The Effect of Remittances on Business Cycle Fluctuations: Evidence from Turkey

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In 41 years, starting from 1964, the remittances from Germany to Turkey amounted to approximately 53 billion U.S. dollars, more than 10 times direct investment from Germany, which was around 4.7 billion U.S. dollars (Akkoyunlu & Kholodilin 2008). In 70s, due to the agreement between German and Turkish governments, hundred thousand of low and mid-skilled Turkish workers went to Germany. However, the volume and the effect (on the economy) of the funds they remitted were not equal through these years. Therefore, the effects of these remittances on the Turkish economy need to be explored. For instance, Sayan & Tekin Koru (2010) verified that remittances could worsen or help soften the effect of business cycles. There is also a possibility that they have no effect on the business cycles. The effects of the remittances could be three types: procyclical, countercyclical, acyclical. Procyclical effect, for example, is that if an economy is facing bubble when inflation rates are very high, remittances could cause even higher inflation rates because of the additional cash in circulation which increases the aggregate demand. Countercyclical effect is, on the other hand, that if an economy is facing recession when unemployment rates are very high, the remittances could boost the economy through consumption or investment channels. Acyclical effect simply implies no effect of remittances on business cycles.

In 2002, newly formed Justice and Development Party (Turkish: AKP) came to the power with the majority of the seats in the parliament in Turkey and held this until 2015. The economic profile of the party was pro liberal-market economy and they exercised privatizations of series of public companies.

Moreover, the party's conservative Islamic outlook caused visible mobilization inside and outside the country. Therefore, Turkish economy was expanding and our main interest is whether in this period the remittances have any effect (if yes, what kind of effect) on the fluctuations of the Turkish economy. This paper examines relationship between annual output levels in both countries and the remittances from Germany to Turkey. Using the theoretical implications and the empirical techniques developed, I found that the remittances are procyclical to the Turkish economy and have negative effect causing high inflation in the period 2005-2013.

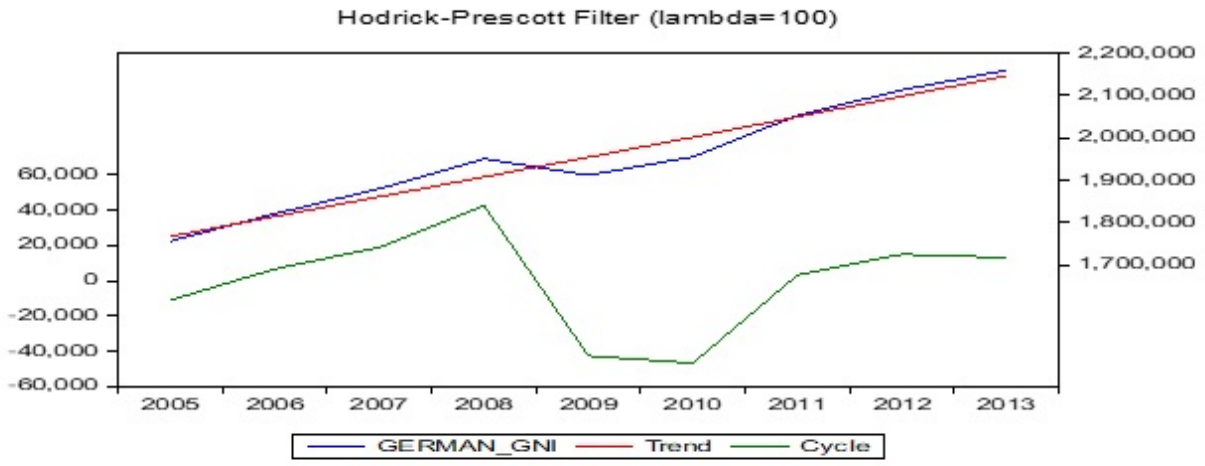
Data and Methodology

The methodology used in Akkoyunlu & Kholodilin (2008) and Sayan & Tekin Koru (2010) is implemented for the period 2005-2013. After identifying business cycles in Turkey and in Germany, cross-correlations and Granger causality are tested for the remittance and output variables. If Granger causality test gives us a significant result, we conclude that 'a variable Granger causes another' (Wooldridge 2005, p. 663). For example, if the cross-correlations between variables are positive and the remittances Granger causes the Turkish output, it is concluded that the remittances are procyclical. If the cross-correlations are negative in the existence of Granger causality, then it is concluded that the remittances are countercyclical. If there is no correlation between variables we conclude that the remittances are acyclical, and thus have insignificant effect on the economy. Moreover, I use a different technique to capture the undesirable effect of the remittances on the economy, by the help of analysis of the inflation adjusted variables. The reason for using a different technique is to empirically support my suspicion that the remittances caused only inflation, not real growth in the Turkish economy in the period 2005-2013.

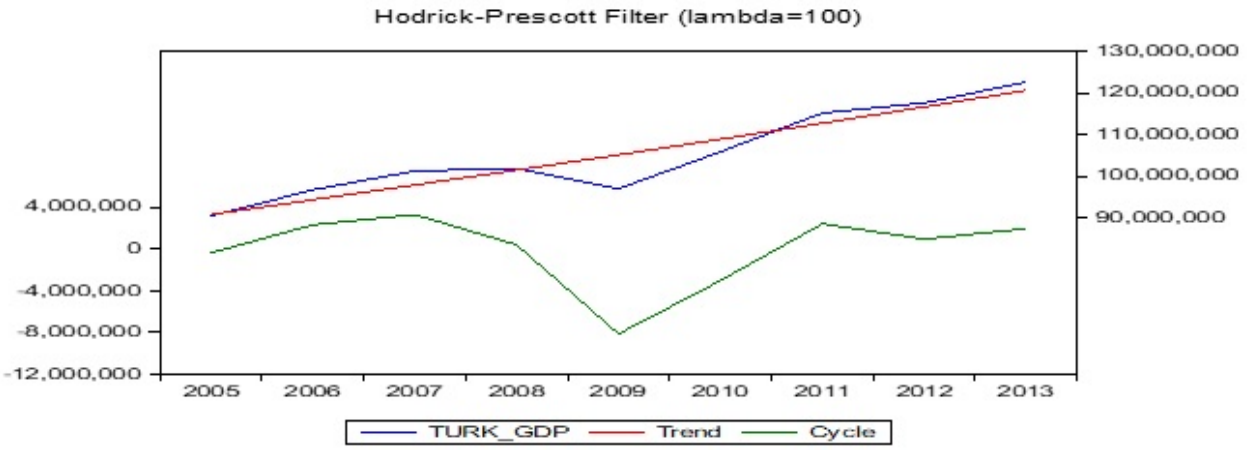
Discussion and Empirical Analysis

Akkoyunlu & Kholodilin (2008) suggests that in the period 1993-2004, the remittances from Germany are acyclical to Turkish output, verifying that there is no significant effect of them on the Turkish Economy. Since the Turkish economy was expanding after these years, procyclicality of the remittances would increase the negative effects, e.g. higher inflation rates. Moreover, AKP's Islamic political references might have caused Turkish immigrants to mobilize more and have more altruistic remitting behaviors. The Prime Minister A. Davutoglu's speech in May 2015(www.akparti.org) reflects this phenomenon: "we will never accept assimilation … You should preserve your culture, identity, language and religion." However, it is not clear that if the remittances have an effect on expanding or not. To test that, first, we need to identify the business cycles in the period 2005-2013. Data are taken from The Central Bank of Turkey, The World Bank, European Central Bank and OECD. Statistical program EViews is used for all the analyses in this paper. As a conventional method, Hodrick-Prescott filter is employed to detrend the variables and find their cyclical components. The results are shown below:

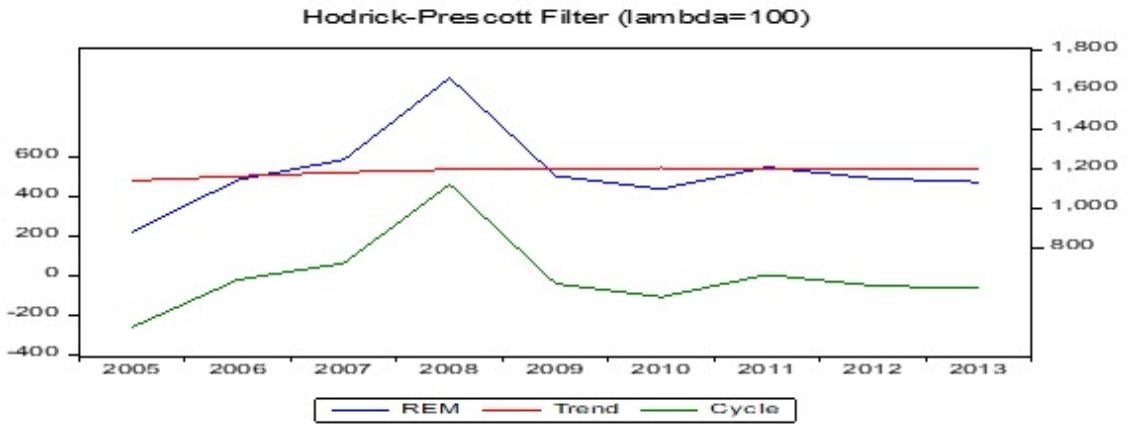
German Output, Trend and Cycles



Turkish Output, Trend and Cycles



The Remittances, Trend and Cycles



If we look at the graphs, we will have preliminary information about the variables. All three variables show sharp decline in 2009. This is due to the results of global financial crisis. It is well-known that output levels in the whole world dropped significantly. The German and the Turkish output levels show upward trend in general, but the remittances follow different structure. The remittances are increasing till 2009, and then they decline and follow a flat trend. This implies that remitting behavior of the Turkish immigrants in Germany has changed, which triggers us for more exploration. For further analysis, we need to look at cross-correlations between variables.

Cross-correlations between variables			
	TURKISH_CYCLE	REM	GERMAN_CYCLE
TURKISH_CYCLE	1	0.13	0.76
REM	0.13	1	0.6
GERMAN_CYCLE	0.76	0.6	1

Cross-correlations verify that there is strong positive correlation between the German output and the remittances, which suggests that if the German economy is growing, then the Turkish immigrants remit more. There is a positive correlation between the remittances and the Turkish output, too. However, it is not significantly large to conclude that there is a relationship. If we check the correlations between per capita variables, the Turkish output and the remittances show a strong positive relationship (see below).

Cross-correlations between per capita variables							
	GERMAN	TURKISH	REM				
GERMAN	1	0.89	0.58				
TURKISH	0.89	1	0.65				
REM	0.58	0.65	1				

This implies that the immigrants are remitting on personal altruistic basis rather than macroeconomic investment incentive. As their income grows, they want their family and relatives also use that, rather than they invest because the economy is growing. Nevertheless, it is not enough to conclude that the remittances cause the economic growth. The immigrants might simply transfer money for consumption purposes. If the money they send is not used for investment, it would not result in the economic growth that creates jobs. Actually, the money might be used for more consumption without creating more employment, which would bring high inflation. Here we need to

employ more complex technique called Granger causality test. This method is used to test if one variable is powerful to explain or predict the other. Below, several results are presented for further understanding.

Causal (Granger) relationship between Turkish business cycle and the remittances				
Pairwise Granger Causality Tests				
Date: 08/17/15 Time: 21:55				
Sample: 2005 2013				
Lags: 2				
Null Hypothesis:	Obs	F-Statistic	Prob.	
TURKISH_CYCLE does not Granger Cause REM	7	0.31891	0.7582	
REM does not Granger Cause TURKISH_CYCLE		144.51	0.006	

The results from the test imply that there is a strong Granger causality from the remittances towards the Turkish business cycles, but not the other way around. This empirical result combined with the correlation analysis supports my argument that in the period 2005-2013, the remittances are procyclical to the Turkish economy. There is a need to test the relationship between the German economy and the remittances, also. The test for Granger causality between the remittances and the German business cycle is not conclusive, because it does not produce significant values. However, insignificant values of the test imply that the remittances are acyclical to the German business cycles (see below).

Causal (Granger) relationship between German business cycle and the remittances			
Pairwise Granger Causality Tests			
Date: 08/18/15 Time: 18:35			
Sample: 2005 2013			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
GERMAN_CYCLE does not Granger Cause REM_CYCLE	7	0.14267	0.8751
REM_CYCLE does not Granger Cause GERMAN_CYCLE		2.19262	0.3132

The results are the same for the per capita variables: the remittances are acyclical for the German output but procyclical for the Turkish output (see below). Per capita output could be considered as an individual income level and relationship would imply what happens when income level for an individual increases: he or she remits more or less.

Causal (Granger) relationship between Turkish per capita output and the per capita remittances			
Pairwise Granger Causality Tests			
Date: 08/18/15 Time: 18:39			
Sample: 2005 2013			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
TRGDP does not Granger Cause REAL_REM	7	0.99724	0.5007
REAL_REM does not Granger Cause TRGDP		20.7049	0.0461

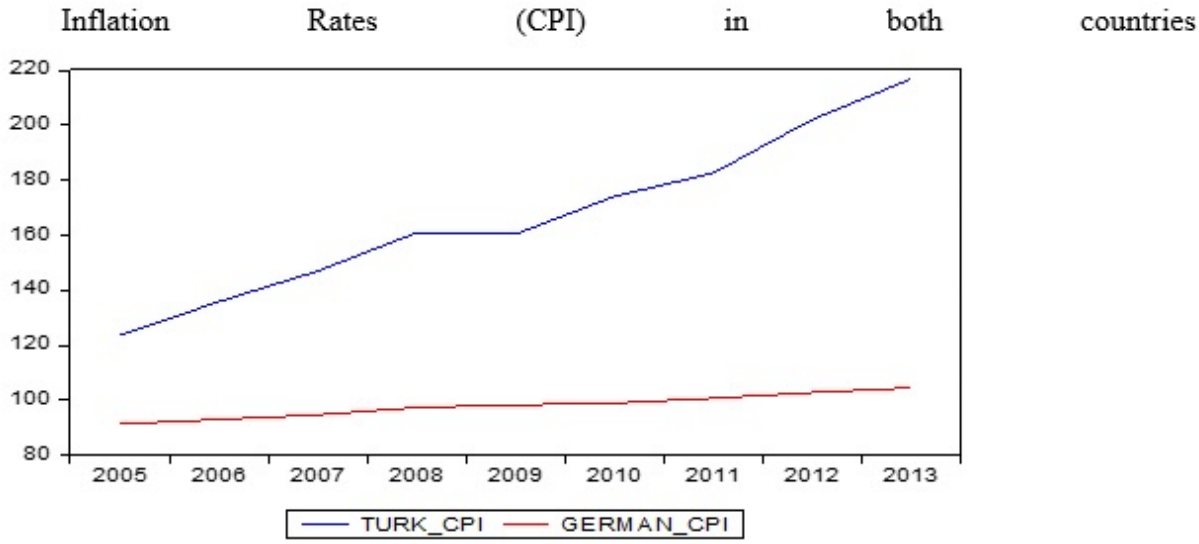
Whether it should be interpreted as a good sign for the Turkish economy or not, will be discussed later in this paper. The first and quite an important finding of this research is

that the remittances from 2005 on are having different impact on the Turkish economy, as opposed to the period before, which was covered by the previous literature.

The previous literature shows that the remittances are acyclical for the Turkish economy before 2004. However, it is evidenced in Durdu & Sayan (2010) that the effects of remittances could change from time to time. While it is verified in Tansel & Yasar (2012) that remittances of Turkish immigrants have a positive effect on the Turkish economy though increasing Gross Domestic Product (GDP), it could cause undesirable results in times of crisis and recession if we consider business cycles. It was expected that the Turkish economy has expanded through recent years, thus it is getting close to the bubble more than the recession. This might cause more migration in the future, because, as it is shown in Akkoyunlu & Siliverstovs (2013), the positive effect of remittances creates incentives to migrate more.

It could be argued that the remittances of the Turkish immigrants from Germany have only effect on the consumption level and therefore do not have significant effect on the real economy. Real economy grows when funds (money) are invested in a productive and efficient way. For example, investing in projects that create jobs or investing in human capital and increasing knowledge capital would have real positive effect on the economy. The Turkish immigrants in Germany and their family (and relatives) in Turkey are from low-income layer of the society, the remittances sent are highly unlikely invested in the real economy. Low-income families have also low level of consumption and as their income increases they still spend the additional income on consumption. This leaves little room for saving and investing behavior. That is why we are not able to simply assume that procyclicality and positive correlation between the remittances are boosting the Turkish economy. Keeping in mind that the period (2005 – 2013) we examine is characterized as expansion which implies possible bubble, the procyclicality of the remittances might heat up the economy

more than the natural level and cause higher inflation rates. In fact, if we check the Consumer Price Index (CPI) for both countries, we see strong upward trend of the inflation in Turkish economy, in comparison to that of the German one (see below).



We need to take different approach to capture the suspected effect of the remittances on the Turkish inflation. I am employing inflation adjusted variables to better understand this effect. The variables are adjusted using CPI numbers, in detail; dividing those variables by CPI numbers we get adjusted data. First, we look at the relationship with the German output (see below).

Causality (Granger) between the remittances and the German output (inflation adjusted)			
Pairwise Granger Causality Tests			
Date: 08/18/15 Time: 19:22			
Sample: 2005 2013			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.

REAL_GGNP does not Granger Cause REM_CYCLE	7	0.14267	0.8731
REM_CYCLE does not Granger Cause REAL_GGNP		2.19262	0.313

The results from the table show no Granger causality between variables. This implies that the remittances are acyclical to the German output. The result is not significantly different from the first tests with unadjusted data. What is more interesting is the effect of the remittances on the Turkish output (see below).

Causality (Granger) between the remittances and the Turkish output (inflation adjusted)			
Pairwise Granger Causality Tests			
Date: 08/18/15 Time: 19:20			
Sample: 2005 2013			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
TCYCLE3 does not Granger Cause REM_CYCLE	7	1.14467	0.4663
REM_CYCLE does not Granger Cause TCYCLE3		0.28254	0.7797

These results suggest that there is no Granger causality between the Turkish output and the remittances. In other words, the remittances do not Granger cause the Turkish business cycle or they are acyclical to the cycles. This is significantly different result from the first tests that do not employ the inflation adjustment. Thus, it supports my suspicion that the remittances might cause inflation rather than boosting the economy. Combined with the procyclicality of the remittances to the Turkish economy, it is not illogical to claim that the money sent by the immigrants does not have a

fundamental positive effect on the Turkish economy. The fact that low-income families may smooth their consumption via the help of the remittances does not contradict with this finding. The effects on the real economy would be fundamentally positive if the high-skilled immigrants remit with macroeconomic return motive. This could include investments on education or on real job-creating projects in the home country. Investments on education and on real economic projects have long-run positive effects, as opposed to short-run consumption increase caused by mostly low-skilled workers' remittances.

Conclusion

In 1970s, when the first Turkish workers headed to Germany due to the agreement between the countries, the Turkish economy was not in high growth state and the remittances might have boosting effect to the economy, through a consumption channel. Nevertheless, the recent years, especially when AKP was the ruling party, the Turkish economy jumped to a vivid expansion path. This is due to pro liberal market policies of AKP (privatizations) as well as their high mobilization power coming from the Islamic references they employed successfully in their agenda. This mobilization power is highly likely to have had an effect on the altruistic remitting motive of the Turkish immigrants that are thought to be more conservative since they voted for conservative AKP in all elections (www.ysk.gov.tr). New procyclicality feature of the remittances as opposed to before might have roots in this process. However, as the money sent by immigrants is mostly used in the consumption, the effect of it in the expansion period could be undesirable (in a recession, it might be quite desirable, though). Using the techniques suggested in the previous literature and developed in this paper (separate analysis of the inflation adjusted data), I found that the Turkish workers' remittances from Germany have undesirable effects that end up in high inflation observed in the period 2005-2013.

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