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Impact of Remittance Inflow on Foreign Import in Nepal

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Abstract – Nepal is the top country in Asia to receive remittance from foreign countries. Since the 1990s, there has been a tremendous increment in the remittance inflow in Nepal. It is not an exaggeration to say that by and large, the Nepalese economy has been supported by the remittance that it received from foreign countries. But unfortunately, this remittance has not played any significant role in the development of Nepal. The major portion of this remittance is spent on importing merchandise from foreign countries. It is therefore a pertinent question, is there any empirical relationship between remittance received and import of merchandise? The researcher has tried to find out this through econometric modeling. For this, time-series data of 26 years from 1993 to 2018 have been analyzed. From this analysis, it has been found that there is a significant impact of remittance on imports in Nepal.

Keywords – Nepal, Remittance, Import

1 Introduction

Nepal has failed to employ its working force. Every year, more than 5,00,000 human resources enter the labor market in Nepal, but the government has not been able to provide them with employment. The unemployment rate was 11.4% in Fiscal Year (FY) 2017/18 (Ministry of Finance, 2019). Due to this, Nepalese are migrating to the places where they are demanded. Every day around 1,600 Nepalese leave Nepal in search of a job in foreign countries (Shrestha, 2018). In the past 10 years, the number of Nepalese workers going abroad has increased considerably (has doubled in just 10 years). Malaysia, Qatar, Saudi Arabia, U.A.E are the most favored countries for Nepalese Migrants (cf. figure 1).

According to Shakya (2013), remittance started in Nepal during the 1st and 2nd world war when *Gurkhas* participated in these wars. However, formal migration and remittance started in Nepal in the 1950s and 1960s. At that time, Nepalese workers went to India in pursuit of work but as seasonal workers. But in the 1970s, Indira Gandhi declared a state of emergency so these workers started looking for other destinations. At the same time, due to the oil boom, the Middle East economy was blooming where Nepalese found the perfect destination. In the 1980s, workers started choosing Korea and Japan as the destination country, as earnings there was comparatively higher. In the 1990s, with the liberalization of passport control and due to

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Maoist insurgency, Nepalese started to go all over the world and the flow of remittance too started to increase drastically.

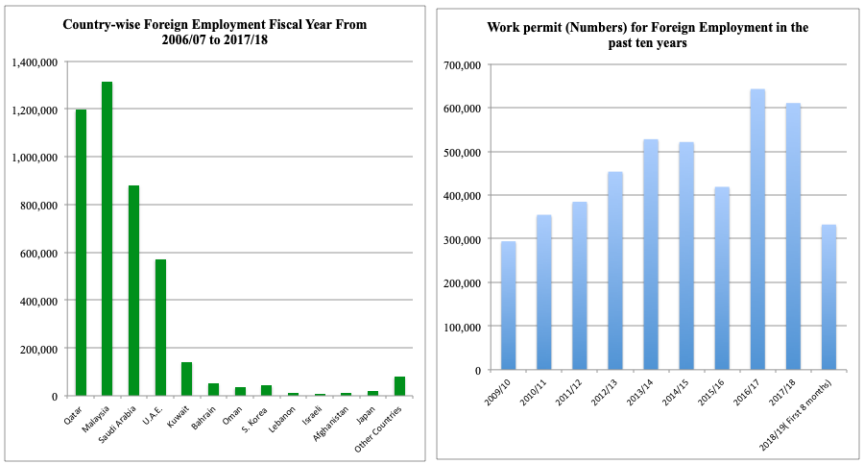

Figure 1: Status of migrants from Nepal. Data source: Ministry of Finance (2019), Economic Survey 2018/19

Income changes the spending decision of an individual. Nepal is not self-sufficient in producing what and how much it consumes, so it should depend on foreign countries to supply what is demanded in Nepal thus import increases. The history of Nepal shows that along with remittance, foreign trade also started growing around the same period. Before the 1950s, Nepal traded only with India and Tibet. But After the 50s, with the declination of the Rana regime, Nepal started expanding its trade with many other countries including the USA, Germany, Japan, France, Singapore, Thailand, Kuwait, Bangladesh, Spain, etc. (Acharya, 2019). Due to the flow of remittance, imports in luxury goods like vehicles, electronics, and petroleum products escalated (Acharya, 2019). Merchandise import has increased by 23.8 percent to 949.11 billion rupees till mid-March of FY 2018/19 (Ministry of Finance, 2019). This change in import due to the change in disposable income is called Marginal Propensity to Import (MPM). MPM measures how the import increases with an increase in Income. Out of remittance received, more than 80% is used in consumption in Nepal, half of which is imported (Tuladhar, Sapkota, & Adhikari, 2014). This accounts for an MPM of 0.5, which means half of the additional amount of remittance received by the Nepalese economy from foreign countries, would be spent on importing goods. This has caused the boomerang effect of remittance in Nepal (Bhatta, 2013). It seems foreign currency has been flowing in huge amounts in Nepal through remittance, while the truth is a big part of it is again going to foreign countries in the name of Import.

This indicates that only a negligible effect of remittance received contributes to the overall development in Nepal. Most of this is used in unproductive sectors; consumption, buying real estate, buying luxury goods, etc. There has been substantial research in the field of remittance in Nepal. There are ample researches that point out the positive and negative aspects

of remittance in Nepal. Though the evidence indicates the relationship between remittances received and merchandise import in Nepal, empirical study is scarce. Therefore, this study tries to fill this gap by proposing a model establishing a relationship between remittances received and merchandise import in the case of Nepal. Amidst the fact that remittance is not being able to impact positively in the development of Nepal, the result will help the policymakers to devise and update the policies based on the factual research. Remittance can both be domestic and international. For this research, only remittance from migrants working in a foreign land, from the formal channel has been considered as Nepal receives a significant amount of remittance through unofficial medium too; about 50% of what it receives from formal channels (Pant, 2008).

2 Literature Review

The impact of remittance is dominant mostly in developing economies (Ojha, 2019; Giuliano & Ruiz-Arranz, 2005). If a small economy does not have enough economic resources of its own to import, spend or invest, remittance is the dependent factor to fulfill this lacking economic resource. Compared to FDI, foreign loans, and foreign AIDS, remittance is a more stable source of external inflows (Ojha, 2019). Remittance increases the household economy, especially of those who are at the bottom of the hierarchy. It also increases their purchasing power. Thus, remittance helps in poverty reduction. According to the Central Bureau of Statistics (CBS, 2011), the living standard of Nepalese has increased due to remittance.

Remittance also results in disposable income in the family. This results in a preference for luxury and branded products instead of local goods (CBS, 2011). Uprety (2016), claims that due to increased remittance, demand shifts from traditional Nepali products to differentiated manufactured products so an increase in remittance only triggers the import and is not in the favor of the economic development of Nepal. Mandal (2019) states that returned migrants have different preferences for import goods mostly luxury goods. This preference propagates soon to their family members then to neighbors then to the community. This results in a decrement in domestic demand and increment in foreign imports, which in turn excels inflation in the country.

Growing remittance will increase the aggregate demand in the receiving economy (Solimano, 2003). There is a strong positive correlation between remittance and merchandise import while the correlation between remittance and export could not be established in Nepal (Bhatta, 2013). It seems that remittance money has been spent mostly on imported goods in daily consumption or luxury and durable items. Due to this, Nepal might “entangle in a remittance-import trap” (Bhatta, 2013, p.9). Due to remittance, the domestic currency will be appreciated which will result in growth in import in the economy (Ferdous & Islam, 2015).

From prior knowledge, it can be speculated that when the population of any country grows, its import also tends to grow. The population has a significant effect on the import of any country (Martinex-Zarzoso & Nowak-Lehmann, 2002). As the population grows, the demand for goods also in-

creases. Since Nepal is not being able to supply in accordance with the persisting demand, it should import it from foreign counties. Therefore, imports will grow as the population grows in Nepal (Alam, Uddin, & Taufizue, 2009).

This study will thus try to investigate the relationship between Import, Remittance, and Population in Nepal. In doing so, the following hypotheses are tested in this research.

Hypothesis 1: Remittance has a significant positive impact on the import of merchandise goods in Nepal.

Hypothesis 2: Population has a significant positive impact on the import of merchandise goods in Nepal.

3 Methodology

From the above discussion, we can speculate that there might be a relationship between Remittance, Population, and Import in Nepal. To study this relationship, data of Import, Export, Remittance and Population for 26 years, from 1993 to 2018 has been collected cf. table 1). Data on Import and Export has been taken from Nepal Rastra Bank (NRB, 2019). Data on Remittance and Population has been taken from World Bank (2019).

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Table 1: Data used for analysis. Data source: World Bank (2019)

Fiscal Year	Imports In MM Rs.	Remittance In MM $	Population	Exports In MM Rs.	Trade Balance In MM Rs.
1993	51,570.80	54.83	20,489,975	19,293.40	-32,277.40
1994	63,679.50	50.12	21,040,904	17,639.20	-46,040.30
1995	74,454.50	56.82	21,576,071	19,881.10	-54,573.40
1996	93,553.40	44.16	22,090,352	22,636.50	-70,916.90
1997	89,002.00	49.46	22,584,775	27,513.50	-61,488.50
1998	87,525.30	67.50	23,057,883	35,676.30	-51,849.00
1999	108,504.90	83.46	23,509,964	49,822.70	-58,682.20
2000	115,687.20	111.50	23,941,110	55,654.10	-60,033.10
2001	107,389.00	146.99	24,347,106	46,944.80	-60,444.20
2002	124,352.10	678.49	24,725,627	49,930.60	-74,421.50
2003	136,277.10	771.07	25,080,872	53,910.70	-82,366.40
2004	149,473.60	822.61	25,419,344	58,705.70	-90,767.90
2005	173,780.30	1,211.82	25,744,500	60,234.10	-113,546.20
2006	194,694.60	1,453.23	26,066,693	59,383.10	-135,311.50
2007	221,937.70	1,733.86	26,382,581	59,266.50	-162,671.20
2008	284,469.60	2,727.14	26,666,576	67,697.50	-216,772.10
2009	374,335.20	2,983.34	26,883,535	60,824.00	-313,511.20
2010	396,175.50	3,464.09	27,013,212	64,338.50	-331,837.00
2011	461,667.70	4,216.89	27,041,437	74,261.00	-387,406.70
2012	556,740.28	4,793.44	26,989,862	76,917.06	-479,822.76
2013	714,365.81	5,588.90	26,917,906	91,991.40	-622,374.41
2014	774,684.19	5,888.69	26,906,926	85,319.12	-689,365.08
2015	773,599.14	6,729.94	27,015,031	70,117.15	-703,481.97
2016	990,113.20	6,611.84	27,261,131	73,049.05	-917,064.15
2017	1,245,103.23	6,928.13	27,627,124	81,359.79	-1,163,743.44
2018	1,418,535.26	8,064.35	28,087,871	97,109.54	-1,321,425.72

Note. Data on Import and Export has been taken from NRB (2019). Data on Remittance and Population has been taken from World Bank (2019).

Summary of data shows average Import of around 376,000 million rupees (M = 376,000, SD = 386,000) and average Remittance of around 2510 million dollars (M = 2,510, SD = 2,690) in these 26 years (“see Table 2”).

Table 2: Summary of the data.

Variable	Mean	Median	S.D.	Min	Max
IMP	376,000	184,000	386,000	51,600	1,420,000
REM	2,510	1,330	2,690	44	8,060
POPN	25,200,000	25,900,000	2,230,000	20,500,000	28,100,000

For investigating the impact of independent variables on the dependent variable, linear regression can be formulated (Gujarati & Porter, 2009). Following model has been conditioned to investigate the current research as:

$$IMP = b_0 + b_1 REM + b_2 POPN + e$$

Where,

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IMP : Import (in million rupees)
b_0 : Constant
REM : Remittance (in million dollars)
$POPN$: Population
b_1, b_2 : Regression coefficient
e : Error term

Import is regressed on Remittance and Population to analyze the effect. The model seems to fit with an R^2 value of 0.929, which shows that 93% of the variance in Import is accounted by the change in Remittance and Population combined (cf. table 3). Remittance significantly affects Import ($F(2,23) = 151.15$, $p < .05$). But the Population variable is not significant, and also sign is negative, which contradicts the prior assumption. Furthermore, performing Durbin Watson test for autocorrelation shows that at n = 26 and k = 2, Durbin-Watson *d* Statistics *dL* = 1.224 and *dU* = 1.553 (Gujarati & Porter, 2009). From Table 3, the Durbin-Watson value obtained is 0.553, which is less than *dL* = 1.224, therefore the test indicates that there is an autocorrelation problem in the model. This is also confirmed by the Breusch-Godfrey test for autocorrelation where the null hypothesis of no autocorrelation is rejected at a 5% significance level.

Table 3: Regression output of import on remittance and population.

OLS, using observations 1993-2018 (T = 26)
Dependent variable: IMP

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	639348	384668	1.662	0.1101	
REM	154.868	13.5116	11.46	<0.0001	***
POPN	−0.0259131	0.0163295	−1.587	0.1262	

Mean dependent var	376218.1	S.D. dependent var	385737.7
Sum squared resid	2.63E+11	S.E. of regression	106933.2
R-squared	0.929298	Adjusted R-squared	0.92315
F(2, 23)	151.1556	P-value(F)	5.87E-14
Log-likelihood	−336.3775	Akaike criterion	678.755
Schwarz criterion	682.5293	Hannan-Quinn	679.8419
rho	0.788213	Durbin-Watson	0.553386

This might be due to high dispersion in the value of the dependent variable i.e. Import, indicating that there might be a non-linear relationship. Therefore, data is analyzed plotting the relationship between a dependent variable and independent variables. Figure 2 indicates that the relationship between dependent and independent variables might be non-linear. Therefore, the

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model is changed into the following log-linear form, to make an effective non-linear relationship, while still preserving the linear model.

$$\ln(IMP) = b_0 + b_1 REM + b_2 POPN + e$$

Where,

$\ln(IMP)$: Log transformation of Import
b_0 : Constant
REM : Remittance (million dollars)
$POPN$: Population
b_1, b_2 : Regression coefficient
e : Error term

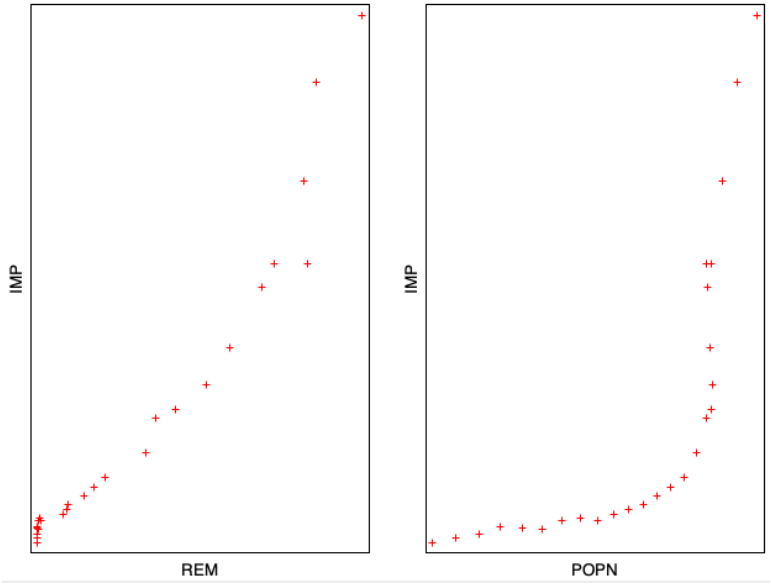

Figure 2: Graph showing the relationship between Remittance & Import and Population & Import.

Again, data is analyzed plotting the relationship between the dependent variable and independent variables. Figure 3 indicates that the relationship between dependent and independent variables seems to be linear now.

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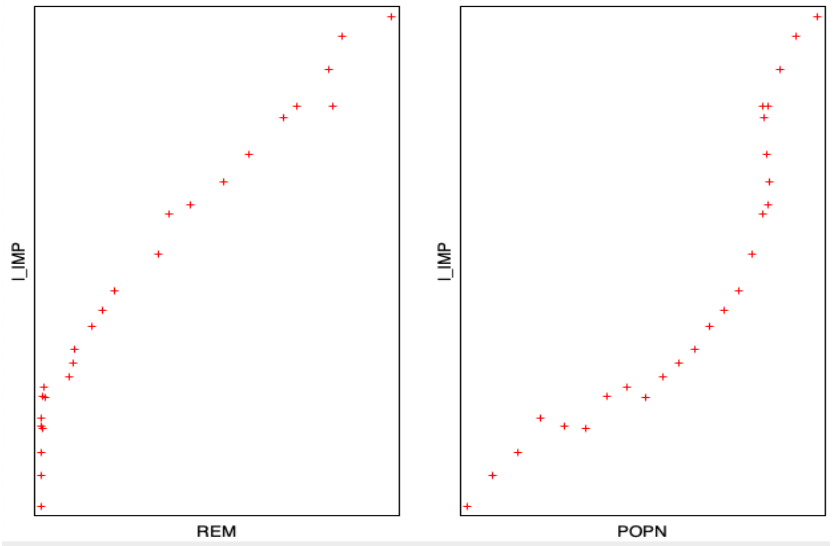

Figure 3: Graph showing the relationship between Remittance and log transformation of Import and Population and log transformation Import.

Regressing the log transformation of Import on Remittance and Population, the new model is fitted with an R^2 value of 0.991, which is a good fit (cf. table 4).

Table 4: Regression output of log transformed import on remittance and population.

OLS, using observations 1993-2018 (T = 26)
Dependent variable: l_IMP

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	7.9827	0.340822	23.42	<0.0001	***
REM	0.000261781	1.20E-05	21.87	<0.0001	***
POPN	1.48E-07	1.45E-08	10.21	<0.0001	***

Mean dependent var	12.36039	S.D. dependent var	0.994505
Sum squared resid	0.206459	S.E. of regression	0.094744
R-squared	0.99165	Adjusted R-squared	0.990924
F(2, 23)	1365.764	P-value(F)	1.26E-24
Log-likelihood	25.97232	Akaike criterion	−45.94464
Schwarz criterion	−42.17035	Hannan-Quinn	−44.85778
rho	0.08387	Durbin-Watson	1.659581

Remittance and Population both are significant now ($F(2,23) = 1365.76$, $p < .05$). Durbin Watson test for autocorrelation shows, at n = 26 and k = 2, Durbin-Watson *d* Statistics *dL* = 1.224 and *dU* = 1.553 (Gujarati & Porter,

2009). The Durbin-Watson value obtained is 1.659, which is greater than *dU* = 1.556, therefore this test indicates that there is no autocorrelation problem in this model. This has also been confirmed by the Breusch-Godfrey test, where the null hypothesis of no autocorrelation could not be rejected at a 5% significance level.

Performing White's test for heteroskedasticity could not reject the null hypothesis that the modified model does not have the problem of heteroskedasticity at a 5% significance level (p = 0.227). Consistent with White's test, the Breusch-Pagan test for heteroskedasticity also does not reject the null hypothesis of homoskedasticity. For the multicollinearity test, Variance Inflation Factor (*VIF*) is calculated for both Remittance and Population. Generally, *VIF* > 5 is considered problematic, but in the present model *VIF* for Remittance is 2.894 and for Population is also 2.894 therefore we do not have a multicollinearity problem in our new model.

The normality test of residuals shows that the residuals are normally distributed. Doornik-Hansen test, Shapiro-Wilk W, Lilliefors test, and Jarque-Bera test all do not reject the null hypothesis of normality. Similarly, the Q-Q plot also shows that residuals are normally distributed. This has also been confirmed by the histogram. Ramsey RESET specification test shows that the model is correctly specified (null hypothesis could not be rejected). Chow test shows that there is no structural change between the years 1993 to 2005 and 2006 to 2018. CUSUM test shows that the coefficients are structurally stable since the red line does not cross the 95% confidence interval, band.

Therefore, Hypotheses 1 and 2 are accepted and we can say that there is a significant positive impact of Remittance on Import and also Population on Import and regression equation can be written as ("see Table 4")

$$\ln(IMP) = 7.982 + 0.0002617REM + 0.00000014778POPN$$

Interpretation of the result obtained is, on average, ceteris paribus, if Remittance increases by 1 million dollars, Import will increase by 0.02617%. Similarly, on average, ceteris paribus, if the Population increases by one head, Import tends to increase by 0.000014778%. To find out on average how much import is increasing each year, the log transformation of the Import variable is regressed on time trend. A significant regression equation is found ($F(1,24)= 826.6276$, $p < .05$), with an R^2 of .97. Analysis from 1993 to 2018 shows that on average, ceteris paribus, yearly Import has been growing by 12.8%.

4 Discussion

The result of the research shows that a significant amount of received remittance has been used to import goods from foreign countries. This is not good for the economy. Also, outgoing migrants are a huge loss for Nepal. Nepal loses its quality manpower. Mismanagement of remittance might make Nepal dependent on a foreign economy. The government of Nepal

should devise a policy to discourage this practice and implement an import-substituting strategy. It should also channel received remittance to invest in the productive sector, entrepreneurship, employment creation, skill development, etc. Furthermore, the government should prioritize retaining its productive human resource in Nepal to grasp the fruit of population dividend. If it could not do this, Nepal will soon be a country of "youth less population and toothless population" (Neupane, n.d., p. 64). It should strategize such that even the number of migrants decrease, there be an increment in remittance. One way to do this is to train the outgoing migrants because most of the current outgoing migrants are unskilled (Ministry of Labour and Employment, 2016). Nepal should give training to these migrants to change them to the skilled workforce so that remittance received from them increases even their number decreases. Ministry of Labour and Employment (2016) states:

"Due to the absence of employment opportunities generated within the country and the dysfunctional domestic labour market, foreign employment has been an alternative option mainly for the unskilled and semi-skilled labour force: 74 per cent of the labour permits issued by the Government in 2014/15 have been for unskilled labour, 25 per cent semi-skilled and 1 per cent skilled workers."

5 Conclusion and Limitation

Nepal has neither been successful in employing its workforce nor has it been successful in fulfilling the increasing merchandise demand of its citizens. This has resulted in the huge foreign migration of its citizens and foreign merchandise import each year. Neither export is escalating nor has the import-substituting strategy been working. This has resulted in a huge trade deficit each year in Nepal (see Figure 8). As the population is growing, the government of Nepal has not been successful in supplying merchandise as per the demand. As a result, the amount Nepal receives as remittance has to be spent on imports. To come out of this vicious cycle, Nepal should utilize the remittance it receives in the productive field. It should invest remittance in long-term infrastructure and tourism. It should use fact-based research to devise a policy to retain productive human resources in Nepal who can help in import-substituting strategy. It should encourage migrants to choose formal channels while sending remittances at the same time monitor and control the illegal channels. As for the outgoing population, it should train them to change them from unskilled to skilled labor so that remittance amount increases even though outgoing migrants decrease.

Remittance received in this study has been reported as remittance received by the official medium. However, Nepal receives a significant amount of remittance through unofficial medium too; about 50% of the amount received from formal channels (Pant, 2008). This might have underestimated the remittance value. Furthermore, import and remittance might have been impacted seasonally due to some unforeseen events, e.g. earthquake of 2015 A.D., such seasonal effect has not been analyzed in this research. Furthermore, import may have been influenced by some other factors other

than remittance and population, such factors have also not been analyzed in this research.

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