests are performed. The results suggest that only FDI, LCOOPCAP, and LCOPMEM are found to be I (0). For the rest of the variables, we conduct those tests in the first difference, and the results are reported in the lower panel of Table 1. As shown by the test results, we say that the rest of all variables are known I (I) as their calculated absolute values are greater than their critical values at 5 per cent level of significance, in fact, they are significant even at 1 per cent level. Therefore, we can conclude that the empirical variables are mixed with I(0) and I(1). Tr

Table-1. Unit root test results of the variables

Unit root test at level	Test with constant			Test with constant and trend		
Variables	DF	ADF	PP	DF	ADF	PP
LEXPORT	-0.55	-1.42	-1.35	-2.89	-3.02	-3.02
LCOOPCAP	-0.60	-0.67	-0.89	-3.69**	-3.57**	-3.59**
LOCPMEM	-0.68	-0.71	-0.71	-3.85**	-3.78**	-3.78**
LREMIT	0.05	-0.66	0.66	-1.40	-1.28	-1.40
FDI	-2.92**	-2.97**	-2.98**	-3.23**	-2.92	-2.88
LGDPPC	0.63	0.95	0.96	-1.53	-1.65	-1.65
Critical value @ 5%	*-1.95*	*-2.943*	*-2.943*	*-3.190*	*-3.536*	*-3.537*
Unit root test at difference						
	Test with constant			Test with constant and trend		
Variables	DF	ADF	PP	DF	ADF	PP
LEXPORT	-5.35**	-4.96**	-6.93**	-4.66**	-4.68**	-5.59**
LREMIT	-4.32**	-4.53**	-4.53**	-4.57**	-4.52**	-4.50**
LGDPPC	-4.09**	-4.03**	-4.03**	-4.47**	-4.30**	-4.29**
Critical value @ 5%	*-1.95*	*-2.943*	*-2.943*	*-3.191*	*-3.548*	*-3.540*

Note: ** indicates the statistics are significant at 5% level of significance.

4.4.2. Cointegration Tests

In the process of cointegration test, we first look the calculated F-Statistics, which confirms to be the upper bound (5 % level of significance) indicating the existence of strong long run relationship. Then, we step for the tests for long run relationship. Table 2 presents the long run coefficients results for the model. Schwartz-Bayesian Criteria (SBC) is selected to fit in the data properties as our data sample is fairly small. The lags are selected following the lag selection criteria and settled in ARDL (1 0 0 0 1 1) for the full model as shown in column (1) of the same table. The alternate form of model is tested, and the results are presented in column (2), (3) and (4) of the Table 2. Cooperatives are represented by two variables, LCOOPCAP ad LCOPMEM. The appropriate variable would be the number of cooperatives, but due to the merger policy adopted time to time in Nepal, the number of cooperatives would reflect the natural growth of the cooperatives. Therefore, these two variables are chosen.

As can be seen in the column (1) in the tables, the variables to represent the cooperatives are not statistically significant. The LCOOPCAP has a positive relationship in all specification of the model but the LCOPMEM shows a negative relationship. However, increasing cooperative capital is more meaningful for exports rather than

increasing the numbers of the membership. Therefore, we conclude that the role of cooperatives in export performance, from both variables, is not statistically significant. This result is in line with the findings of other literatures in the field, such as, Ruben and Heras (2012) and Royer *et al.* (2017) but statistically not significant.

The results for remittance (LREMIT) show that remittance inflows have a strong negative role in the export performance. The finding suggests that a one percent increases in remittance inflows causes to decrease the export performance by on average a quarter percent, holding other variables in the model constant. This result is consistent in all specifications of the model as can be seen in column (2), (3), and (4), however in slightly different magnitudes. Our finding for this variable is in line with the literature and supports to the findings of Jena and Sethi (2020) and others in the literature.

The results for another variable of interest, FDI is statistically negative against our expectation in all specifications of the model indicating a negative impact of net foreign direct investment inflows in export performance. This may be due to FDI is very nominal and has not been utilized to fulfill the objectives of the approved projects. The results seek an urgent attention for a more progressive administration so that it would contribute to the export performance as in the cases of other countries, for example, in East Asian countries and African region.

In our model, it seems that the only strong and positive contributor for export performance is per capita GDP, which is used as a proxy of infrastructure. The more and better quality of infrastructure contributes to export more is the key message from the results. The results for this variable indicate that a one percent increase in per capita GDP causes to increase the export performance on average by one percent or more, holding other variables in the model constant. Therefore, improving the infrastructure number and the quality may be a good way to enhance the export performance in Nepal.

Table-2. ARDL (1 0 0 0 1 1) model long run coefficients Results

Dependent variable: exports US$ in log	(1)	(2)	(3)	(4)
Cooperatives' capital US$-log (LCOOPCAP)	0.081	0.048		0.058
	(0.086)	(0.064)		(0.079)
Cooperatives' members-log (LCOPMEM)	-0.221		-0.002	
	(0.359)		(0.266)	
Remittance US$-log (LREMIT)	-0.250***	-0.229***	-0.213***	-0.149**
	(0.092)	(0.081)	(0.076)	(0.074)
Foreign direct investment-share in GDP (FDI)	-0.521*	-0.540**	-0.550**	
	(0.272)	(0.265)	(0.264)	
GDP per capita in USD-log (LGDPPC)	1.377***	1.154***	1.272***	0.782***
	(0.480)	(0.296)	(0.448)	(0.253)
Number of observations	*26*	*26*	*26*	*26*
Root MSE	*0.09*	*0.08*	*0.09*	*0.09*
Log likelihood	*30.05*	*29.75*	*29.31*	*26.57*
R-squared	*0.70*	*0.69*	*0.68*	*0.60*

Note: ***, ** and * indicate that the statistics are significant at 1%, 5% and 10% level of significance. The figures in the parenthesis are the standard error.

Table-3 shows the ECM result where the main concern is Ecm (-1) which is statistically significant with negative sign as expected and it indicates that the adjustment is fast in case of disequilibrium. The result indicates that a around 60 percent disequilibrium in the previous year can be adjusted in the current year. The short run results for none of the variables are significant indicating not much impressive impact of the selected variables on export performance in the short run.

The R-square value is moderately high, around 65 percent on average of all specification, and has declined as the number of independent variables are reduced. This value shows that the overall goodness of fit of the model is moderately high. Further, the diagnostic test results indicate that the model passes the tests for serial correlation, functional form, normality, and heteroscedasticity. Further, the stability test results (CUSUM and CUSUMSQ) plotted against the critical bounds of 5 per cent level of significance are within the expected range, generally, indicating that the model is structurally stable (Figures 3)

Table-3. ARDL (1 0 0 0 1 1) model, ECM Results

Dependent variable: ΔExports-log (ΔLEXPORT)	(1)	(2)	(3)	(4)
FDI (-1)	0.103	0.104	0.123	
	(0.123)	(0.120)	(0.121)	
LGDPPC (-1)	-0.043	0.085	0.063	0.24
	(0.432)	(0.374)	(0.418)	(0.389)
ECM (-1)	-0.63***	-0.63***	-0.65***	-0.54***
	(0.159)	(0.156)	(0.158)	(0.102)

Note: ***, ** and * indicate that the statistics are significant at 1%, 5% and 10% level of significance. The figures in the parenthesis are the standard error

Figure-4. CUSUM and CUSUMSQ plotted against the critical bounds of 5% level of significance
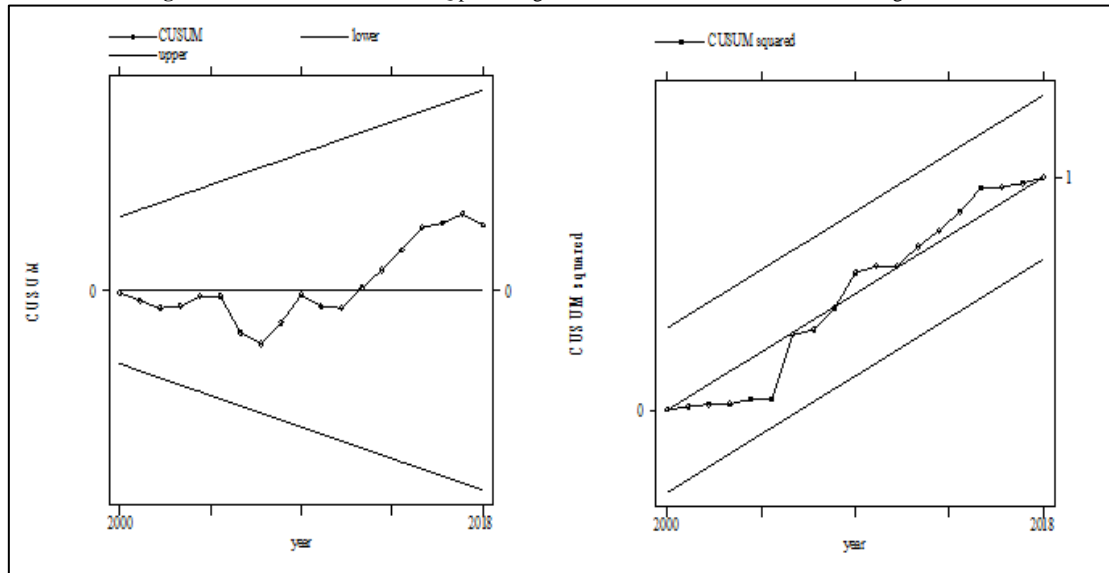
5. Conclusion

This paper focuses to investigate the role of cooperatives, remittance, FDI and infrastructure in the export performance of Nepal. After analyzing the timeseries properties of the annual data, we employed ARDL approach of cointegration. The major findings of this research suggest that the direction of the constitution accepting the role of cooperative as a pillar of Nepali economy is meaningful for economic activities in the country but there are rooms to improve the performance of the cooperatives so that this sector will substantially contribute to the export performance. The role of remittance and FDI seems, as indicated by the results, to be negative for export performance. Specially, the case of remittance seems to be related with the Dutch disease story. The proper administration for FDI seems to be one of the major concerns of the development administration. Also, it may be the reason that FDI is insufficient to impact positively in export performance. The role of infrastructure seems to be the key focus for the improvement of the export performance.

The major policy inferences from the study may be to focus on improving the number as well as the quality of the infrastructure for the better performance of the exports. There is an urgent need to connect the remittance with the entrepreneurships rather than just feeding the imports, which largely should be guided by the export performance strategies and guidance, despite it being the priorities of the remittance receiving households. The development administration should be further serious on FDI administration procedures and management so that more FDI would enter the country and contribute to the export performance expanding the production activities with better productivity.

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