External private debt and economic growth: Is there a lead-lag Granger-casual relationship? evidence from Turkey

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External private debt and economic growth: Is there a lead-lag Granger-casual relationship? evidence from Turkey

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Abstract

There is a growing concern on tremendous increase in external debt stock of Turkey. Especially, with global financial crises, the sustainability of external debt and allocation of external debt to productive investments becomes more and more important. Many researches have been done to examine external debt stock and economic growth relation. However, External debt stock has not been broken down into external private debt and external government debt, which might give different results since the power and causality direction of external private debt (EPD) and external government debt (EGD) could be different. The objective of this paper is to make an humble attempt to test "the external debt led economic growth" hypothesis by breaking down compositions of external debt into External Private Debt and External Government Debt, particularly for Turkey over the period 1998Q1-2016Q1. For our analysis, standard time series techniques are adopted. Our findings of empirical analysis tend to suggest that, there is a significant causal relationship between external private debt and Gross Domestic Product and that external private debt leads GDP. These findings are useful and have policy implications for the developing countries like Turkey in that at least in the short run until the debt threshold is reached, an external private debt might be helpful for enhancing GDP.

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I. INTRODUCTION

Savings play a crucial role in economic growth as it is transferred to investments and, in result, economic growth is achieved (Keynes J.M. 1936). However, in developing countries capital is scarce and amount of savings are insufficient to fund investments. Hence, low savings lead to low investments, and leads to low income and then it leads back to low savings. In order to break this vicious cycle, taking out external debt is seen only solution to break out this cycle. The increasing in level of the stock of external debt has raised concerns about whether external debt leads economic growth or it could be a burden for future generation who would have to pay it. In past studies, the relation between overall external debt stock and economic growth has been tested. However, external debt has not been broken down into external private debt and external government debt. In case of Turkey, 85% external debt is borrowed by private sector yet government debt is just 15% of overall external debt also it is decreasing gradually over the last two decades. Thus, using overall external debt for the analysis could give unreliable and misleading results since weightage and effect of external private debt (EPD) and external government debt (EGD) could be different. Thus, analyzing the impact of external private debt on the economic growth and the effect of external government debt separately highlights the importance of the issue in the literature.

Due to scarce savings in domestic economies, external debt has become one of the important sources of the domestic investors. The dual gap theory, which explains the savings gap and foreign exchange gap, has highlighted the motivation behind the introduction of external debt to a growth model. The savings gap and foreign exchange gap explains that there are insufficient resources to support the expected level of growth, hence showing the role of the external borrowing. The importance of external borrowing in economy has been highlighted. The need for external borrowing could rise because of two gaps: saving-investments or import-export gap. There has not been consensus on the on impact of external debt on economic growth. Choong, Chee Keong, Evan Lau (2010); Hameed, A., Ashraf, H., & Chaudhary (2008) analyzed the relationship between external debt and economic growth and found that there is a short-run and long-run negative

causality runs from debt service to gross domestic product. However, external debt stock has not been broken down into External Private Debt and External Government Debt.

In Turkey, there is a tremendous increasing in total external debt and it was tripled in past two decades. This rose up as an important issue: Can the external debt boost the economic growth? Moreover, high level of debt increases possibility of default, which would complicate the future investment into Turkey by investors from abroad due to lower credit ratings. It may depend on the effect of external debt in economy. If external debt is efficiently allocated to productive domestic investment, in result, it could contribute to the economic growth in the long run implying that Turkey's external debt is sustainable.

The objective of this paper is to analyze causal relation between the external debt and economic growth by breaking down compositions of external debt into External Private Debt and External Government Debt, particularly for Turkey. This analysis is profound since any results found from linkages between the External Private Debt and Gross Domestic Products would be useful for policy formulation. This study also supports to need for effective policy making. In order to reach required level of economic growth, the most accurate macro economic variable should be focused on.

An overview of external debt and economic growth in Turkey is presented in section II. The next section reviews the theoretical and empirical literature on the debt-growth model. Section IV outlines the data and section V methodology while the empirical results are presented in Section VI, and Section VII concludes the paper.

II. External Debt and Economic Growth in Turkey

Below figure shows the Turkey's external Private debt as a share of gross domestic product (EPD) and external government debt as a share of GDP for the period since 1998s. EPD has shown an increasing and tremendous upward pattern since year 1998. As of the first quarter of 2016, Turkey's EPD was recorded at 114% of GDP. The extreme increase in EDP happened between 2005 and 2009 with 200% increase in EPD. In other words, EPD

growth 2 times faster than GDP. On the other hand, EGD to GDP ratio is dropped from almost 20% between 2005 and 2016.

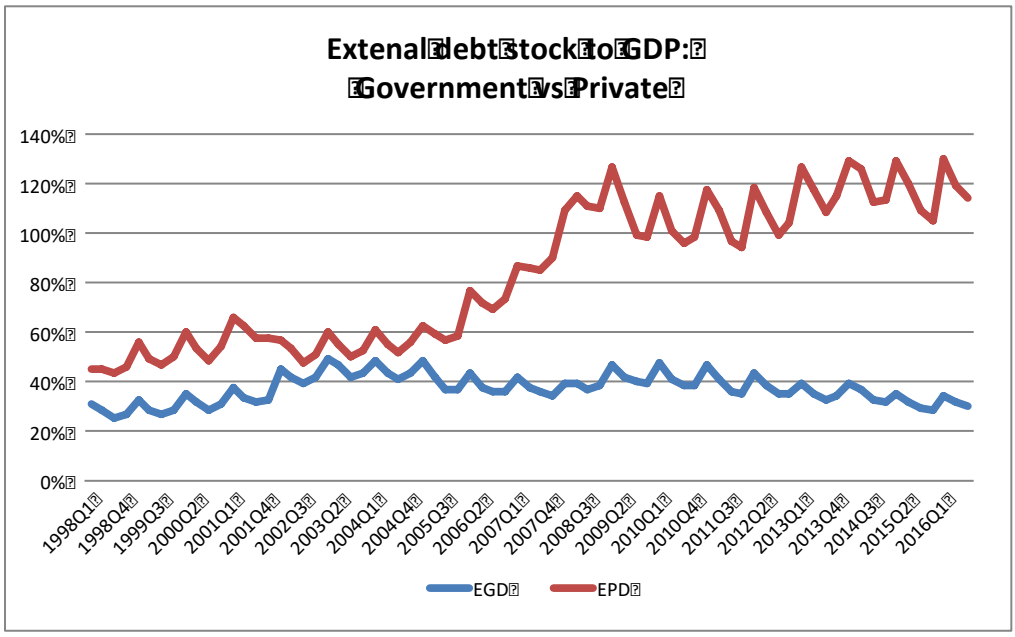


Table 1: External debt stock to GDP: Government vs Private

The graph shows that growth in external Private debt is higher than growth in Turkish Economy. Furthermore, increasing trend in External Private Debt leads the question of whether Turkey will benefit form taking external debt.

III. LITERATURE REVIEW

Previous empirical evidences have found mixed result to support the relation between External Debt and Economic Growth. Also the past studies examined external debt and economic growth without breaking out the compositions of the external debt into External Private Debt (EPD) and External Government Debt (EGD). Since changes in External Private Debt might affect GDP differently than External Government Debt might affect or ones affect might overweight others' effect.

(Choong, Chee Keong, Evan Lau 2010) found that the granger causality test shows the existence of short-run causality between external debt and economic Growth. Also, They

suggest that the external debt have a negative effect on Malaysia long-run economic growth.

(Udeh; Sergius & Ugwu 2016) studied impact of external debt on economic growth by using OLS for 1980 to 2013 period in Nigeria. They found that External Debt had a positive relationship with Gross Domestic Product at short run, but a negative relationship at long run. On contrary,

(Nurazira 2013) tested the growth model by applying the Autoregressive Distributed Lag (ARDL) bound. They suggested that accumulation of external debt is associated with an increase in Malaysia's economic growth up to an optimal level, and an additional increase of external indebtedness beyond the level has inversely contributed to the Malaysian economy.

(Babu 2014) The findings suggest that external debt has a negative significant effect on per capita GDP growth rate in the East African Countries. Similarly, The findings of (Siddique 2016) suggest that, in the short-term as well as in the long-term, an decrease in debt stock would have significantly increased the growth performance of the indebted nations.

(Karagöz & Demirhan 2016) studied Granger causality between GDP and external debt for 1998:Q1- 2013:Q1 in Turkey. Their findings confirmed Turkey's external debt both sustainable and efficiently used, at least for the last decade or so.

IV. Data

The model includes following variables: Real GDP as a proxy of economic growth (GDP), External Private Debt as % of GDP (EPD), External government debt as % of GDP (EGD) and Export as % of GDP (XP). All the data is collected from Datastream from the period 1998Q1 to 2016Q1 (74 observations) for Turkish economy. Since the data displayed the seasonality effect, the data is deseasonalized using X11 procedure.

V. RESEARCH METHODS

Firstly, we run unit root tests, such as ADF and PP, to identify whether the variables are of I(1) or I(0). If the variables are integrated at 1 then standard VAR/VECM should be applied. However, if the diagnostics suggest mix of I(1) and I(0), then ARDL approach shall be the right method to address the issue.

Unit Root Tests**:** Most of the financial time series data is of non-stationary nature implying that they do not have a constant mean, variance and covariance. Applying OLS regression on non-stationary variables generates unreliable results since t-statistic and F-statistic are statistically not valid. Differencing the variables will make them stationary but applying ordinary regression on the differenced variable will not capture to long run trend, the theoretical part of the estimation. The unit root tests are performed by using Augmented Dickey-Fuller (ADF) tests and Phillips-Perron (PP) tests.

- *Augmented Dicky Fuller* (ADF) test is used to test the stationarity (Dickey and Fuller, 1979; 1981) of each of the five variables: GDP, EPD, EGD and XP. The null hypothesis of the ADF test is that the time series has a unit root (or the time series is non-stationary). Table presents the unit root test results. Absolute value of the Critical values are greater than T-statistic. Thus, we reject the null hypothesis. This means that, all time series are stationary, that is I(0).
- *Phillips-Perron* (PP) test is another type of unit root tests, which corrects both autocorrelation and heteroscedesticity issues, while ADF takes care of autocorrelation only.

VAR lag order selection: Before testing the co-integration, the number (order) of the vector auto regressive (VAR) lags should be first determined.

Cointegration Tests**:** Next we run Engle-Granger and Johansen cointegration tests to examine whether variables are moving together in long-run. Cointegration test reveals

whether the variables are moving together in long run or not. However, it does not show whether there is a short run deviation from long-run equilibrium or not. In order to understand the process of short-run adjustment to bring about the long-run equilibrium, the error correction model should be used.

Long-run structural modeling (LRSM): it is testing the long-run coefficient of a variable against the theoretically expected values whether the variable is statistically significant or not.

Vector error correction model (VECM): It tells which variable is leader (exogenous/independent) and which variable is follower (endogenous/dependent). Yet, it cannot tell the relative endogeneity/exogeneity. In other words, it cannot tell which variable is the strongest leader and which variable is the weakest follower.

Vector decompositions (VDC): The exogeneity or endogeneity of the variables are determined using VECM. Yet, the order (relative exogeneity/endogeneity) is not known. Running the VDC reveals power of the endogeneity or exogeneity of the variables. In other words, VDC can tell which variable is the most strongest leader or the most weakest follower by ranking the variables based on the degree of dependence on their own past lags. Orthogonalised VDC depends on the particular ordering of the variables in the VAR and assumes that when a particular variable is shocked, all other variables in the system are switched off. Because of that reason, Orthogonolized VDC will not be used in this analysis since such condition is not relevant with integrated macro economic system.

Impulse response function (IRF): It is applied to test the impact of one variable on others, their magnitude of response, and how long it would take to normalize.

Persistence profile (PP): It shows how long it would take for the whole system to stabilize if all the variables were shocked by some external factors such as the global crisis.

VI. EMPIRICAL RESULTS

Unit root tests: The following tables are the ADF results for level (log) and 1st differenced form data:

	Variable	Test	Statistic	CV	LL	AIC	SBC	HQC	RESULT
Log Form	LGDP	ADF(2)	-2.9172	-3.4301	225.3686	220.3686	214.7833	218.1527	Non-Stationary
	LEPD	ADF(2)	-1.9187	-3.4301	180.1669	175.1669	169.5816	172.951	Non-Stationary
	LEGD	ADF(1)	-2.2947	-3.4631	190.5476	186.5476	182.0794	184.7749	Non-Stationary
	LXP	ADF(1)	-2.6523	-3.4631	134.9623	130.9623	126.4941	129.1896	Non-Stationary

	Variable	Test	Statistic	CV	LL	AIC	SBC	HQC	RESULT
1st Diff. Form	DGDP	ADF(1)	-4.3683	-2.8527	217.4409	214.4409	211.1117	213.1218	Stationary
	DEPD	ADF(2)	-3.5638	-2.8332	175.3621	171.3621	166.9231	169.6032	Stationary
	DEGD	ADF(1)	-4.418	-2.8527	183.9254	180.9254	177.5961	179.6062	Stationary
	DXP	ADF(4)	-3.1594	-2.8588	134.4008	128.4008	121.7423	125.7625	Stationary

The null hypothesis: the variable is non-stationary. Based on the AIC and SBC selection criteria, the variables are non-stationary at their level form but stationary in their first difference form. Next we run Phillips-Perron (PP) unit root test. The following table summarizes the results of the test for both level and 1st differenced forms:

PP				PP			
Variables	T-Statistics	C.V	Result	Variables	T-Statistics	C.V	Result
LGDP	-2.9334	-3.4406	Non-Statinaory	DGDP	-6.7452	-2.9183	Stationary
LEPD	-1.8941	-3.4406	Non-Statinaory	DEPD	-7.6019	-2.9183	Stationary
LEGD	-1.6681	-3.4406	Non-Statinaory	DEGD	-8.7219	-2.9183	Stationary
LXP	-3.1058	-3.4406	Non-Statinaory	DXP	-7.9107	-2.9183	Stationary

Table 2:Unit root tests

The null hypothesis is that the variable is non-stationary. As it is shown above table all the variables become stationary after taking the 1st differenced, which is in line with ADF results. So, both unit root tests suggest that the variables are of type I(1) and we can proceed with the co-integration tests using the VAR/VECM approach.

The following table shows the results of VAR lag order selection:

Order	AIC	SBC	Adj.LR
5	726.6381	633.4187	21.6724[.154]
4	723.1732	647.7100	46.2897[.049]
3	724.0280	666.3208	65.4439[.048]
2	721.5395	681.5883	88.8265[.022]
1	714.6362	692.4411	117.7925[.004]
0	710.6895	706.2505	143.0191[.001]

Table 3:Var lag order selection

AIC suggests 5 order of lags, while SBC prefers 0 lags. AIC is known to be bias upwards, while SBC is biased downwards. Hence, we conduct autocorrelation tests to identify the optimal number of lags (the results are provided in the Appendix). Based on autocorrelation tests, we select 2 lags and move forward with cointegration tests.

The table 4 shows the results of Maximal Eigenvalue and Trace cointegration tests:

Null	Alternative	Statistic	95% C.V.	90% C.V.
Maximal Eigenvalue test				
r=0	r=1	40.5756	27.4200	24.9900
r<=1	r=2	21.5046	21.1200	19.0200
r<=2	r=3	5.0039	14.8800	12.9800
Trace test				
r=0	r>=1	67.1622	48.8800	45.7000
r<=1	r>=2	26.5866	31.5400	28.7800

Table 4: Cointegration tests

According to the Maximal Eigenvalue test, there are 2 cointegrations; whereas, the Trace test shows that the variables are moving together in the long run in one direction (1 cointegration). Based on the theory, the variables are expected to have one cointegration. Hence, we proceed with one cointegration as per results of Trace test.

Long-run structural modeling (LRSM): In this step, we attempt to quantify the theoretical relationship among the variables. Therefore, we will be able to compare the statistical results with theoretical expectations. Based on LRSM, we reject the null hypothesis meaning restriction is not correct for both panel B and Panel C.

	Exact Identification	Over-Identification	Over-identification
Variable	**PANEL A**	**PANEL B**	**PANEL C**
LGDP	1.0000	1.0000	1.0000
	NONE	*NONE*	*NONE*
LEPD	-0.39429	0.0000	-0.41628
	(.059916)	*NONE*	(0.13078)
LEGD	0.81916	1.8131	1.1909
	(0.15371)	(0.55625)	(0.41336)
LXP	0.20778	0.21245	0.0000
	(0.046959)	(0.15795)	*NONE*
CHSQ(1)	NONE	9.0412[.003]	7.2985[.007]
Decision	---	Restriction is not correct	Restriction is not correct

Notes: S.e. in parentheses. Null hypothesis for CHQ(1): Restriction is correct

Table 5: LRSM

Vector error correction model (VECM): It tells which variable is the leader or follower based on past data. By examining the results of vector error correction model, we find that economic growth (dLGDP) and external private debt (dLEPD) are exogenously determined, whereas other two variables – external government debt (dLEGD) and exports (dLXP) are endogenous variables.

ecm1(-1)	Coefficient	Standard Error	T-Ratio[Prob.]	Result
dLGDP	-.0017327	0.029050	-.059646[.953]	Exogenous
dLEPD	0.073881	0.055005	1.3432[.184]	Exogenous
dLEGD	-0.195840	0.041836	-4.6811[.000]	Endogenous
dLXP	0.282010	0.107840	2.6151[.011]	Endogenous

Note: Null hypothesis: The variable is exogenous. S.L.=5%

Table 6: VECM

The variables, dLGDP and dLEPD, being the exogenous would receive market shocks and transmit it to dLEGD and dLXP. A Policy maker would be highly interested to monitor movements in dLGDP and dLEPD. Moreover, in VECM, coefficient of ecm1(-1) indicate that moderate time period will take to get back to long-term equilibrium if a variable is shocked.

Vector decomposition (VDC): The following Table 7 presents the vector decomposition results (both generalized and orthogonalized). The results of vector decomposition based on generalized model show that external private debt (LEPD) is the most exogenous variable followed by the exports (LXP), whereas external government debt (LEGD) and economic growth (LGDP) are endogenous variables. The relative exogeneity of first two variables (LEPD and LXP) is consistent across different horizons for three years (12 quarters), however the relative endogeneity of LEGD and LGDP changed after two quarters and remains constants over the period of 24 quarters (6 years). The results slightly differ from VECM. The exogenous variable LGDP of VECM is shown as endogenous in VDC. However, it should be noted that the outputs of orthogonalized VDC are inline with the findings from VECM. However, one of the shortcomings of Orhogonalized VDC is depending on the particular ordering of the variables in the VAR and assuming that when a particular variable is shocked, all other variables in the system are switched off.

		Generalized						Orthogonalized					
VARIABLE	HORIZON	LGDP	LEPD	LEGD	LXP	SELF DEP	RANK	LGDP	LEPD	LEGD	LXP	SELF DEP	RANK
LGDP	2	58%	19%	7%	16%	58%	4	92%	1%	1%	7%	92%	1
LEPD	2	12%	78%	10%	1%	78%	1	15%	84%	1%	0%	84%	2
LEGD	2	19%	8%	71%	2%	71%	3	26%	1%	72%	1%	72%	3
LXP	2	13%	8%	2%	77%	77%	2	16%	2%	12%	71%	71%	4
LGDP	4	56%	21%	6%	17%	56%	3	90%	1%	1%	8%	90%	1
LEPD	4	9%	77%	12%	2%	77%	1	11%	87%	2%	1%	87%	2
LEGD	4	29%	16%	50%	5%	50%	4	45%	3%	48%	4%	48%	4
LXP	4	14%	12%	1%	72%	72%	2	18%	4%	13%	65%	65%	3
LGDP	8	54%	22%	5%	19%	54%	3	87%	2%	2%	9%	87%	1
LEPD	8	6%	73%	15%	6%	73%	1	7%	85%	6%	3%	85%	2
LEGD	8	35%	27%	24%	13%	24%	4	59%	11%	18%	12%	18%	4
LXP	8	16%	16%	1%	67%	67%	2	20%	7%	15%	59%	59%	3
LGDP	12	53%	23%	5%	20%	53%	3	86%	3%	2%	10%	86%	1
LEPD	12	4%	67%	18%	11%	67%	1	5%	80%	9%	6%	80%	2
LEGD	12	36%	32%	14%	18%	14%	4	60%	16%	9%	16%	9%	4
LXP	12	17%	18%	1%	64%	64%	2	21%	8%	16%	56%	56%	3
LGDP	24	51%	24%	4%	21%	51%	3	83%	4%	3%	11%	83%	1
LEPD	24	3%	51%	22%	24%	51%	2	3%	68%	17%	12%	68%	2
LEGD	24	35%	36%	6%	23%	6%	4	56%	20%	5%	19%	5%	4
LXP	24	18%	21%	1%	60%	60%	1	22%	10%	17%	52%	52%	3

Table 7: VDC

On the other hand, Generalized VDC does not depend on the particular ordering of the variables in the VAR and does not make such an assumption of all other variables switched off. Hence, Using Generalized VDC is suitable for our study.

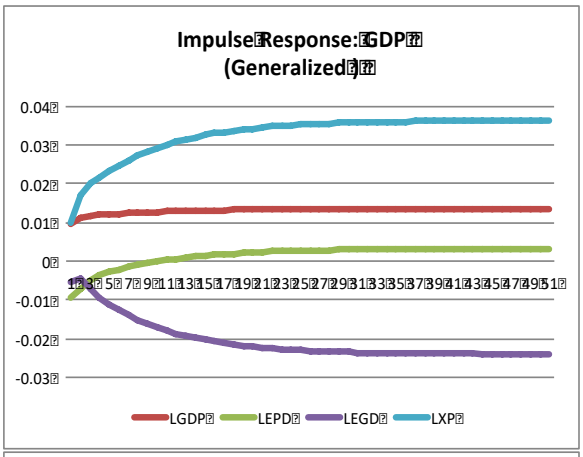
By employing Generalized VDC, LEPD is the exogenous variable with 77% in 3 years period, which is consistent with the error correction result as well. However, LGDP is the most endogenous variable in our model, which conflicts with VECM results. The possible reason of this conflict might be VECM is using past data and eliminate theoretical part (trend) from the model. However, VDC uses trend and makes prediction. For Policy makers, relying on Generalized VDC results would be logical to apply polices based on prediction. One of the most important objectives of the policy-makers is to increase the economic output, for which focusing on the appropriate variable is crucial. Knowing which variable is exogenous or endogenous would be useful for policy makers to achieve their goal in the most efficient way.

LXP is exogenous meaning it is determined out of our model. According to International effect, export is determined by exchange rate. Since free float exchange rate policy is applied in Turkey, LXP is exogenous.

Impulse response*:* The objective, in this analyze, is to find the reaction of other variables when one another is shocked and how long it takes to come back to equilibrium. The both Generalized and Orthogonolized Impulse Response Graphs show consistent results expect a shock in External Government Debt. The consistency between two Impulse response approaches indicates accurate lag order is taken expect.

In Orthogonolized Impulse Response, when External Government Debt is shocked, reaction of Export is greater and it takes longer time to come back the equilibrium compare to Generalized Impulse Respond graph.

When Gross Domestic Products is shocked, External Government Debt and Export are the variables that are mostly affected. For Both EGD and XP, it takes 30 quarters, around 7 years, to come back to equilibrium. Similarly, When EPD is shocked; XP and EGD are the most effected variables. However, The direction of the affect of those most effected variables is reverse of shock in EGD. When EGD is shocked, XP and EGD are the most effected and the direction of effect on both is same but the affect is not as large as shocks in GDP and EPD. Lastly, when XP is shocked, XP and EGD is affected more than how much other variables are affected.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0.02
0.01
0
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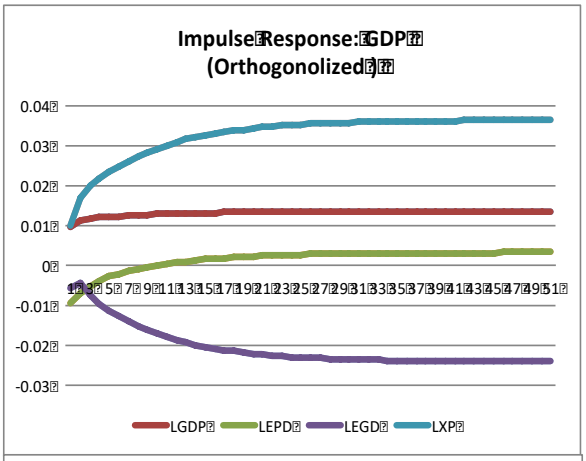
LGDP
LEPD
LEGD
LXP


Impulse Response: GDP
(Orthogonolized)
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0.02
0.01
0
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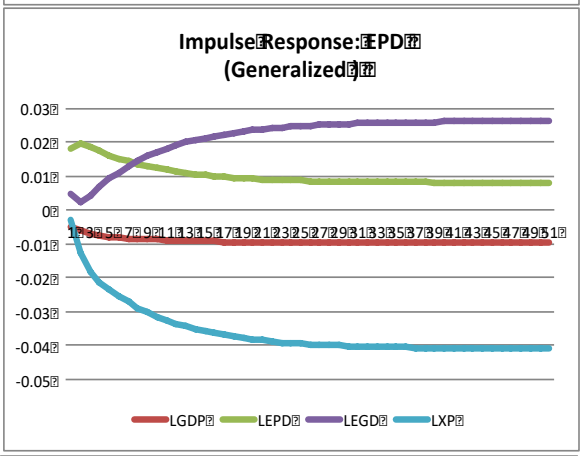
LGDP
LEPD
LEGD
LXP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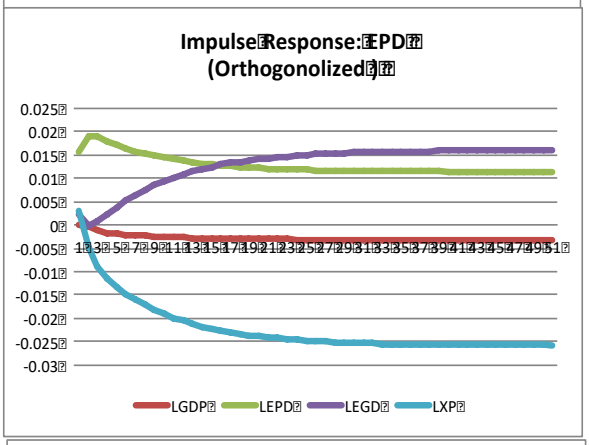
LEPD
LEGD
LXP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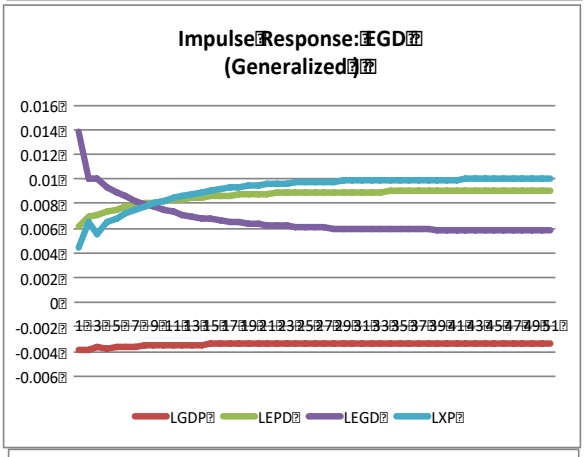
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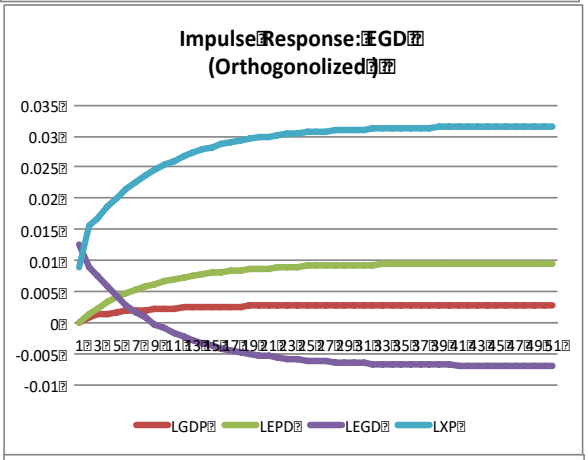
LEGD
LXP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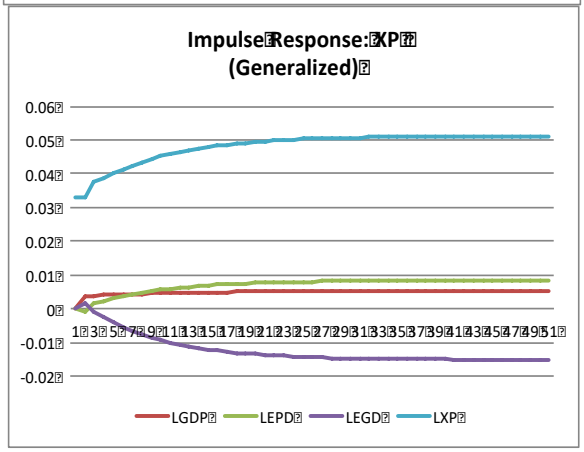
LXP


Impulse Response: XP
(Generalized)
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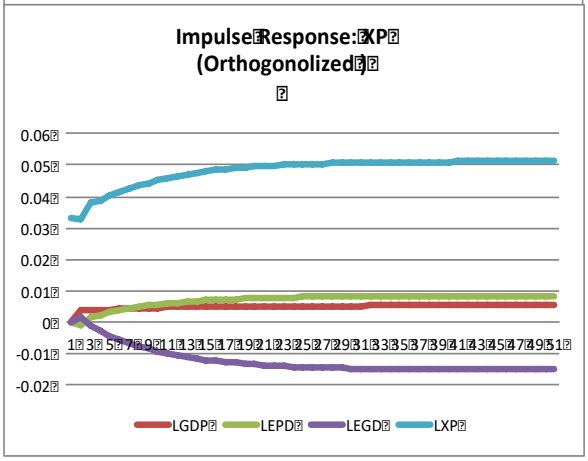
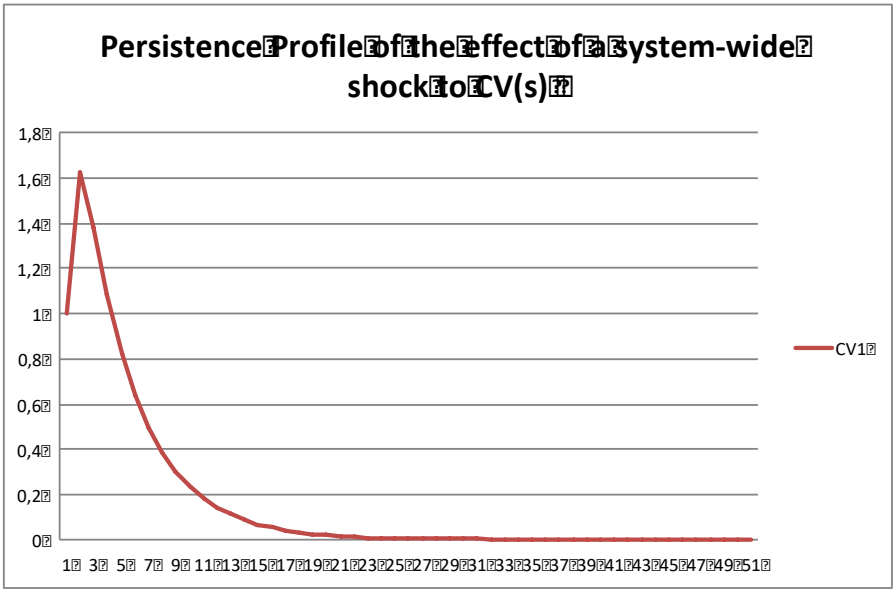
0.04
0.03
0.02
0.01
0
-0.01
-0.02
LGDP
LEPD
LEGD
LXP


Impulse Response: XP
(Orthogonolized)
0.06
0.05
0.04
0.03
0.02
0.01
0
-0.01
-0.02
LGDP
LEPD
LEGD
LXP

***Persistence profile*:** The chart below shows the persistence profile for the cointegration equation of this study. Here the effect of a system-wide shock on the long-run relation is the focus instead of variable-specific shocks as in the case of Impulse Response function.



The chart indicates that it would take 20 quarters, 5 years, for the cointegrating relationship to equilibrium following a system wide-shock.

VII. CONCLUSION AND POLICY IMPLICATIONS

This study makes an humble unique attempt to explore the lead-lag relationship between Private External Debt and Gross Domestic Products by applying cointegration method, long run structural modeling, vector error correction model, variance decompositions, impulse response functions, and persistence profile. The results obtained in this paper support the idea that external private debt leads economic output. In VECM approach, the findings suggest that both External Private Debt (EPD) and Gross Domestic Product (GDP) are exogenous. However, The Generalized VDC approach shows that GDP is endogenous and that the external private debt is the most exogenous or leading variable. VECM is based on past data. The VDC is a forecast of the variable beyond the sample period. Another possible reason of the conflict might be because of growth in External

Private Debt is much more than growth in GDP meaning EPD is becoming stronger than GDP over the period. To illustrate, between 1998 and 2016, external private debt stock grew three times more than Gross Domestic Product (GDP) growth. Relying on our generalized VDC results and therefore, saying that external private debt is the leader of economic output, is in line with the neoclassical model of growth- where capital accumulation is viewed as a catalyzer of the economic growth- as well as empirical findings (Bamidele, T. B. & Joseph, (2013); Hameed, Ashraf and Chandhary (2008). Hence, our findings are plausible and have policy implications for Turkish policy makers. Firstly, Increasing external private debt will lead an increase in gross domestic products as long as external private debt is allocated to productive, income-generating investments as it has been allocating during the period. Secondly, any movement in the external private debt should be cautiously responded to by Turkish Policy makers.

However, expecting a sustained positive and leading effect of external private debt on economic output will be a naïve assumption. If the debt goes beyond a certain threshold, positive impact of external debt is expected to turn negative. For the future research, "debt over hang" hypothesis could be empirically tested.

References:

Babu, J.O. et al., 2014. External debt and economic growth in the East Africa community. *African Journal of Business Management*, 8(21), 1011–1018.

Bamidele, T. B. & Joseph, A. I (2013). Financial Crisis and External Debt Management in Nigeria, International Journal of Business and Behavioural Sciences, 3(4), 16 –24.

Choong, Chee Keong, Evan Lau, V.L.K.-S. and P.C.-H., 2010. Does debts foster economic growth. *African Journal of Business Management*, 4(8), 1564–1575.

Hameed, A., Ashraf, H., & Chaudhary, M. A. (2008). External debt and its impact on economic and business growth in Pakistan. International Research Journal of Finance and Economics, 20, 132–140.

Keynes, J. M. (1936). The General Theory of Employment, Interest and Money, Macmillan, Cambridge University Press, Cambridge.

Karagöz, M. & Demirhan, A., 2016. Is Really Debt a Man's Whip? *Procedia Economics and Finance*, 38, 421–429.

Nurazira, S. et al., 2013. Does External Debt Contribute To Malaysia Economic Growth ? *Ekonomska istraživanja – Economic Research*, 26(2), 346–363.

Siddique, A., Selvanathan, E.A. & Selvanathan, S., 2016. The impact of external debt on growth : Evidence from highly indebted poor countries ☪. *Journal of Policy Modeling*, 38(5),.874–894.

Udeh, Sergius ; Ugwu, J.I., 2016. External Debt and Economic Growth: the Nigeria Experience. *European Journal of Accounting Auditing and Finance Research*, 4(2), 33–48.