Remittances, Business Cycles and Poverty: The Recent Turkish Experience

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Remittances, Business Cycles and Poverty: The Recent Turkish Experience*

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Abstract

We investigate whether remittances sent to Turkey by Turkish workers living in Germany are countercyclical or procyclical with Turkish and German national outputs and discuss the possible reasons underlying the resulting patterns and their implications. We also take up a previously unexplored issue and discuss poverty alleviation potential of remittances at a macroeconomic level by examining the statistical properties of any co-movements between remittances cycles and cycles in consumption spending on food and durable goods in Turkey. Our results reveal that the real remittance flows from Germany to Turkey move procyclically with the real output in Turkey, and are primarily driven by (largely independent of) the developments in the Turkish economy (German economy).

We also find that remittances cycles remain procyclical to the consumption cycles throughout our sample period. This direct co-movement between the two cycles becomes synchronous, however, only after a phase shift occurring around 1992, pointing to the increasing role of the level of economic activity in Turkey as the leading determinant of remittance receipts from Germany and the declining strength of consumption smoothing motive over time. Our results all together point out a low potential for remittances sent from Germany to reduce poverty in Turkey, at least as far as the past fifteen years are concerned.

Keywords : Remittances, International migration, Business cycles and poverty.

JEL Codes: F24, F22, E32 and I32

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1. Introduction

Workers' remittances have grown rapidly and steadily since the 1970s, and become a leading source of external financing for labor-surplus countries of the developing world (Ratha, 2003; Spatafora, 2005). Total remittance receipts of these countries reached 116 billion dollars in 2003 and 126 billion dollars in 2004 (Maimbo and Ratha, 2005). The rate of increase in remittances between 2001 and 2004 is almost 50 percent and this fast growth is expected to continue in the foreseeable future.

Aside from their magnitude, remittances are generally considered a more stable source of funding than foreign direct investment (FDI) and private capital flows (Ratha, 2003; Buch and Kuckulenz, 2004). Furthermore, many studies in the existing literature argued that remittances tend to move in the opposite direction to the cyclical fluctuations in the national income (GDP) of recipient countries. In other words, remittances were generally agreed to be countercyclical to the business cycles in the labor-surplus economies that send migrant workers abroad –although a number of studies starting with Sayan (2004) have recently challenged the generality of this argument –see Aguinas (2006) for an extensive survey of the literature.

Until very recently, the dominant view in the literature has maintained that this countercyclicality signifies the altruistic tendency of migrant workers to help family members they left behind during a stagnation/recession or a crisis back home: Migrant workers tend to increase the amounts they remit in response to a slowdown in economic activity at home in order to help compensate the decline in household income due to unemployment and wage cuts that family members may face during such episodes. By the same token, remittance receipts of developing countries would be expected to decline during expansion/growth episodes over their business cycles, if this altruistic tendency is what drives the remitting behavior indeed. Yet, when and how much to remit is a complex decision involving many other factors than the motivation to smooth consumption spending of family members and relatives back home, as argued in various studies in the existing literature (see, for example, Russell, 1986).

Once it is recognized that there are different variables driving the remittance behavior and that these variables would be differently affected by the state of economic activity over the home country business cycles, it will become conceivable that remittances may be procyclical or even acyclical with the national output in some of these countries. For example, cyclical downturns and upturns in the home countries of migrant workers may cause domestic returns to savings to converge to or diverge from those prevailing in the host countries depending upon how interest rates react to such cyclical fluctuations, affecting the remittance behavior in turn. Likewise, remittance flows may increase, decrease or remain the same depending upon whether investment (or portfolio diversification) motive is stronger than the consumption smoothing motive for the migrant workers from different countries. Besides, which motive is stronger may change over time as we will submit in the rest of this paper.

If remittances sent by migrant workers from a certain country are countercyclical to business cycles at home, they could serve to smooth periodically observed (cyclical) fluctuations in the recipient country's GDP. If they are procyclical, on the other hand, the drop in remittances associated with cyclical contractions of economic activity might further deepen home country recessions and crises. Besides such effects on the home country's macroeconomic stability, whether remittances are procyclical or countercyclical have potentially significant and opposite implications for poverty alleviation, especially if migrant workers and hence the family left behind belong to poorer sections of the society: While countercyclicality of remittances would increase their poverty alleviation potential, their procyclicality could hurt the efforts to fight poverty during home country recessions/crises. It is therefore imperative to know whether remittances tend to increase or decrease in response to swings in GDP over the business cycles of different recipient countries (Sayan and Tekin-Koru, 2007).

In addition to the effects of home country cycles on the transfer behavior of migrant workers, remittances could also respond to the state of host country economies, since the level of economic activity and the associated level of wages and unemployment rates are likely to affect the saving and fund transfer capacity of migrant workers directly. Thus, even if remittances move countercyclically with the output in the migrant workers' home country, the cycles in home and host country economies may be in a direct and synchronous co-movement which would prevent migrant workers employed in a contracting host economy from helping out family members facing similar conditions back home. Furthermore, this co-movement of business cycles in home and host countries may be due to correlated output movements, rather than accidental. Obviously, such correlated output movements would be more likely to be observed between developed host country and developing home country economies that are strongly integrated. Besides, as Sayan (2004) noted, remittance flows themselves may contribute to the transmission of the effects of a contraction in the host economy to the recipient country through the decline in the amounts remitted by migrant workers.

In this paper, we consider these questions in the context of remittances sent home by Turkish workers in Germany, major destination of migration for Turks since the 1960s. First, we investigate whether remittances Turkish workers send home are countercyclical or procyclical with Turkish and German national outputs and discuss the possible reasons underlying the resulting patterns and their implications. Unlike previous studies that discuss responsiveness of remittances to fluctuations in home country outputs on the basis of regression results obtained from non-detrended series within panel data sets (see, for example, Spatafora, 2005), our analysis focuses on co-movements between cyclical components of respective output and remittances series, thereby avoiding two shortfalls of the conventional approach. First, it is not convincing to argue about the cyclicality of a series without indeed stripping it from its long-term trend. Second, using tens of different home countries in a panel conceals the unique features of each country when it comes to the remittances receipts as argued by Sayan (2006) –also see Apaa-Akello and Anguyo (2007). Sayan and Tekin-Koru (2007), for example, report that even though the migration

from Mexico to the US and from Turkey to Germany seem very similar at first look, due to conditions unique to each of these cases; Mexican remittances exhibit a countercyclical behavior vis-à-vis the Mexican output cycles, whereas Turkish remittances moves procyclically with the Turkish output.

We then take up a previously unexplored issue and discuss poverty alleviation potential of Turkish remittances by examining the statistical properties of any co-movements between remittance cycles and cycles in consumption spending on food (which takes up a greater fraction of income by poorer households) and durable goods (which are often noted in the literature to be a major spending item for remittances received by migrant worker families).

One set of results from our analysis indicates that the remittances from Germany are strongly positively correlated with the Turkish national output, and they are not correlated with the German national output. In other words, remittances sent by Turkish workers are procyclical with the real GDP in Turkey but appear to be acyclical with the German output. This finding becomes particularly important in light of the fact that output fluctuations in Turkey are generally stronger than those in more advanced economies, including Germany. Another set of results derived from the analyses of consumption cycles points out that remittances from Germany are not likely to have major poverty alleviation effects in Turkey, at least as far as nationwide poverty levels after 1992 are concerned.

The discussion in the rest of the paper is organized as follows: Section 2 presents background information on the history of migration of Turkish workers to Germany and remittances they have sent over the years. Section 3 discusses the methodological framework. Section 4 describes the data used and presents the results from this study. Finally, Section 5 concludes.

2. Background

2.1. Migration

During the so-called period “Trente Glorieuses” (1945-1975), many European countries experienced strong economic growth sustained by the development of heavy industry, manufacturing, construction and public works sectors. Numerous bilateral migration agreements were signed in this period to support the ongoing growth by bringing in guest workers from labor abundant countries. One important example of these agreements is the one signed between Germany and Turkey in 1961.

After the agreement, thousands of Turkish workers applied for guest worker positions and began to work in Germany. Their initial plan was to return home after a limited period of time and start a new life by using the amounts they saved abroad and the skills they acquired. The plan did not work, however. The markedly worse economic situation in Turkey and attractive employment and retirement benefit packages in Germany pushed early migrants from Turkey to continually postpone their remigration date, while newcomers continued to join them due to the lasting demand for migrant labor in Germany. As immigrants’ initial vision of remigrating home faded, the nature of immigration started to change from

inflows of guest workers to permanent residents. Eventually, immigration from Turkey has slowed down considerably after the 1980s due to increasingly tight restrictions placed by Germany, and migration of the late 1980s was characterized by predominance of family reunification flows.

Table 1 shows the growth of Turkish population in Germany after 1960. As the table reveals, the number of Turkish citizens living in Germany was small prior to the signing of the bilateral migration agreement between Germany and Turkey in 1961 but grew rapidly over the next four decades. At the beginning, an overwhelming majority of the Turkish migrants was males. After the modification of the German immigration law in 1974 to allow for reunification of migrant workers with their families, the population of Turks suddenly jumped over one million and the share of females increased sharply, reaching 45 percent in 1993 and slightly exceeding 46 percent in 2003 (Atalay, 2005).

Table 1. Evolution of Turkish Migrant Population in Germany

Years	Number of Turkish Citizens In Germany
1960	2,700
1965	132,800
1970	469,200
1975	1,077,100
1980	1,462,400
1985	1,400,400
1990	1,694,649
1995	2,014,311
2000	1,998,534
2003	1,877,661

Source: TAM (2004).

The decline in the number of Turkish citizens between 1980 and 1985 can be attributed to the "Voluntary Repatriation Encouragement Act" that the German parliament passed in 1983 to offer financial incentives to migrants who would like to remigrate to their home countries. The decline after 2000, on the other hand, can best be explained by the acceleration of the tendency among Turkish citizens to become naturalized as German citizens after 1992 when German law was modified to facilitate the acquisition of German citizenship: While only 2,618 Turks chose to take German citizenship during the period from 1972 to 1980, this number reached almost 60,000 in 1998. As of 2003, total number of Turks becoming naturalized Germans was 617,714. In addition, about 150,000 babies born to Turkish parents in Germany became German citizens between 2000 and 2003 (Atalay, 2005).

In terms of demographic characteristics of the early migrants, a survey taken in 1963 from a sample of 494 Turkish workers in Germany (86 percent males, 14 percent females) indicated that 49 (39) percent

of them migrated from Turkish towns or villages with a population of less than 100,000 (20,000). By the survey results, majority of them had migrated within Turkey and 80 percent of them had permanent jobs prior to their migration to Germany. Thus, the survey clearly indicated that the main reasons underlying their decision to migrate to Germany were not unemployment or poverty. The driving force, instead, was their desire to earn higher wages – that would enable them to reach their target savings in a relatively short period of time, to acquire new skills and experiences and their desire to see the world (Abadan-Unat, 2002).

In fact, the respondents were mostly young (67 percent between the ages of 23-32) and relatively better educated as compared to the next generations of Turkish immigrants. 49 percent of male respondents had primary school, 13 percent had middle school and 15 percent had vocational school degrees. Female respondents were even better educated with 16 percent having high school and 24 percent having vocational school degrees (Abadan-Unat, 2002). These numbers clearly show the positive selection bias that German employers enjoyed at the beginning, as supported by the observations of Martin (1980) who noted that by 1970, 40 percent of Turkey's skilled carpenters and stonemasons were working in Germany, often in assembly lines or as unskilled workers.

Another survey taken with a sample of 884 in 2000 (TAM, 2000) hint the gradual disappearance of the selection bias with more than one third of respondents having only primary school degrees or less, despite the substantial improvements observed in schooling in Turkey (especially at primary and secondary levels) within almost four decades past between the surveys. Yet, 60 percent of the respondents were still working as unskilled workers (Table 2).

Table 2. Composition of Turkish Citizens Working in Germany by Work Status in 2000

Work Status	Share among Respondents (%)
Unskilled worker	60.3
Skilled worker	10.6
Clerical	12.0
Government employee	1.2
Academia	2.1
Self-employed/Business owner	9.5
Other	4.3

Source: TAM (2000).

The same 2000 survey by TAM also showed that a significant majority of the early Turkish migrants that came to Germany in the 1960s and the 1970s have chosen to stay in Germany even after retirement. Likewise, statistics published by the German Federal Statistics Agency indicated that the largest group (45.5%) among Turkish migrants is composed of those who lived in Germany for 20 years or more,

followed by those who lived there for 8-15 years (Atalay, 2005). In other words, majority of Turks in Germany today have lived in the destination country for more than 15 years, while less than 22 percent having arrived in this country 7 years ago or less.

Looking at the patterns of duration of stay from a different angle, only a quarter of Turks currently residing in Germany originally arrived as guest workers. Almost 55 percent immigrated in the course of family reunification and the remaining 20 percent was born in Germany (Sen, 2004). In this sense, the guest worker (or "Gastarbeiter") program did not really serve to its original purposes. Instead, it helped create a growing population of long-term residents of Turkish origin in Germany, including a middle class with higher expectations in terms of education, employment, living conditions and quality of life starting from the 1990s.

2.2. Remittances

Table 3 shows remittances receipts of Turkey from all over the world in current and constant (year 2000) prices, and remittances as a percentage of Turkish output. Since majority of Turkish workers abroad lives in Germany,[1] these total remittance figures well represent the evolution and relative importance of remittances that Turkey has been receiving from Germany. The numbers in the table reveal that despite the recent decline in their GDP share and sharply dropping amounts in response to recent economic/financial crises, remittances to Turkey make up a significant source of foreign exchange. In fact, net remittance receipts of the country have been more than four times the FDI flows during the 1990s (Aydas, Metin-Ozcan and Neyapti, 2005).

Table 3. Remittances and Their Relative Importance in Turkey

Years	Remittances In million $	Remittances in millions of 2000 $	Remittances as % of Turkish Output
1965	70	311	0.6
1970	273	992	1.5
1975	1312	3452	2.7
1980	2071	3832	3.0
1985	1714	2459	2.5
1990	3246	4199	2.1
1995	3327	3612	1.9
2000	4560	4560	2.3
2003*	729	688	0.3

Source: Central Bank of Turkey

* The sharp drop in 2003 is due largely to a change in the convention by which Turkish Central Bank has been reporting remittances data collected –see Gallina (2006).

[1] Germany has been the leading destination for migrant workers from Turkey with a share that has consistently lied between 55-60 percent over the last two decades (see http://www.calisma.gov.tr/yih/yurtdisi_isci.htm)

As can be observed from Tables 1 and 3, the magnitude of remittances in real terms followed a partially compatible pattern with the tendencies in migration to Germany, steadily increasing until 1980 and beginning to exhibit fluctuations not matched with the fluctuations in the size of Turkish migrant population in Germany thereafter. The significant increase in real remittances receipts of Turkey during the 1960s and 1970s was due, to a large extent, to increasing migration flows to Germany. Again, the decline in the amount of remittances from 1980 to 1985 could in part be explained by the reduction in the number of Turkish workers who returned home to take advantage of incentives provided through the "Voluntary Repatriation Encouragement Act" of 1983 in Germany.

As we will argue in the following sections, part of the post-1980 fluctuations in real remittance receipts follows from the changes in the motivations underlying remitting behavior of Turkish workers in Germany. The drop from 1990 to 1995, for example, has probably more to do with the severe financial crisis Turkey had to endure in 1994 (Sayan, 2006) than the changes in the number of Turkish migrants abroad.

In the 1960s and the 1970s when Turkish migration was almost entirely based on men working in Germany, the savings were remitted primarily to help finance consumption spending of families left in Turkey. Real estate purchases and home improvement expenses (including purchases of consumer durables) have been another important channel to utilize remittances during this period. Investment motive drove a number of collective attempts to establish workers' company holdings to create jobs in Turkey and to contribute to the development of the country,[2] but almost all of these initiatives have failed due to mismanagement as well as imprudent choice of sectors and unwise decisions about plant locations, causing by and large the savings of Turkish migrants in Germany to get wasted. The trust in the home country investments got a hard hit and lessons were learnt by the migrant workers.

The arrival of hundreds of thousands of immediate family members who took advantage of the change introduced to the German immigration law in 1974 to allow for reunification of migrant workers with their spouses and children in Germany affected not only the size and the profile of Turkish population in Germany but possibly the saving and remitting behavior of Turkish workers as well: Having immediate family around must have obviously lessened the need to remit for the purpose of helping with the financing of consumption spending of the household, while at the same time causing migrant workers to reconsider their decisions concerning desirability and timing of return home. The resulting extensions of the duration of stay in Germany were likely to weaken the ties of Turkish migrants with any remaining relatives back home, thereby affecting their altruistic tendency to remit negatively (Russell, 1986). The 1992 change introduced to the German immigration law to facilitate acquisition of German citizenship by Turkish residents has probably contributed to this process also. In fact, the sharp decline in remittances

[2] The very first such company, Türksan, was founded by Turkish workers in Cologne in 1966. By 1983, these companies multiplied in number (to 322 firms) and size (with a total capital of more than 2 billion Deutsche Marks). For more on this, see Sen (2004).

after 2000 can partly be explained by the increase in the speed at which Turkish citizens become naturalized after this 1992 change to the German immigration law (Sayan and Tekin-Koru, 2007).

3. Methodological Framework

In this section we describe how we analyze the response of remittances sent by Turkish workers living in Germany to business cycles both in Turkey and in Germany using time series data. We also pay attention to the relationship between remittances and food/durables consumption in Turkey.

To analyze how remittances respond to recurring episodes of recession, stagnation/crisis, growth and boom over business cycles in Turkey and Germany, we need to identify first when the economy in question is actually in one of these phases in any given period. Following Kydland and Prescott (1990), we define business cycles as deviations of output from its long-run trend and identify cycle phases by looking at the direction of deviations relative to the trend. We then separate cyclical components around the respective trend of remittances, and examine their behavior over Turkish and German business cycles by analyzing the statistical properties of their co-movements with the business cycles in respective countries (Lucas, 1977; Kydland and Prescott, 1990).

This analysis requires that we remove the long-run trend within time series data on national output first. Once we remove the trend, the remaining fluctuations (cyclical components) show the cyclical upturns and downturns during different periods of time. Then, we repeat the same procedure to strip the real remittances and real consumption expenditures from their long-run trend.

If cyclical components of the remittance receipts and output (real consumption spending) series tend to move in the same direction over time, then remittances are said to be procyclical with the output (consumption). That is, fluctuations in remittances respond to home country output (real consumption spending) cycles by moving in the same direction, increasing when output (real consumption spending) increases and decreasing when output (real consumption spending) falls. If they move in opposite directions, on the other hand, then remittances are said to be countercyclical with the output (real consumption spending), increasing when output (real consumption spending) decreases as in the case of a recession or crisis, and decreasing when output (real consumption spending) increases as observed during a growth or boom episode.

We consider seasonally adjusted series, y_t^j where $j \in \{REM, TUR, GER, FOOD, DUR\}$. *REM* represents the real remittances sent to Turkey from Germany, *TUR* stands for the Turkish real output, *GER* for the German real output, *FOOD* for food consumption expenditures in real terms in Turkey and *DUR* for real expenditures on durables consumption in Turkey (all in logarithms). To test the stationarity of both the original and the detrended series, we use Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests.

If a series turns out to be non-stationary, it will have a trend and will need to be detrended. We detrend each series, y_t^j by separating its trend (growth) component, τ_t^j, from the cyclical components, c_t^j:

$$y_t = \tau_t + c_t \tag{1}$$

where we drop the superscript *j* identifying the series under consideration to reduce the clutter. In this paper, we use two detrending techniques to check the robustness of results to the particular detrending technique. We consider the following two filters:[3]

Polynomial Filter (POL). We estimate the (unknown) trend τ_t of each output, consumption and remittances series by fitting a polynomial of degree *k* of the form

$$y_t = \underbrace{\alpha + \sum_k \beta_k t^k}_{\tau_t} + \underbrace{\varepsilon_t}_{c_t} \tag{2}$$

where *t* is time and ε_t is the disturbance term. The polynomial fit to the trend must have statistically significant estimates for α and β coefficients. Once the trend is removed from the original series, the remaining cyclical component must be stationary. If more than one polynomial fit satisfy these conditions, we use AIC and SCI values to determine the best fitting polynomial. Smaller values of the information criteria are considered to be better.

Hodrick-Prescott Filter (HP). This filter minimizes the variance of the cyclical component, c_t, subject to a penalty for variation in the second difference of the permanent component, τ_t (Hodrick and Prescott, 1997). The problem then is

$$\min_{\tau_t} \left\{ \sum_{t=-\infty}^{\infty} (y_t - \tau_t)^2 + \lambda \sum_{t=-\infty}^{\infty} (\tau_{t+1} - 2\tau_t + \tau_{t-1})^2 \right\} \tag{3}$$

yielding a linear time-invariant filter through

$$c_t = (1-L)^4 H(L) \tag{4}$$

where *H(L)* is a complex expression involving ρ, a stable root of $\left[\lambda^{-1}L^2 + (1-L)^4\right] = 0$. (Cogley and Nason, 1995).[4]

After we find stationary cyclical components of the series under consideration by using each filter, we conduct the correlation analysis. For this purpose, we calculate contemporaneous and asynchronous cross

[3] We also experimented with Beveridge-Nelson (BN) and unobserved components (UC) decompositions using the specification of Morley, Nelson and Zivot (2003). They show that when the assumption of trend and cycle components being uncorrelated is relaxed, UC decomposition is identical to BN decomposition. Results were sensitive to changes in specification, initial conditions and starting values in the UC decomposition and to the choice of ARIMA representation in the BN decomposition. Therefore, we omitted these two filters from our analysis.

[4] In our analysis, we use the standard smoothness parameter value of $\lambda = 1600$ for quarterly data.

correlations between the cyclical components of each output (and real consumption spending) series and of real remittances. Remittances are said to be procyclical (countercyclical) with –the movement of cyclical component of– the real output or consumption, if the contemporaneous cross correlation (cross correlation at time t=0) between the two series is positive (negative) and statistically significant.[5] Procyclicality (countercyclicality) of remittances implies that real remittance receipts by Turkey move above its trend, whenever the corresponding real output or consumption variable is above (below) its respective trend. If a regularity is absent, then we call these two series acyclical.

To calculate asynchronous correlations between cyclical components of relevant output (consumption) variables and real remittances, we shift the latter by one to four quarters in both directions. An examination of the resulting cross correlation coefficients enables us to identify possible phase shifts by looking at how early or how late the highest correlation appears relative to the contemporaneous period (Pallage and Robe, 2001). If the largest (in absolute value) significant correlation between a real remittances and a real output series occurs when the remittances series is shifted backwards (forwards), then the remittances cycles are said to be leading (lagging) the output cycle.

To decide on the statistical significance of the correlation coefficients calculated, we test the null hypothesis, $H_0 : \rho_{c_t^j, c_{t\pm i}^j} = 0$, against the two-sided alternative that $H_A : \rho_{c_t^j, c_{t\pm i}^j} \neq 0$, using the correlation coefficients, r, calculated from the relevant samples. We use the critical t-values which are determined according to $t = r\sqrt{(n-2)/(1-r^2)}$. Correlation coefficients falling outside the $[-2/\sqrt{n+2}, +2/\sqrt{n+2}]$ range will require that the null hypothesis be rejected.

4. Data and Results

4.1. Data

Even though the Turkish migration to Germany has a longer history, we use time series data spanning the period from the first quarter of 1987 to the third quarter of 2003, on account of the lack of quarterly data on remittances for the period before 1987. We do not use data beyond 2003 because of a change in the emanation of remittances data after that year (Gallina, 2006).

All data we use in this study come from standard sources: National output data from International Financial Statistics published by the International Monetary Fund, and remittances series and data on real consumption expenditures in Turkey from the Central Bank of Turkey.

Given that GNP is defined as GDP plus net factor income from abroad (NFI) and NFI includes net remittance receipts, it is fitting to use the home country GDP and the host country GNP in the analysis to

[5] See Kydland and Prescott (1990), Pallage and Robe (2001) and Alper (2002) for further discussion.

follow. Thus, we use real gross domestic product (GDP) series for Turkey and real gross national income (GNI) series for Germany as national output measures. To analyze the relationship between consumption spending and remittances, we use spending on food and durable goods in Turkey, both in real terms.

We convert monthly nominal remittances figures reported in US dollars into quarterly values and then by using the US quarterly GDP deflator to convert them into real values. Finally, we separate remittances sent from Germany by using the share of Turkish workers living in Germany in all Turkish workers living abroad as in Sayan (2004). All series used in this paper are seasonally adjusted at annual rates.

4.2. Detrending

Unit root tests for the German and Turkish real outputs, real consumption expenditures on both food and durables in Turkey and real remittance receipts of Turkey from Germany are conducted by employing both ADF and PP tests. Test results are reported in Tables A.1 and A.2 in Appendix. For none of the five series, the null hypothesis of non-stationarity can be rejected, indicating a random-walk process with drift. This implies that all original series are non-stationary before detrending.

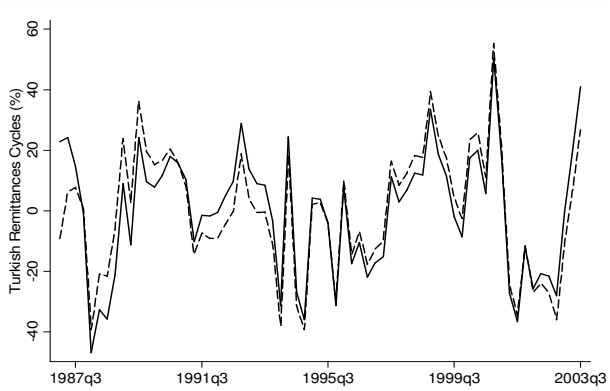
These non-stationary series are detrended first with the polynomial filters reported in Table 4 and then with the Hodrick-Prescott filter. The cyclical components obtained via these detrending techniques are checked for unit roots and all are found to be stationary as necessary (Tables A.1 and A.2).

Table 4. Estimated Trends for the Turkish and German Outputs, Food and Durables Consumption and Remittance Receipts of Turkey from Germany (*t*-statistics in parentheses)

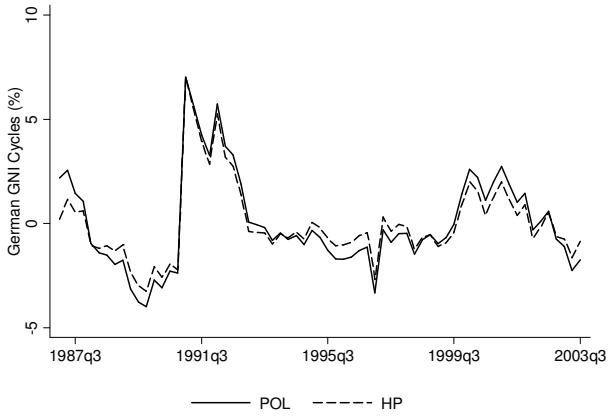
	Constant	t	t^2	t^3	t^4	t^5	R^2 [$Adj.R^2$]
y_t^{REM}	0.732443	0.213007	-0.018474	0.000652	-9.69E-06	5.03E-08	0.610
	(4.08)	(4.10)	(-3.97)	(3.79)	(-3.49)	(3.09)	[0.578]
y_t^{TUR}	4.328556		0.000597	-0.000012	7.67E-08		0.949
	(363.22)	--	(8.18)	(-4.79)	(3.23)	--	[0.948]
y_t^{GER}	1.190305	0.019313	-0.000341	2.38E-06			0.968
	(110.42)	(13.55)	(-6.78)	(4.76)	--	--	[0.967]
y_t^{FOOD}	5.976762		0.000458	-5.76E-06			0.824
	(338.12)	--	(11.81)	(-9.55)	--	--	[0.812]
y_t^{DUR}	4.628571		0.000459		-7.95E-08		0.756
	(141.38)	--	(10.27)	--	(-7.27)	--	[0.738]

Next, we conduct a visual examination of the cyclical components of remittances, the Turkish real GDP, the German real GNI and real expenditures on food and durable goods in Turkey. Figure 1 shows cycles for all series obtained using the polynomial and the Hodrick-Prescott filters. Since we use all series in their logarithmic form, we can interpret the resulting cycles as percentage deviations from the long-run trend. It is clear from Figure 1 that two filters produce very similar results.

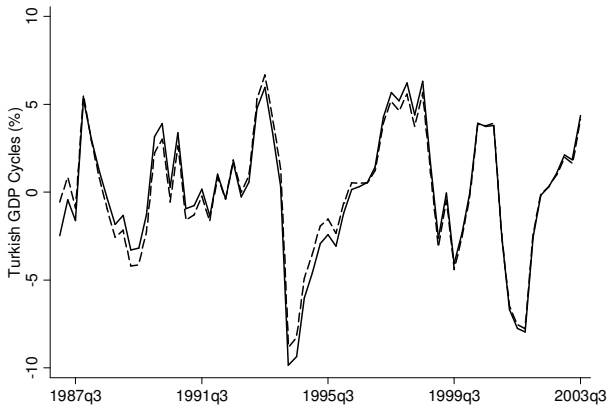
Figure 1. Cyclical Components of *REM, GER, TUR, FOOD* and *DUR*
Using Different Filtering Techniques, 1987:1-2003:3



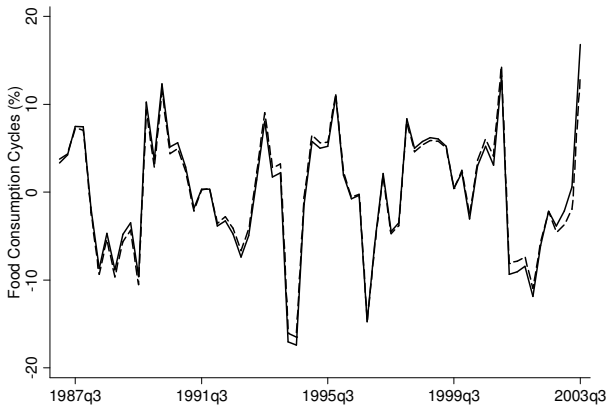
(a) Remittances (*REM)*



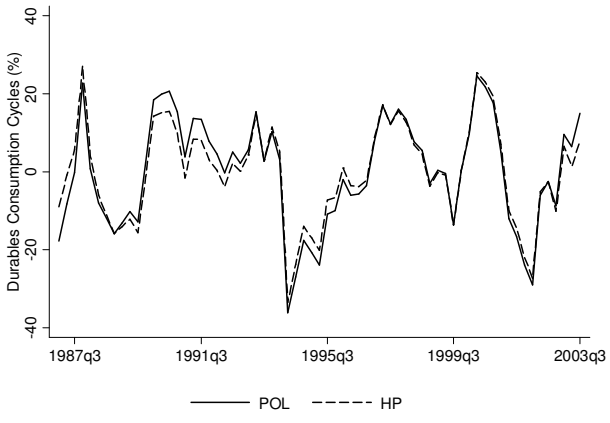
(b) German GNI (*GER)*



(c) Turkish GDP (*TUR)*



(d) Turkish Food Spending (*FOOD)*



(e) Turkish Durable Goods Spending (*DUR)*

Since we use all series in their logarithmic form, we can interpret the resulting cycles as percentage deviations from the long-run trend. It is clear from Figure 1 that two filters produce very similar results. Accordingly, volatility of the resulting cyclical components from both filters is also similar for all series we consider as shown in Table 5. By the numbers in Table 5, cycles of real remittances is the most volatile series. We also note that cyclical components of Turkish output (real expenditures on food consumption) are more volatile than those of German output (real expenditures on durables).

Table 5. Volatility of Cyclical Components as Measured by Standard Deviations

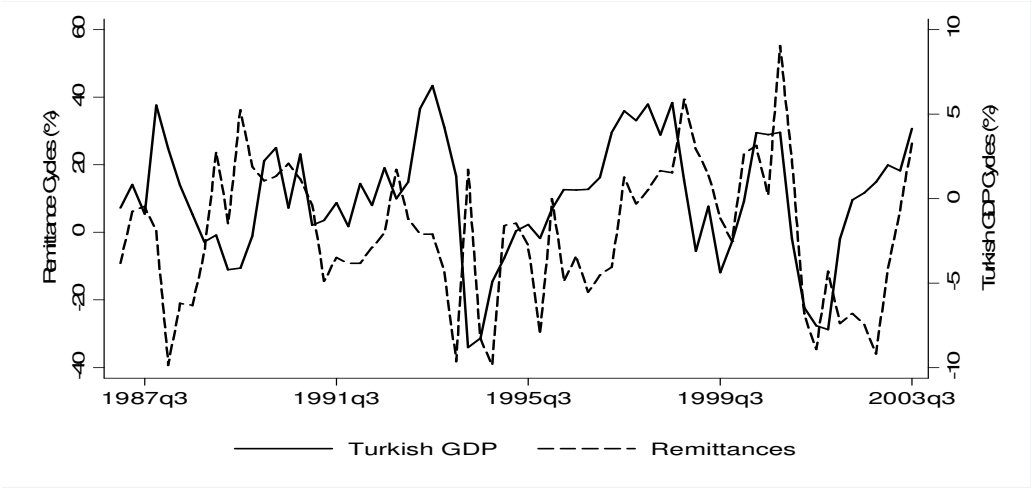
Filter Used	*REM*	*TUR*	*GER*	*FOOD*	*DUR*
Hodrick-Prescott	20.5	3.5	1.9	6.8	12.7
Polynomial	20.6	3.7	2.3	7.0	13.9

4.3. Business Cycles and Remittances

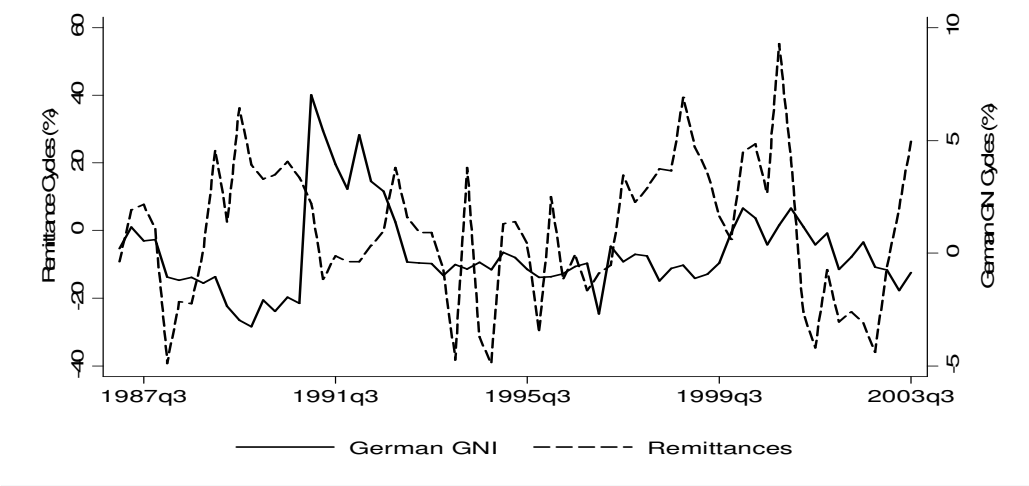
In this section, we investigate the nature of co-movements between the cyclical components of remittances and the relevant home and host country output series. We start our analysis first by visually inspecting all cycles and then we conduct the correlation analysis to formally decide about the pro- or countercyclicality of these cycles. Figure 2 presents a comparative look at the cyclical components of the Turkish GDP, German GNI and remittances using the HP filter for data from 1987:1-2003:3. In the top panel (a), the dashed line and the left hand side axis stand for real remittances send by Turkish workers living in Germany, whereas the solid line and the right hand side axis for the Turkish GDP. The plunges in the solid line mark recessions in the Turkish economy: Two relatively mild ones, experienced before the first Gulf Crisis of 1991 between the US and Iraq and after the major earthquake of 1999 in the Marmara region, as well as two severe crises that the Turkish economy went through in 1994 and 2001.

If altruistic motives governed the remitting behavior of Turkish workers in Germany (i.e., if the remittances they sent were countercyclical with the business cycles in Turkey), we would expect to observe hikes in the amounts remitted concurrently with or shortly after each of these recessions/crises. Had the remitting behavior of the Turkish workers in Germany been driven mainly by such investment or portfolio-related factors as the increasing riskiness of funds placed in Turkish assets, on the other hand, Turkish workers' remittances could have responded procyclically to the developments in the Turkish economy. In this case, remittances would be expected to decline concurrently with or shortly after each of these periods of slowdown in economic activity, as this would negatively affect the returns to savings sent to Turkey relative to returns on savings kept in Germany. Yet another possibility would be the acyclicality of remittances, i.e., the lack of a systematic relationship between remittances and output cycles in Turkey – in the case of which we would observe no regularities concerning the co-movements between these cycles.

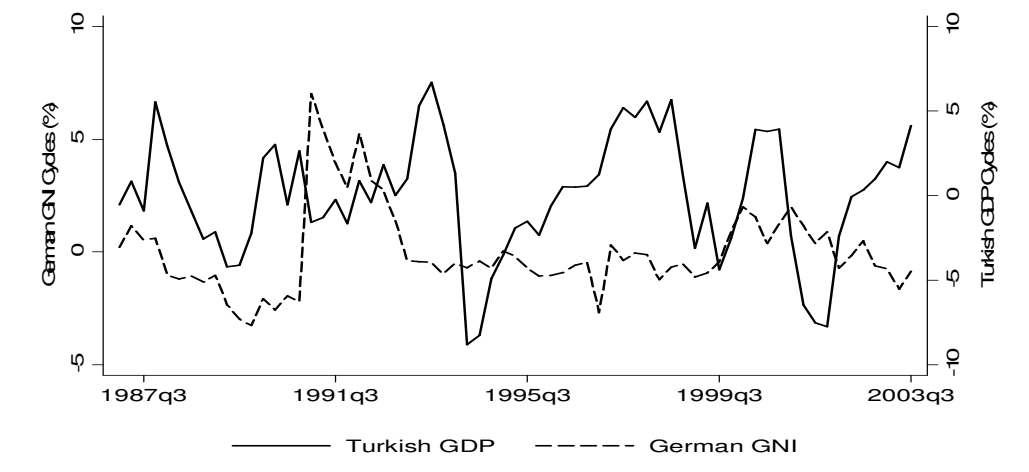
Figure 2. A Comparative Look at the Cyclical Components of the Turkish GDP, German GNI and Remittances Using the HP Filter, 1987:1-2003:3



(a)



(b)



(c)

Even a careful look at the top panel of Figure 2 indicates that it is difficult to decide on the nature of the cyclical behavior of remittances by relying exclusively on a visual comparison of the plots in that panel: A procyclical behavior is hinted by sharp drops in remittance receipts observed in 1994 and in the aftermath of 1999 and 2001 crises, whereas the significant rise in the early 1990s seem to point to a countercyclical relationship. We thus use the cross correlation coefficients between the two series to formally decide whether Turkish workers' remittances tend to be countercyclical or procyclical with the business cycles in Turkey. Table 6 separately reports these cross correlation coefficients for real remittance and output cycles obtained by using the polynomial and the Hodrick-Prescott filters.

Table 6. Cross Correlations of Cyclical Components of Turkish Real GDP and Real Remittances Received by Turkey under Different Filters

	$\rho_{c_t^{TUR}, c_{t-i}^{REM}}$	$\rho_{c_t^{TUR}, c_{t+i}^{REM}}$
	(1)	(2)
Lag, i	1987:1-2003:3	
	Polynomial Filter	
0	0.2865*	
1	0.2219	**0.3329***
2	0.1287	0.2644*
3	-0.0548	0.1620
4	-0.1447	0.1267
	Hodrick-Prescott Filter	
0	0.2481*	
1	0.1685	**0.2989***
2	0.0778	0.22051
3	-0.1198	0.1141
4	-0.1622	0.0810

The first observation that one can make about the results in Table 6 is that cross correlations between Turkish remittance and GDP cycles obtained by using each filter point to the same directional relationship, indicating the robustness of these results to different detrending techniques: The critical *t*-value for 67 observations is ±0.24. Given the positive sign and statistical significance of the contemporaneous correlation coefficient, remittances sent from Germany to Turkey appear to be procyclical with the Turkish output, regardless of which filtering technique is used. This implies that the remitting behavior of Turkish workers in Germany is not likely to be driven mainly by an altruistic desire to help family members back home. Instead, these workers tend to pay attention to developments in the

Turkish economy for other reasons such as the increasing riskiness of funds placed in a crisis struck home country.

Given the locations of the highest significant correlation coefficients of 0.3329 and 0.2989 for cycles computed with the polynomial and Hodrick-Prescott filters, respectively, the results in Table 6 further indicate that remittances follow the business cycle in Turkey by a lag of one quarter. This finding is in line with Sayan (2004 and 2006) as well as Sayan and Tekin-Koru (2007) and implies that Turkish workers in Germany adjust the amounts they transfer to home country within the next quarter in the same direction of the movement of the economic activity in Turkey. In other words, remittance receipts of Turkey from Germany increase, whenever national output (and hence household income) in Turkey goes up, further boosting the income increase. The downside of this procyclicality of remittances is that they decline when there is a slowdown in economic activity at home, presenting the home country with yet another predicament to deal with in the face of a recession being experienced in the country. Thus, procyclicality of Turkish remittances from Germany with the output swings in Turkey serve to amplify business cycle fluctuations in the country rather than stabilizing them. This "when it rains, it pours"-type pattern must severely limit the potential of remittances to reduce poverty.

One possible explanation for this procyclical behavior could be a direct and synchronous co-movement between output cycles in Germany and Turkey, coupled with the procyclicality of Turkish remittances to the German business cycle. If both conditions are met, remittances from Germany may emerge as procyclical with the Turkish output and there are reasons to expect each condition to be met.

First, given the length of the history and strength of ties (particularly through trade) between the two economies, it would not be entirely surprising to observe that the level of economic activity in Germany drives that in Turkey, resulting in a direct and perhaps synchronous co-movement between German and Turkish output cycles (Sayan and Tekin-Koru, 2007). Secondly, a growth episode in Germany would naturally be expected to increase the remitting capacity of Turkish workers due to increasing wages and falling unemployment rates. Whether this increase in remitting capacity of Turkish workers would be translated to an actual increase in remittances to Turkey would depend, among other things, on the relative returns to savings. While it is conceivable that higher returns to savings in Germany during a growth episode there could lead Turkish workers to place their savings in Germany –rather than transferring them back home, it would not be surprising to observe an increase in remittances to Turkey during periods of increased economic activity in Germany (Sayan, 2004). In other words, procyclicality of Turkish remittances with the German output would be a strong possibility that is difficult to rule out without formal analysis of data.

If valid, these two possibilities will cause an upturn in the German economy to not only induce an increase in the remitting capacity of Turkish workers (through higher wages and lower unemployment rates) but also pull up the level of economic activity in Turkey (through trade and investment linkages

between the two economies), thereby resulting in an increase in both the Turkish output and remittances from Germany or a procyclical pattern between remittance receipts and output in Turkey.[6]

To see the validity of this view as an explanation to our procyclicality results in Table 6, we first analyze the nature of any co-movements between business cycles in Germany and remittances from Turkish workers and then turn to the investigation of whether the level of economic activity in Germany affects that in Turkey. Panels (b) and (c) of Figure 2 show cyclical components of the German GNI and Turkish workers' remittances and that of the German GNI and Turkish GDP. Since there hardly emerges any regularity from the patterns in these plots, we turn our attention to Tables 7 and Table 8 which present cross correlation coefficients calculated for this purpose.

Table 7. Cross Correlations of Cyclical Components of German Real GNI and Real Remittances Received by Turkey under Different Filters

	$\rho_{c_t^{GER}, c_{t-i}^{REM}}$	$\rho_{c_t^{GER}, c_{t+i}^{REM}}$
	(1)	(2)
Lag, i	1987:1-2003:3	
	Polynomial Filter	
0	-0.1087	
1	0.1834	-0.0103
2	0.2433	-0.0351
3	0.3110*	-0.0455
4	0.3338*	-0.0957
	Hodrick-Prescott Filter	
0	-0.0667	
1	-0.0127	-0.1731
2	0.0592	-0.1606
3	0.1564	-0.1244
4	0.2339	-0.1415

The correlation analysis results reported in Tables 7 and 8 with both filtering techniques nullify the hypothesis described above. None of the correlation coefficients are statistically significant.[7] In other

[6] Alternatively, suppose for a moment that a direct co-movement exists not only between the German and Turkish cycles, but also between the German output and remittances. Then, whenever the German economy is in a recession, economic activity in Turkey will also slow down but Turkish workers in a crisis-struck Germany will not be able to send funds to family members in Turkey which experiences its own crisis. The result will again be a simultaneous reduction in national output and remittance receipts in Turkey, hinting procyclicality.

[7] In Table 7 where results based on series detrended with a polynomial filter are reported, two of the correlation coefficients are statistically significant but the location of these coefficients implies that the Turkish remittances lead

words, Turkish remittances do not appear to be procyclical with the German output, given the negative sign of the (statistically insignificant) contemporaneous correlation coefficients in Table 7. Likewise, the lack of any significant coefficients in Table 8 leads us to conclude that German and Turkish outputs are acyclical as in Sayan (2004). Together with the results in Table 6, these findings establish that Turkish workers' remittance dynamics are driven primarily by developments in the Turkish economy, and not by the developments in the German economy.

Table 8. Cross Correlations of Cyclical Components of Turkish Real GDP and German Real GNI under Different Filters

	$\rho_{c_t^{GER}, c_{t-i}^{TUR}}$	$\rho_{c_t^{GER}, c_{t+i}^{TUR}}$
	(1)	(2)
Lag, I	1987:1-2003:3	
	Polynomial Filter	
0	-0.0764	
1	-0.0155	-0.0877
2	0.0130	-0.0468
3	0.0833	-0.0379
4	0.1627	-0.0423
	Hodrick-Prescott Filter	
0	-0.0394	
1	0.0008	-0.0455
2	-0.0042	0.0188
3	0.0398	0.0332
4	0.0934	0.0677

Having ruled out direct and indirect effects of German business cycles as a factor contributing to the observed procyclicality of Turkish remittances vis-à-vis the business cycles in Turkey, we need to offer an alternative explanation. Based on the discussion in Section 2, as well as previous evidence pointing to procyclicality of Turkish remittances from Germany as presented by Sayan (2004 and 2006) and Sayan and Tekin-Koru (2007), we suggest that this direct co-movement between remittances and Turkish output cycles must have gradually emerged due to a number of developments over the decades following the start of Turkish migration to Germany in the early 1960s. Among the developments that must have contributed to the emergence of this procyclicality were reunification of migrant workers from Turkey

the German GNI by 3 to 4 quarters. As this does not make any sense, we view the significance of these two correlation coefficients as accidental and ignore them.

with immediate family members in Germany following a number of changes introduced to the German immigration law after 1974. This affected decisions of migrants about the length of stay in the host country and caused them to postpone their return home, and the time passed contributed to a weakening of ties with other relatives back home, wearing down any altruistic, family support motives to remit. Also instrumental in the replacement of the countercyclical pattern of remittances that Turkey receives from Germany with a procyclical pattern vis-à-vis Turkish GDP was the introduction of the 1992 immigration law facilitating the acquisition of German citizenship by Turkish residents in Germany (Sayan and Tekin-Koru, 2007) and the changing investment atmosphere in Turkey (Sayan, 2006). We present further evidence supporting these views in the next sub-section.

4.4. Consumption Cycles and Remittances

So far our discussion has been centered on the relationship between the cyclical characteristics of remittances versus (national) income levels in the home and host countries. In this part of the paper, we shift our attention to the evaluation of poverty mitigating potential of remittances in Turkey at a macroeconomic level.

How remittances affect the poverty level in a country has no straightforward answer. Remittances would be more likely to play a central role in poverty alleviation, if remittance receipts are considerable in magnitude and most of the migrants originate from the poorest sections of the society. Conversely, remittances may have no effect on poverty mitigation, if most of the migrants are skilled workers who belong to groups with incomes well above the poverty line.

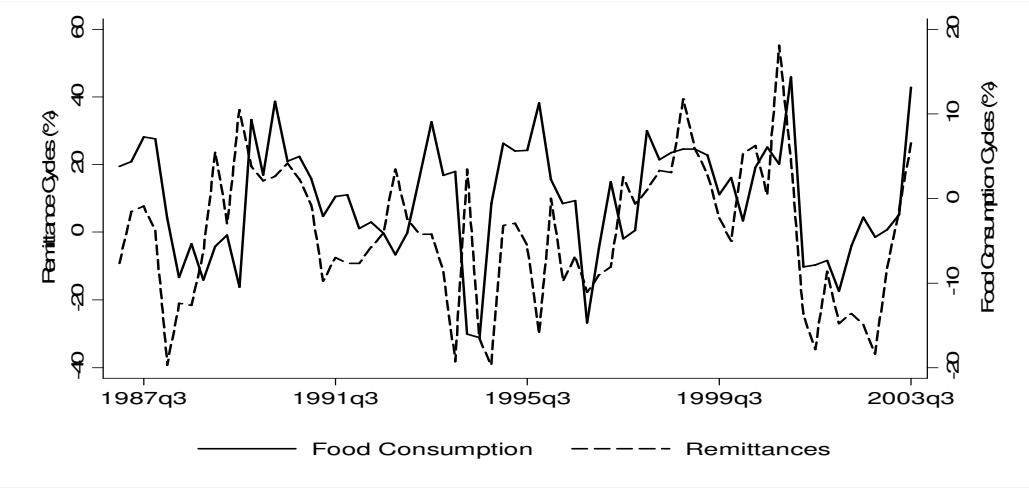
In the case of Turkey, the magnitude of remittances receipts has not been negligible. Yet, as discussed in Section 2.2, surveys of early Turkish migrants in Germany clearly indicated that the main reasons underlying their decision to migrate to Germany were not unemployment or poverty but instead their desire to earn higher wages that would enable them to reach their target savings in a relatively short period of time, and to acquire new skills and experiences as well as their desire to see the world (Abadan-Unat, 2002). These observations point to a relatively minor role that remittances from Germany may have played in reducing poverty in Turkey during the early phases of migration to Germany. While the skill and income levels of the later migrants somewhat declined over time, we submit that a host of other developments must have limited the contribution of remittances from Germany to poverty alleviation in Turkey.

Here, we add to the arguments about the magnitude of remittances and the income/skill profiles of migrants by suggesting that the nature of co-movements between remittances and home country consumption cycles must also matter. An investigation of the nature of these co-movements may indeed provide new insights into the poverty alleviating potential of remittances. Obviously, a high degree of countercyclicality between remittances and consumption cycles in the home country would hint a stronger

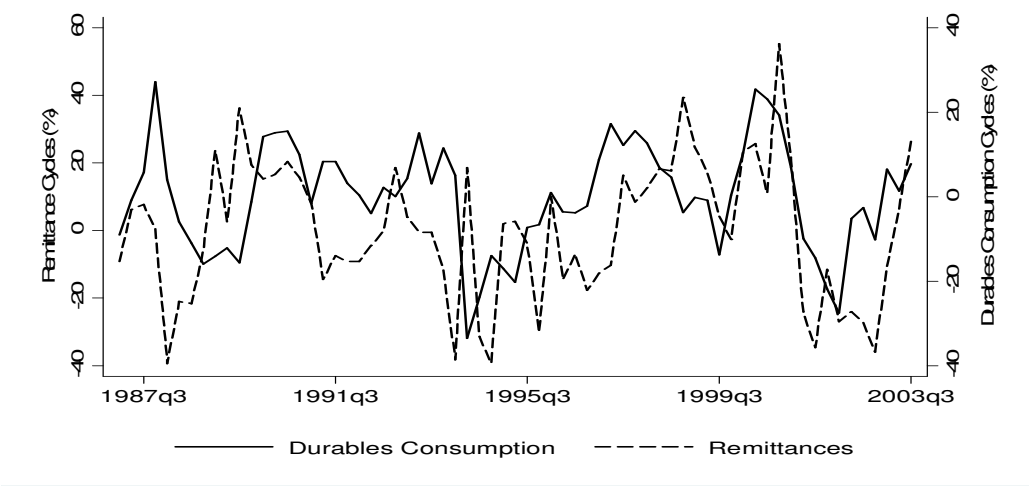
potential for remittances in reducing poverty. On the other hand, procyclicality of remittances with consumption cycles in the home country of migrants implies that their role in the fight against poverty would likely be limited, as the decline in remittances during the times of economic hardship would impede efforts for poverty alleviation.

To explore the behavior of remittances from Turkish workers in Germany in response to cyclical fluctuations in consumption spending in Turkey, we include real consumption spending on food (*FOOD*) and durable goods (*DUR*) in our analysis.[8] As in the previous section, we first visually examine the relationship between these two series and the remittances series through Figure 3.

Figure 3. A Comparative Look at the Cyclical Components of the of the Turkish Food and Durables Consumption and Remittances Using the HP Filter, 1987:1-2003:3



(a)



(b)

[8] Over the period from 1990 to 2003, the average ratios of remittance receipts to total spending on food and durables in Turkey turned out to be 9% and 25%, respectively.

Figure 3 presents a comparative look at the cyclical components of real consumption spending on food and remittances in panel (a) and those of real consumption spending on durable goods and remittances in panel (b). Solid lines signify the consumption cycles and dashed lines represent the remittances cycles around the long-term trend. Cyclical components of real consumption spending on both food and durable goods seem to imitate the cyclical components of the Turkish GDP given in Figure 1.

Our first observation from Figure 3 is that there is a seemingly procyclical relationship between the cyclical components of both *FOOD* and *REM* series plotted in panel (a) and *DUR* and *REM* series in panel (b). To put this first visual observation under closer scrutiny, we conduct the correlation analysis by using the cyclical components we obtained from the polynomial and the Hodrick-Prescott filters. Bivariate correlation results from our analysis of the co-movements between real remittances cycles and the real consumption cycles in Turkey confirm that remittances cycles are indeed procyclical with and peak one quarter after the respective real consumption cycles in Turkey.[9] This result suggests that smoothing of consumption expenditures of relatives back home is not the main motivation behind remittances from Germany, supporting our previous conclusion that remittance receipts of Turkey from Germany do decrease during periods of economic hardship and high unemployment in Turkey as reported in Section 4.3.

Though more subtle, our second observation from Figure 3 concerns the apparent phase shift in the behavior of remittances over consumption cycles in the second half of the sample. That is, the consumption and remittances cycles seem to move synchronously with each other after the mid-1990s but not before. Sayan (2006) and Sayan and Tekin-Koru (2007), in fact, find evidence that a switch occurred in the behavior of Turkish remittances from Germany vis-à-vis business cycles in the Turkish economy in the 1990s, with previously countercyclical behavior of remittances replaced with a procyclical behavior.

Perhaps a less radical change (a phase shift rather than a switch from counter- to procyclicality) seems to be visible concerning the behavior of remittances over consumption cycles. We test the validity of this observation by calculating the correlation coefficients between the cyclical components of *FOOD* and *REM* in Table 9 and between *DUR* and *REM* in Table 10 over two sub-samples. Following Sayan and Tekin-Koru (2007), we let the first sub-sample run from 1987:3 to 1991:4 and the second one from 1992:1 to 2003:3. The critical *t*-value for the first sub-sample is ±0.43 and for the second sub-sample, it is ±0.29. Results using the cyclical components obtained by using the polynomial filter are reported in the top half and the ones obtained by using the Hodrick-Prescott filter are presented in the bottom half of each table.

[9] We do not report these results for brevity but they are available upon request.

Table 9. Cross Correlations of Cyclical Components of the Food Consumption and Real Remittances Received by Turkey under Different Filter

	$\rho_{c_t^{FOOD},c_{t-i}^{REM}}$	$\rho_{c_t^{FOOD},c_{t+i}^{REM}}$	$\rho_{c_t^{FOOD},c_{t-i}^{REM}}$	$\rho_{c_t^{FOOD},c_{t+i}^{REM}}$
	(1)	(2)	(3)	(4)
Lag, i	1987:1-1991:4		1992:1-2003:3	
	Polynomial Filter			
0	0.5023*		**0.3925***	
1	**0.8006***	0.2176	0.3855*	0.3865*
2	0.4895*	-0.0242	0.2695	0.0913
3	0.5670*	-0.3254	0.0370	-0.0434
4	0.1060	-0.4142	-0.1355	-0.0868
	Hodrick-Prescott Filter			
0	0.2633		0.4036*	
1	0.6286*	-0.0231	0.4136*	**0.4251***
2	0.3547	-0.2488	0.3208	0.1435
3	**0.6595***	-0.5270	0.1125	0.0147
4	0.4236	-0.5975	-0.0553	-0.0262

Considering results obtained using the polynomial filter in Table 9 first, the location of the highest significant correlation coefficient (0.8006) for the first sub-sample and the sign of the contemporaneous correlation coefficient indicate that remittances tend to move procyclically with and peak one quarter before the food consumption spending in Turkey. Taken together with the simultaneous countercyclicality of remittances with the overall economic activity during the same time period as evidenced by Sayan and Tekin-Koru (2007), this result can best be interpreted as follows: Prior to 1992, the amounts remitted by Turkish workers in Germany were increased to help the families left behind during adverse times and this rise in remittances got translated into an increase in food consumption expenditures within the next quarter. A phase shift is observed after 1992 indeed: While the procyclical nature of remittances to the consumption cycles is maintained, the shift in the location of the highest statistically significant correlation coefficient (0.3925) now points to a synchronous co-movement between remittances and food consumption expenditures.

When the HP filter is used, on the other hand, the location of highest coefficient (0.4251) for the second sub-sample moves to the first lagging quarter hinting that remittances peak one period after the food consumption.[10] This is an even more interesting finding perhaps, since it hints a more drastic phase

[10] The location (3rd quarter) of the highest correlation coefficient (0.6595) for the first sub-sample suggests a peak in food consumption three quarters after a peak in remittances but a connection is not likely here. We therefore pay more attention to the second highest correlation coefficient (0.6286) obtained for the first sub-sample using the HP filter, since this coefficient is not only very close to the coefficient occurring in the 3rd leading quarter but is also consistent with results from the polynomial filter.

shift after 1992, with remittance cycles ceasing to lead consumption cycles and starting to follow them. Whatever the true length of the phase shift, results obtained using both filters indicate that poverty alleviating potential of remittances start to fade over time, more visibly after the 1990s.

As for the cyclical movements of the spending on durable good purchases, the very first observation from Figures 1 and 3 concerns the high volatility of this type of spending, which almost matches the volatility of remittances. When we look at the cross correlation coefficients between the cyclical components of *REM* and *DUR* series as reported in Table 10, the location of the highest significant correlation coefficients calculated using the polynomial and HP filters (0.6993 and 0.7286, respectively) for the first sub-sample and the signs of contemporaneous correlation coefficients suggest that remittances tend to move procyclically with and peak two to four quarters before the durable goods consumption in Turkey. Except for differences in the durations of lags, this result is very similar to the one related to food expenditures. After 1992, on the other hand, results obtained from both filters suggest that remittances peak one period after the durable goods consumption peaks.

Table 10. Cross Correlations of Cyclical Components of the Durables Consumption and Real Remittances Received by Turkey Based under Different Filters

	$\rho_{c_t^{DUR},c_{t-i}^{REM}}$	$\rho_{c_t^{DUR},c_{t+i}^{REM}}$	$\rho_{c_t^{DUR},c_{t-i}^{REM}}$	$\rho_{c_t^{DUR},c_{t+i}^{REM}}$
	(1)	(2)	(3)	(4)
Lag, i	1987:1-1991:4		1992:1-2003:3	
		Polynomial Filter		
0		0.1692		0.4438*
1	0.5400*	-0.0847	0.3696*	**0.5580***
2	**0.6993***	-0.0969	0.2336	0.4796*
3	0.6822*	-0.1171	-0.0517	0.1648
4	0.4669*	0.0474	-0.1932	0.1277
		Hodrick-Prescott Filter		
0		0.0338		0.4333*
1	0.3787	-0.3616	0.3883*	**0.5519***
2	0.5260*	-0.4526*	0.2877	0.4749*
3	0.5561*	-0.5404*	0.0377	0.1687
4	**0.7286***	-0.3775	-0.0944	0.1395

We conclude, based on the results in Tables 9 and 10, that remittances from Germany are not likely to have major poverty alleviation effects in Turkey especially after 1992, at least as far as nationwide poverty levels are concerned. Obviously, a stronger justification of this conclusion would require detailed answers to face to face surveys with families with at least one member living and working abroad. While not many of such surveys exist, our results do not directly contradict with the findings reported in the

available ones. The 1996 survey cited by van Dalen *et al.* (2005), for example, shows that about 12 percent of the households benefited from remittances in one form or another. The survey also reports that the remittances are used for both consumption and investment but most of the receipts were used to finance the daily costs of living, such as food, clothing, rent, etc. This last finding indeed supports our findings related to the pre-1992 period. According to Koc and Onan (2004), 80 percent of the amount received by households was used to improve the household's standard of living, 7 percent to pay medical bills, 4 percent to cover the costs of weddings and the remaining 3 percent was used to buy land or a house.

These findings are not inconsistent with our findings: They indicate that remittances play an important role in the improvement of the standards of living of recipient households but they are not vitally important for them, as our findings on the procyclicality of remittances with the Turkish GDP and consumption expenditures suggest. Besides, as can be observed from Table 3, remittances tend to decline over time, as the migrants get increasingly integrated into the society in the country of destination. This, in fact, can be viewed as one of the main reasons underlying the procyclical remitting behavior of Turkish workers in Germany. In the long run, the migrants often reunite with their immediate families in the country of destination and their ties with the remaining family members and relatives get weaker (due, among other things, to the deaths of elderly family members). As a result, sending money to support financing of the current consumption of relatives gradually loses its priority in migrants' consumption/saving decisions.

5. Concluding Remarks

In this paper, we investigated the nature of co-movements between the cyclical components of remittances sent by Turkish workers living in Germany, the Turkish output and the German output. Then, we set out on a previously unexplored issue and investigated the poverty mitigating potential of remittances by analyzing the statistical properties of any co-movements between the remittance cycles and the cycles in the sub-components of the consumption spending in Turkey.

Our results revealed that the co-movements of cyclical components of the real remittance flows from Germany and the real GDP in Turkey were procyclical. We hypothesized that one possible explanation for this procyclical behavior could be a direct and synchronous co-movement between output cycles in Germany and Turkey, coupled with the procyclicality of Turkish remittances to the German business cycle. However, the correlation analysis pointed out no significant relationships between national business cycles in Turkey and Germany, nor it yielded any significant coefficient indicating the presence of a co-movement between remittances sent by Turkish workers and the German output. The invalidation of this hypothesis establishes that the observed procyclicality of remittances to the Turkish output has its

roots in the developments in the Turkish economy that occur independently of the developments in the German economy.

The alternative explanation we offered for this procyclicality relies on the rather long average duration of stay of Turkish migrants in Germany, facilitated by the switch to family reunification type of migration and the enactment of laws facilitating the acquisition of German citizenship. As a result, the underlying motive of workers' remittances began to shift from helping the families left behind towards careful moves towards portfolio diversification and the remitting behavior of Turkish workers in Germany started to be driven increasingly by such factors as the increasing riskiness of funds placed in Turkish assets that would negatively affect the returns to savings invested in Turkey relative to returns on savings kept in Germany. This, we believe, is a major factor explaining the procyclicality of remittances from Turkish workers in Germany to the Turkish output as indicated by results from our analysis.

As for the contribution of remittances to poverty alleviation in Turkey, our results from the analysis of the co-movements between cyclical components of food and durable goods consumption and remittance cycles complemented the findings about the cyclical behavior of remittances over business cycles in Turkey, pointing again to a limited poverty alleviation potential of Turkish remittances from Germany. This analysis (that we conducted by dividing our sample period into two sub-periods) yielded an interesting result pointing out a phase shift after 1992: While the procyclical nature of the remittances cycles to the consumption cycles was maintained throughout both sub-periods, they were found to move synchronously with each other after 1992 but not before. In the pre-1992 period, increases in food and durables expenditures followed increases in remittances with a lag of one quarter, hinting that increases in remittances induced (possibly enabled) hikes in consumption expenditures. In the post-1992 period, on the other hand, procyclical co-movement between remittances and consumption cycles became synchronous. Thus, unlike the earlier decades when increases in consumption expenditures were made possible in part by increased remittance receipts, remittances began to increase whenever consumption expenditures increased due to/together with increased economic activity starting from the 1990s. In sum, our analysis involving consumption cycles provided additional support to our proposition that smoothing of consumption expenditures of relatives back home ceased to be the main motivation behind remittances from Germany due to the passage of time.

As for the implications of our results for the Turkish economy at large, remittance flows from Germany are likely to amplify fluctuations observed over business cycles in Turkey. Even though they could enhance an upward trend in the Turkish economy, they might easily become a serious challenge to be dealt with during recessionary times. This "when it rains, it pours" nature of remittances sent from Germany severely limits their potential to reduce poverty in Turkey.

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Appendix

Table A.1. Unit Root Tests Using Augmented Dickey-Fuller Test
Critical Value at 5% = -2.917

Variables	Original Series	Cyclical Component	
		POL	HP
REM	-2.734	-4.647	-4.589
TUR	-0.953	-3.204	-3.328
GER	-2.581	-2.996	-3.375
FOOD	-1.722	-4.485	-4.719
DUR	-2.105	-3.302	-3.560

Table A.2. Unit Root Tests Using Phillips-Perron Test
Critical Value at 5% = -13.428

Variables	Original Series	Cyclical Component	
		POL	HP
REM	-12.457	-35.471	-34.584
TUR	-1.432	-23.705	-25.004
GER	-2.391	-15.456	-19.873
FOOD	-4.703	-35.824	-36.953
DUR	-6.749	-23.257	-25.965