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The Economic Effect of Refugee Crises on Neighbouring Host Countries: Empirical Evidence from Pakistan

Amdadullah Baloch*,** , Said Zamin Shah****, Zaleha Mohd Noor* and Miloud Lacheheb****

ABSTRACT

There is a considerable debate in terms of opportunities and challenges about the presence of refugees in the neighbouring host countries. Most of the existing discourse has focused only on their humanitarian and security implications. This article, on the other hand, seeks to uncover this issue through a purely economic lens, focusing on the economic impact of more than three million Afghan refugees in Pakistan. Utilizing data for the period 1979–2014 and the ARDL bounds testing approach, we arrive at few important conclusions. The empirical results indicate that Afghan refugees have a strong negative impact on economic growth in Pakistan. The effect holds in both the short run and the long run, suggesting that the influx of refugees lowers real economic activity in the country. Ultimately, the study implies that hosting refugees can never be a boon to Pakistan's economy.

INTRODUCTION

Academic and popular literature, specifically the contemporary evidence, shows that the modern world is full of dynamics and upheavals. For many in the Global North, this change is elaborated through dramatic advances in technology and progressive policy transformations; but for many more, in the Global South, the story is markedly different, characterized by mass poverty, political turmoil, war and violence. One example is the displacement of more than 60 millions of people around the world trapped in the worst humanitarian crisis since World War II (Sengupta, 2015; Graham, 2015). Today the world faces an extraordinary extent of refugee crisis and potentially it's the greatest human catastrophe.¹ The on-going, intense and unimaginable horrors of war and conflicts, persecution, generalized violence, human rights violations and disaster around the world have forced millions of people to abandon their homes to become internally displaced persons (IDPs) or international refugees (Ruiz and Vargas-Silva, 2013; UNHCR, 2016). The total number of the global refugee population has increased significantly and they are the most vulnerable amongst us, facing unimaginable challenges every day (UNHCR, 2016). Data indicate that the numbers of forced displacement increased further in 2015, with record-high numbers of people fleeing their homes to neighbouring countries in search of safety and a better future. By the end of the year, nearly, 65.3

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million persons were forcibly displaced around the world, which is 5.8 million more than the previous year. 21.3 million people around the world were refugees, the highest level in the last 20 years. Among them, 54 per cent of all refugees around the world came from just three countries such as the Syrian Arab Republic with a number of 4.9 million, Afghanistan with 2.7 million, and Somalia with 1.1 million. Interestingly, the developing countries hosted 86 per cent of the world's refugees under the UNHCR's mandate. Top hosting countries are Turkey (2.5 million), Pakistan (1.6 million), Lebanon (1.1 million), Iran (979400), Ethiopia (736100) and Jordan (664100) (UNHCR, 2016). The recent 13.9 million people is the highest figure in more than two decades. The underdeveloped countries provided asylum to 4.2 million refugees or about 26 per cent of worldwide refugees. The majority of the developed countries have introduced strict and new "extreme vetting rules" for refugees (Pipes, 2017). Ultimately, the refugees issue falls upon poor countries.

Despite unparalleled generosity demonstrated by host developing countries for prolonged periods, they also experience long-term socio-economic, political, and environmental effects. The refugees produce significant economic effects, both positive and negative.² The presence of refugees in host countries has a significant positive impact on the economy through their contribution to agricultural production, providing cheap labour through integrating labour markets and increasing local vendors' income from the sale of essential foodstuffs, spurring long-term investment, filling demographic gaps, becoming productive economic producers and consumers and increasing bilateral trade. Local populations can benefit from access to schools, medical care and other social facilities built by the international community (UNHCR, 2004).

Simultaneously, refugees can have a negative impact on the economy of the host countries by increasing the prices and demands for essential food, housing, education, health provisions, infrastructure such as water availability, sanitation facilities, and transportation, and also in some cases, for natural resources such as grazing and firewood (World Bank, 2011, 2012; UNHCR, 1997, 2004). Refugees, on average, have less educational experience; and low skills and unskilled jobs are often at the bottom of the occupational ladder (Connor, 2010). Therefore, low-skilled refugees significantly expand the supply of labour for un-skilled occupations, lower the wage level and increase unemployment (Friedberg & Hunt, 1995). The migration of refugee naturally led to the process of urbanization and shift to the population demography in host countries (Rother et al., 2016). Additionally, countries having a high-intensity conflict zone also recorded an average annual GDP decline of 1.4 per cent. Refugee crises affect economies through many channels. Consequently, increasing conflicts and human displacement have a serious impact on actual and potential growth.

Few studies have acknowledged the role of refugees in state-building (see for example, Jacobsen, 2002). This strand of literature, though, accepts that refugees impose a variety of economic, security-related and environmental burdens on host countries; but they also devote a significant portion of resources to the host country, such as international humanitarian aid, economic assistance and human capital. However, the empirical literature endorses the challenges and other hindrances which exceed its potential benefits to the local people. The refugees' influx compels a state to strengthen its grips on its borders; but the state finds it difficult to harden its presence there. Alix-Garcia & Saah (2009) argue that, in spite of the prevalence of humanitarian emergencies, little research has been conducted on the economic impact of refugees on the host countries, specifically those countries including Pakistan which have provided shelter to millions of refugees for about half a century.

One of the major factors behind the low and unstable real economic activity in Pakistan is that the economy is stuck in economic crises and prevailing social unrest due to a high number of unregistered refugees and even a considerable portion of registered refugees. The cold war of the former Soviet Union has culminated in a major refugee crises in the neighbouring countries and has significantly overflowed a large influx of refugees into the two neighbouring countries, Pakistan and Iran. Limiting our study to one country, Pakistan has been hosting millions of Afghan refugees

for four decades and is host to the second largest refugee population. Afghan refugees fled to neighbouring Pakistan not only after the 1979 Soviet invasion but also due to the recent U.S./NATO/ISAF-led invasion in 2001. The on-going violence in Afghanistan is still leading people to look for new lives elsewhere, to avoid the effects of armed conflict and violations of human rights. Despite its own deep-rooted economic, political and social hardships and devastating terrorism and conflicts, Pakistan has been shouldering a significant proportion of the refugee burden since 1979. Recently, an estimated 1.6 million have sought refuge in Pakistan in 2015 through official channels.³

As a developing country, Pakistan has experienced periods of severe political and economic instability. The Afghans, who comprise the largest group of refugees in the country, are in general viewed as a critical reason behind such instability. In general, Afghan refugees in Pakistan are living largely in urban and rural areas, some even living in camps; all however are free to move around the country and work illegally. The Afghans refugees' highest concentration is in Pakistan's provinces of Khyber Pakhtunkhwa and Baluchistan, due to their long border with Afghanistan. Consequently, the exact number of Afghan refugees living in Pakistan is unknown. Efforts to control the illegal movement of refugees are vanquished by the 2,430 kilometre (1,509 miles) rocky border with Afghanistan. Additionally, the family and ethnic connections between the communities on both sides of the border is one of the reasons behind such a huge influx of refugees into the country. Significantly, in contrast to the usual policy of keeping refugees in rural areas to avoid urban crises, the refugees in Pakistan flow mainly to the urban areas, which further fuels the economic crises through contributing to an informal economy and thereby reducing economic growth. There are also significant economic consequences of the refugees housed in rural areas in the form of high welfare cost to the local population. The refugee influx in the country not only has a severe impact on food and other prices but also affects the housing and employment sector, even in rural areas (Chambers, 1986; World Bank, 2011).⁴

In the literature, the refugee crises have been given sufficient attention. However, the potential economic effect of refugees on the host society has received little attention and has not been well established. Refugees endure economic consequences to maintain economic sustainability and to succeed in empowering the nationals who often struggle with poverty and unemployment. Notably, countries hosting the refugees face tough decisions regarding access to labour markets and other social programs. The recent report by Rother et al. (2016) highlighted the economic costs of intense conflicts and persistent human displacements in Mena countries. According to them, besides the tragic loss to both humans and infrastructure, the increasing conflicts in Iraq, Libya, Yemen and the Syrian Republic have also resulted serious economic consequences, including economic slowdowns, higher inflation, fiscal deficit, financial and even institutional loss. Not only that, another serious impact of these conflicts is their contagion effects on neighbouring countries including Jordan, Tunisia, Turkey and Lebanon and more importantly, their significant spillovers to broader Middle East and even to European regions (Rother et al., 2016, p.5). Their study also showed that, owing to quite a high number of refugees, these countries are facing threats to their economic confidence and security as well as their institutional arrangements; and their capacity to bring about policy reforms is seriously affected.

Although the aforementioned neighbouring countries have been suffering during the last few years, Pakistan has been experiencing a large number of refugees, weak confidence and security, and declining social cohesion since the last quarter of the previous century. The prevailing turmoil, due to a high influx of Afghan refugees, has also undermined the quality of institutions and their ability to undertake much-needed economic reforms and security precautions. As a result, the economy is facing huge economic and welfare costs which have significant implications for economic outcomes in the country. The trend of Afghan refugees in Pakistan and GDP per capita over the period 1979-2014 can be seen in Appendix A. The economic costs of Afghan refugees in Pakistan are still unknown. The literature considers refugees as a burden because of their additional costs to

an already hard-pressed population, and as impeding economic growth, distorting economic markets, causing environmental degradation and putting political constraints on already fragile and conflict-affected countries (see Zetter, 2012 for a survey on the economic impact of refugees). The evidence, however, is somewhat non-existent, particularly in developing countries like Pakistan. Surprisingly, a detailed assessment of the impacts and costs of Afghan refugees is a major gap in the toolkit of existing literature. To the extent that any fresh evaluation does take place, it is rare, usually descriptive and often incomplete, as the host countries generally search for their own macroeconomic factors for economic growth. Therefore this study attempts to empirically test whether Afghan refugees have any significant impact on the economic growth of Pakistan.

The article contributes to the broader literature by adopting an empirical approach to describe the macroeconomic costs and impacts of Afghan refugees through quantitative methods, by utilizing hard empirical data. What is new about the present work is that it explores the potential effects of the refugees' influx on the host economy through long-time data and a robust estimation strategy. Importantly, the issue of the refugee crisis is a serious significant topic in today's geopolitical climate in general and in Pakistan in particular. Although Pakistan has been facing Afghan refugees' influx over the last forty years, the domestic policymakers and the community have recently begun to take note. The issue has gained incredible traction at all levels, both domestically and internationally. The policymakers are now worrying, trying to rethink strategies by adopting some provocative actions towards the continuous influx of refugees. The topic is contentious, as it is now overwhelmingly relevant in the eyes of the local population due to the increasing threat to their livelihood and ongoing social unrest, while others appeal for consideration on a humanitarian basis for the millions of displaced people. Therefore the results of such a study could be a source of insight for decision-makers regarding their allegations on the economic effects of refugees in the country.

To put our empirical findings to the fore, it is observed that the refugees' influx has serious economic implications for the host country. The estimated results yield evidence that Afghan refugees have a negative effect on the economic growth of Pakistan, both in the short and in the long term. The effect is highly significant, with enough economic magnitude, especially in long run, indicating that the refugees' influx goes against the real economic growth of the host country. The estimated results of this study will assist policymakers in the refugee debate between the two countries.

The remainder of the article proceeds as follows. Section 2 provides a brief review of literature; Section 3 outlines our empirical model specification and data description; Section 4 discusses the methodology; Section 5 reports the empirical results of the study along with extensive placebo tests and the last section is the conclusion.

LITERATURE REVIEW

Theoretically, the existing literature consists mainly of reports and descriptive assessments exploring the sufferings of refugees and the negative impacts on host countries.⁵ Overall, it is usually assumed that the costs of refugees on their host countries include higher food and commodity prices, economic recessions such as declining local wage rates, fiscal pressures, increasing environmental emissions, all outweighing other micro and macro-economic benefits (Shellito, 2016). Besides, the large literature is based on primary surveys and microeconomic studies, possessing significant outbreaks due to validity of data and models specifications. Currently, a bulk of existing literature has addressed the moral and humanitarian aspects of refugee's crises (see for example, Huysmans, 2002; Salehyan & Gleditsch, 2006; Unhcr, 1995; Connor, 2010; World Bank, 2011; Akbarzadeh & Conduit, 2016, just to mentioned few). Though the literature consists on twin aspects of refugee's impacts on economic outcomes such one dimension of existing literature

supports the favourable economic consequences of refugees' bursts on host countries⁶. Contrary, the opponent's view regard refugees as source of economic, social and security costs (see for example, Landgren, 1998; Tadesse & White, 2012; Werker, 2007).⁷ Among the earlier literature, Jacobsen (2002) provided evidence on significant inflow of resources such as humanitarian aids, economic assets and human capital through refugees influx. The study also pointed out that though refugees result in variety of economic, security related and environmental burdens on host country, still they contribute to state building of the host country on the condition that host country must utilize their existence to contribute.

Additional evidence documenting the debate of refugees as burden or opportunity is given by Whittaker (2002). While utilizing the refugee data in the Tanzanian economy, the study argued that some Tanzanians benefited significantly from the presence of refugees and international relief agencies. The study also showed that others struggled to maintain access to even the most basic resources. Based on a few dimensions of refugee data such as age, gender and class, the study showed that hosts who already had access to resources, education, or power were well-poised to benefit from the refugee presence but other people were disadvantaged and further marginalized. In another study, Salehyan & Gleditsch (2006) found that countries experiencing an inflow of refugees from neighbouring states are significantly more likely to become involved in civil wars. They argued that a refugee influx can create the spread of violence by the expansion of rebel social networks as well as by posing negative externalities for their hosts. In addition, events in one state may create positive or negative externalities for others, again calling into question the assumption that states are self-contained units. Pollutants released into the atmosphere and waterways as a result of industrial production in one country create hostile effects on living conditions in the surrounding regions.

As described by Werker (2007) through his study on the refugee settlement in Uganda, although refugee camps are influenced by the host country policies as well as the physical and economic geography of the site, they also affect market outcomes in the host country. Connor (2010) distinguished the economic outcomes of refugees and other immigrants. The study illustrated that, due to lower language proficiency and education experiences coupled with poor mental and physical health and living in unfavourable neighbourhoods, refugees have less economic output in employment, occupation and earnings compared with other immigrants. The study by Dahi (2014) uncovered the role of neighbouring countries such as Lebanon and Jordan in carrying the influx of Syrian refugees. The study highlighted the economic opportunities and challenges for these countries but emphasized that these countries can obtain benefits from these Syrian refugees through investment in economic development. Recently, the refugee spill-over towards Turkey has grown, due to on-going war and increasing conflicts in Middle Eastern countries, therefore some of the recent research has been devoted to their economic impacts on Turkey's macroeconomic performance. Among such studies, Del Carpio & Wagner (2015) combined the newly available data on the distribution of Syrian refugees across Turkey and the Turkish Labour Force Survey to evaluate their labour market impact. The study showed a highly informal labour sector, due to Syrian refugees, and suggested large-scale displacement of local nationals in the informal sector. At the same time, the study also uncovered economic costs in the formal sector and in occupational labour markets. Overall, the study showed declining earnings opportunities due to refugee influx into Turkey. In a recent study, Akgündüz et al. (2015) analysed the economic impact of the Syrian refugee crises on food and non-food prices and employment sector in Turkey. The study found that due to refugees' influx, the housing and food prices are significantly affected but the employment sector is not much affected, particularly in the various skill groups. The study also found that there is not much evidence of refugees crowding out natives in local labour markets. In another study, Aras & Mencutek (2015) investigated the impact of foreign policy orientations on immigration and the refugee influx into Turkey. The study found significant evidence of the paradox of foreign policy, mass refugee influx and related consequences.

It is worth mentioning that there is limited exploration of the economic effects of refugees' influx in Pakistan. Most of the existing studies consist of reports and articles that cover the issue in general.⁸

Consequently, although the studies have introduced the complexity and diversity of the effects of refugees' influx as well as their dynamic impacts on host countries, the problem to date is still the absence of a comprehensive framework coupled with analytical tools and systematic methodologies to impart evidence on the existing phenomenon. Given the lack of decision about who is winner and loser, further robust evidence is required on the refugee inflow to neighbouring countries. From the literature, it is apparent that a number of studies by economists, sociologists and anthropologists have largely investigated refugees' livelihoods and their sufferings; but economists have barely researched the important policy and conceptual challenges which pose significant economic consequences for the host countries. This study is an attempt to uncover the economic effects of refugee's influx to a neighbouring host country and to discover their long run impact on real economic activity.

METHODOLOGY

Model specification and data

Following the empirical literature,⁹ the standard log-linear functional specification of long-run relationship between refugees (Afghan) and real GDP in Pakistan may be illustrated as:

$$GDP_t = \alpha + \beta_1 \text{Refugees}_t + \beta_2 \text{HC}_t + \beta_3 \text{INV}_t + \beta_4 \text{EDUEXP}_t + \beta_5 \text{POP}_t + \beta_6 \text{TO}_t + \varepsilon_t \quad (1)$$

where GDP is the real GDP per capita (constant 2005 US\$); Refugees is the number of Afghan refugees in Pakistan; HC is human capital measured as the percentage of population aged 15 years and above with secondary schooling; INV is the investment, proxied by gross fixed capital formation (% of GDP); EDUEXP is education expenditure measure as the government total expenditure on education (% of GDP); POP is population growth (annual %); TO is trade openness measured as the sum of exports and imports of goods and services (% of GDP); and ε_t is usual error term. Notably, the variables are transformed into natural logarithms for reducing heteroscedasticity and to obtain the growth rate of the relevant variables by their differenced logarithms. Afghan refugees in Pakistan data are extracted from the UNHCR population statistics reference database.¹⁰ The human capital data are obtained from the Barro and Lee (2013) data set¹¹ while the remaining variables data are obtained from the World Bank's World Development Indicators (WDI). The time period is set as 1979–2014. Considering our focal variables, such as refugee's inflow and economic growth in the sample area, we plot the time series trends of these variables to identify some existing trend (see Appendix for graph). It is observed, however, that the simple time series graph fails to demonstrate any existing causal link between the two series; in most of the time periods, economic growth is observed to be brought up with the reduction in refugees' inflow. Thus, to some extent, it is appropriate to decide that refugees have significant bearings on the real economic activity of a country. The simple plot of two series is unable to identify exactly the actual nexus between the two variables, as economic growth is a multidimensional phenomenon and is determined by a number of others relevant factors, therefore a need arises to explore their link by controlling the effects of other growth factors. It is worth noting that the sample period and the inclusion of explanatory variables are based on the availability of data. Importantly, the inclusion of the mentioned explanatory variables is already debated in growth literature.

Empirical methodology

The present work establishes the relationship among the variables by using the autoregressive distributed lag (ARDL) approaches of cointegration bounds test method proposed by Pesaran & Shin

(1999) and Pesaran et al. (2001). This technique establish a cointegrated association directly from dynamic error correction models (ECMs), and has certain econometric advantages over the other approaches, such as Engle & Granger (1987) and Johansen & Juselius (1990). Specifically, the first benefit of ARDL over other methods is that the ARDL method analyses both the short-run and the long-run relationship between variables irrespective of whether the underlying regressors are I(0), I(1) or mutually cointegrated. However, Johansen's method is used when the variables used in the equation must be integrated into the same order. Secondly, ARDL method is appropriate when the sample size is small, whereas a large number of sample sizes is required for utilizing other techniques. Thirdly, this method allows that the variables may have different optimal lags to reduce the intensity of serial correlation of residuals in a general to specific modelling framework, while for other methods this choice is limited. Fourth, ARDL method estimates the short-run and long-run coefficients of the model simultaneously. Another gain from the ARDL approach is that it is more appropriate and dynamic so rectifies endogeneity problem and autocorrelation. To implement the bounds testing procedure, an ARDL illustration of Eq. (1) is presented as following unrestricted error correction model (UECM):

$$\begin{aligned} \Delta GDP_t = & \alpha + \sum_{k=1}^p \beta_1 \Delta GDP_{t-k} + \sum_{k=0}^p \beta_2 \Delta Refugees_{t-k} + \sum_{k=0}^p \beta_3 \Delta HC_{t-k} + \\ & \sum_{k=0}^p \beta_4 \Delta INV_{t-k} + \sum_{k=0}^p \beta_5 \Delta EDUEXP_{t-k} + \sum_{k=0}^p \beta_6 \Delta POP_{t-k} + \\ & \sum_{k=0}^p \beta_7 \Delta TO_{t-k} + \varphi GDP_{t-1} + \varphi_2 Refugees_{t-1} + \varphi_3 HC_{t-1} + \varphi_4 INV_{t-1} + \\ & \varphi_5 EDUEXP_{t-1} + \varphi_6 POP_{t-1} + \varphi_7 TO_{t-1} + \theta ECM_{t-1} + v_t \end{aligned} \quad (2)$$

Where Δ the first difference operator, p is the potential number of lags to be used while k is the number of variables in the equation and v_t is the white noise term. The first part of the equation with $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ and β_7 expresses the short run parameters and the rest with $\varphi_1, \varphi_2, \varphi_3, \varphi_4, \varphi_5, \varphi_6$ and φ_7 are illustrating the long run dynamic coefficients of the given ARDL model. θECM_{t-1} represents the error-correction term (ECM) which indicates the adjustment speed and convergence to the long run towards the equilibrium.

The ARDL Bounds test method in the first step, determine the existence of a long run cointegration relationship between dependent and explanatory variables in the equation. The bound testing technique is based on the Wald-coefficient test or joint F-test proposed by Pesaran et al. (2001). The F-test involves testing the null hypothesis of no cointegration ($H_0: \varphi_1 = \varphi_2 = \varphi_3 = \varphi_4 = \varphi_5 = \varphi_6 = 0$) against the alternative of cointegration ($H_1: \varphi_1 \neq \varphi_2 \neq \varphi_3 \neq \varphi_4 \neq \varphi_5 \neq \varphi_6 = 0$) among the variables. Accordingly, if the test statistic is higher than the upper bound critical value, the null hypothesis of no cointegration is rejected, indicating the cointegration. On the other hand, if the test statistic is lower than the lower bound critical value, then this null hypothesis is not rejected, suggesting the existence of no cointegration. Finally, if the test statistic falls within the bound critical value, the inference remains inconclusive. Pesaran et al. (2001) provided the asymptotic critical values. However, Narayan (2005) argues that in small samples, the critical values provided by Pesaran et al. (2001) are inappropriate. Therefore, Narayan (2005) has provided the table with a set of critical upper and lower bounds of t-statistics values for samples for the usual levels of significance observations ranging from 30 to 80. The computed F-statistic value will be evaluated with the critical values produced in the tables of Pesaran et al. (2001) and Narayan (2005). Once the cointegration is established, in the second step, equations are estimated with ARDL model using Akaike information criterion (AIC) or Schwarz-Bayesian criterion (SBC) lag selection criterion. The third

step involves testing for short-run and long-run relationships along with the ECM, where the coefficient of the ECM term must be negative and significant to ensure the long-run equilibrium dynamic convergence. The next step includes the residual diagnostics including serial correlation, heteroscedasticity, specification form, normality and stability tests for ensuring the fit of the given model.

EMPIRICAL RESULTS AND DISCUSSIONS

After specifying the empirical strategy and the concerned data sources, the preliminary data statistics and data characteristics are reported in Table 1. It displays the summary statistics by reporting the mean, standard deviation, minimum and maximum for each variable; GDP per capita, number of refugees, human capital, education expenditures, investment, population growth and trade openness. From the estimated results, it is observed that all of the variables have positive means with considerable magnitude of number of refugees. Next, we precede towards the time series properties of these variables.

The ARDL method does not require pre-testing for a unit root in the variables, however, to confirm that the variables should not be integrated order I (2), we employ a unit root test. Augmented Dickey Fuller (ADF), Phillips Perron (PP), Kwiatkowski-Phillips-Schmidt-Shin (KPS) tests are among the unit root tests conducted to verify the order of integration of the variables. The unit root test for the variables are shown in Table 2. The results confirm that all regressors are stationary either I(0) or I(1) and none of the variables is found to be I(2). The unit root test results suggest that the necessary condition for the usage of the ARDL approach is satisfied. Therefore, in the next step we test for the long run cointegration of the model by using bound test.

In order to inspect the effects of refugees on the economic growth, we determine three optimal ARDL lag length selected for the Eq. (2) on the basis of Akaike's information criterion (AIC). Helmut (2005) suggests that AIC may have better properties to choose the correct order in small samples. The results are presented in Table 3. The diagnostic tests such as the Breusch-Godfrey serial correlation test, the Jarque-Bera normality test, the Ramsey RESET functional form test for model specification and the Breusch-Pagan-Godfrey test for heteroscedasticity confirmed the validity of the estimated equation. Moreover, The CUSUM and CUSUM of Squares stability tests results confirmed (see Figure 1 and 2 in appendix A), that the parameters were stable over the sample period for the estimated model. Thus the diagnostic tests suggest that the equation has the desired econometric properties.

TABLE 1
DESCRIPTIVE STATISTICS

Variable	Obs.	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
GDPC	36	6.384	0.209	5.942	6.702	0.044	-0.285	2.173
REFUG	36	14.361	0.456	12.899	15.001	0.208	-0.634	4.032
HC	36	2.557	0.338	1.920	3.075	0.115	-0.034	1.853
EDUEXP	36	0.860	0.147	0.609	1.106	0.022	-0.317	1.954
INV	36	2.784	0.109	2.517	2.957	0.012	-1.006	3.255
POP	36	0.928	0.190	0.707	1.207	0.036	0.278	1.479
TO	36	3.528	0.074	3.337	3.661	0.005	-0.296	2.935

Source: Authors calculations.

TABLE 2
UNIT ROOT TEST RESULTS

Variable	Augmented Dickey Fuller (ADF)			Phillips Perron (PP)			Kwiatkowski-Phillips-Schmidt-Shin (KPS)		
	Level			Level			Level		
	Constant Without Trend	Constant With Trend	Constant Without Trend	Constant With Trend	Constant Without Trend	Constant With Trend	Constant Without Trend	Constant With Trend	
GDPPC	-1.0879(1)	-2.4534(1)	-2.2737[2]	-2.9548[2]	0.7069**(5)	0.1181 (4)	0.7069**(5)	0.1181 (4)	
REFUGEE	-3.9465***(0)	-5.1482***(0)	-4.0460***[4]	-4.7637***[3]	0.2049 (4)	0.0960 (3)	0.2049 (4)	0.0960 (3)	
HC	-1.4870(0)	-2.3000 (0)	-1.4190[1]	-2.5370[2]	0.7092**(5)	0.0599 (4)	0.7092**(5)	0.0599 (4)	
EDUEXP	-2.9688**(1)	-2.9182 (1)	-2.0520 [0]	-2.0198 [0]	0.0843 (3)	0.0869 (3)	0.0843 (3)	0.0869 (3)	
INV	-0.8081(0)	-1.8104(0)	-0.9590[1]	-1.9754 [1]	0.4755**(4)	0.0952 (4)	0.4755**(4)	0.0952 (4)	
POPG	-2.0128 (3)	-1.7959 (3)	-0.7891 [4]	-1.3534[4]	0.6483**(5)	0.1390*(4)	0.6483**(5)	0.1390*(4)	
TO	-2.9149* (0)	-3.3208* (0)	-2.9888** [3]	-3.4204*[3]	0.2624(4)	0.0801(4)	0.2624(4)	0.0801(4)	
First Difference									
GDPPC	-4.0893***(0)	-4.0080**(0)	-4.0596***[3]	-3.9685**[3]	0.2844 (3)	0.1029 (2)	0.2844 (3)	0.1029 (2)	
REFUGEE	-6.2230***(0)	-5.9688***(0)	-6.7537***[2]	-6.3984***[2]	0.2461 (2)	0.1437* (2)	0.2461 (2)	0.1437* (2)	
HC	-5.1296*** (0)	-5.0516*** (0)	-5.1296***[0]	-5.0516***[0]	0.1607 (1)	0.0926 (0)	0.1607 (1)	0.0926 (0)	
EDUEXP	-4.3612***(0)	-4.2954***(0)	-4.2752***[4]	-4.1986**[4]	0.0485 (2)	0.0476 (2)	0.0485 (2)	0.0476 (2)	
INV	-5.3204***(0)	-5.3539***(0)	-5.3063***[2]	-5.3345***[4]	0.1577 (2)	0.0612 (4)	0.1577 (2)	0.0612 (4)	
POPG	-2.0462 (2)	-2.4225 (2)	-2.1691 [3]	-2.22024 [2]	0.1726(4)	0.1523*(4)	0.1726(4)	0.1523*(4)	
TO	-8.5004***(0)	-8.3709***(0)	-8.6046***[1]	-8.4687***[1]	0.0734 (1)	0.0452 (1)	0.0734 (1)	0.0452 (1)	

TABLE 3

ESTIMATED ARDL MODEL DEPENDENT VARIABLE: GDP GROWTH, ARDL(3, 2, 2, 1, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Constant	3.5040***	(0.5974)	(5.8652)	0.0000
GDPC(-1)	-0.0502	(0.2714)	(-0.1849)	0.8558
GDPC(-2)	-0.4592	(0.2722)	(-1.6872)	0.1122
GDPC(-3)	0.6380**	(0.2303)	(2.7700)	0.0143
AFGHAN	-0.0357**	(0.0150)	(-2.3768)	0.0312
AFGHAN(-1)	-0.0055	(0.0136)	(-0.4023)	0.6931
AFGHAN(-2)	-0.0516**	(0.0190)	(-2.7137)	0.0160
HC	0.4705***	(0.1465)	(3.2123)	0.0058
HC(-1)	0.0540	(0.1191)	(0.4537)	0.6566
HC(-2)	0.2718**	(0.0959)	(2.8340)	0.0126
EDUEXP	-0.1081*	(0.0535)	(-2.0191)	0.0617
EDUEXP(-1)	0.0482	(0.0331)	(1.4578)	0.1655
INV	0.1042**	(0.0461)	(2.2623)	0.0390
INV(-1)	0.1095	(0.0726)	(1.5081)	0.1523
POP	-0.4693**	(0.1963)	(-2.3905)	0.0304
POP(-1)	1.0043**	(0.3407)	(2.9480)	0.0100
TO	0.0133	(0.0530)	(0.2517)	0.8047
TO(-1)	0.0855	(0.0550)	(1.5550)	0.1408
Diagnostics				
R ²			0.998588	
Adj.R ²			0.996988	
S.E. of regression			0.009907	
F-statistic			624.1232[0.000]	
Serial Correlation (Breusch-Godfrey LM test)			6.3880[0.012]	
Functional Form (RESET)			0.2591[0.619]	
J-B Normality			0.8221[0.663]	
Heteroscedasticity (Breusch-Pagan- Godfrey test)			1.0014[0.503]	

Note: Diagnostic tests are based on F-statistic and figures in [] represent probability-values. ***means significant at 1% level, **is significant at 5% level while *shows significant at 10% level.

TABLE 4

ARDL BOUNDS TEST FOR COINTEGRATION DEPENDENT VARIABLE: GDP GROWTH, ARDL(3, 2, 2, 1, 1, 1, 1)

Specification	F-statistic	6.2783		
	Optimum lag order (AIC)	(3, 2, 2, 1, 1, 1, 1)		
	k	6		
Asymptotic Critical Value Bounds				
Significance	Pesaran et al. (2001) ^a	Upper bound	Nayaran (2005) ^b	Upper bound
	Lower bound	critical value I(1)	Lower bound	critical value
	critical value I(0)		critical value I(0)	critical value
				I(1)
1%	3.15	4.43	4.016	5.797
5%	2.45	3.61	2.864	4.324
10%	2.12	3.23	2.387	3.671

Note: ^aCritical values were retrieved from Pesaran et al. (2001) Table C1 (iii) Case III: unrestricted intercept and no trend, p. 300. ^bCritical values are obtained from (Narayan 2005), Table case III: unrestricted intercept and no trend, p. 1988. *** and **denotes significance at 1 per cent and 5 per cent level.

We conducted the bound test cointegration to test the long-run cointegration between the dependent and independent variables. The bounds testing procedure for the cointegration results of the variables used in the equation are displayed in Table 3. The results show that the computed F-statistic value 6.2783 is greater than the critical values of Pesaran et al. (2001) and Narayan (2005) given in the tables and highly significant at the level 1%, suggesting that the null hypothesis of no cointegration relation is rejected and confirms the existence of long-run relationship between the dependent and independent variables. Thus, it implies that there is stable significant association between economic growth and refugees' influx in the sample area. After ensuring the existence of a cointegration relationship, we proceed to estimate the long run and short run relationship.

The estimated results of long run and short run ARDL models are presented in Tables 5 and 6, respectively. The results of long run model (Table 5) show that Afghan refugees have negative and highly significant effect on the economic growth of Pakistan. The magnitude of estimated coefficient for refugees is -0.1065 (11%) and is significant at a one per cent confidence level. This implies that the refugees hosted by Pakistan produce a significant negative effect on real economic activity. Consequently, it is pointed out from the highly significant coefficient of refugees' inflow that refugees' influx to Pakistan carries serious economic consequences for economic growth.

As far as the effect of other control variables is concerned, it is revealed that human capital, investment and population appear to have a positive effect on economic growth. However, the coefficients of education expenditure and trade openness are insignificant while the latter is still positive.

TABLE 5
ESTIMATES OF LONG RUN RELATIONSHIP (DEPENDENT VARIABLE: GDP GROWTH)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	4.0210***	(0.3624)	(11.0943)	0.0000
REFUG	-0.1065***	(0.0313)	(-3.4027)	0.0039
HC	0.9138***	(0.1089)	(8.3923)	0.0000
EDUEXP	-0.0687	(0.0493)	(-1.3949)	0.1834
INV	0.2453**	(0.0849)	(2.8895)	0.0112
POP	0.6139***	(0.2038)	(3.0120)	0.0088
TO	0.1134	(0.0744)	(1.5249)	0.1481

Note: ***, ** and *denote significance levels at 1%, 5% and 10% respectively.

TABLE 6
ESTIMATES OF SHORT RUN RELATIONSHIP (DEPENDENT VARIABLE: GDP GROWTH)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPC(-1)	-0.1787	(0.1359)	(-1.3155)	0.2081
GDPC(-2)	-0.6380***	(0.1285)	(-4.9658)	0.0002
REFUG	-0.0357***	(0.0086)	(-4.1628)	0.0008
REFUG (-1)	0.0516***	(0.0096)	(5.3490)	0.0001
HC	0.4705***	(0.0596)	(7.8962)	0.0000
HC(-1)	-0.2718***	(0.0733)	(-3.7085)	0.0021
EDUEXP	-0.1081***	(0.0234)	(-4.6197)	0.0003
INV	0.1042***	(0.0273)	(3.8207)	0.0017
POP	-0.4693***	(0.1165)	(-4.0277)	0.0011
TO	0.0133	(0.0307)	(0.4350)	0.6697
ECM(-1)	-0.8714***	(0.1015)	(-8.5828)	0.0000

Note: ***, ** and *denote significance levels at 1%, 5% and 10% respectively.

The short run dynamics estimated results of the model is presented in Table 6. The results show that coefficients of Afghan refugees, education expenditure and population are negative and highly significant, while human capital and investment have a statistically significant positive effect. Trade openness shows positive but statistically insignificant coefficient. However, the coefficient of *REFUG* (-1) is positive and statistically significant at the one per cent level. The results imply that besides the negative long-run impact of Afghan refugees on economic growth in Pakistan (Table 5), a change in Afghan refugees is also negatively associated with economic growth in the short run as well. It is important to note that we are only interested in the contemporaneous effects of refugee's inflow to real economic growth in Pakistan and we are not interested in whether lagged period's refugees have any significant bearing for the current period economic activity. Further, the said empirical strategy is generally emphasized for illustrating the long run effects. Specifically, economic growth is a long run phenomenon. Thus, despite the significantly larger impact of the previous period refugee's influx on economic growth in the sample area, it is observed that the continuous flow of refugee's significantly and even economically affecting real economic activity in Pakistan, even in the short-run time period. Similarly, the change in the lags of human capital, i.e., *HC*(-1) has a statistically significant negative effect on the change in economic growth in the short run. The error-correction coefficient is negative (-0.20), and significant as required, which imply that there is adjustment back to the long-run. The error correction coefficient indicates that only 20 per cent of the previous year's deviation from the equilibrium position is corrected in the current year.

The evidence presented by estimated results is among the earlier attempts to explore the economic impact of refugees' influx on poor developing neighbouring host countries. Not enough is known for accurate generalizations regarding who wins and who loses in the context of refugee's crises. Although preliminary, survey-based studies exist, they are unable to decide about the hazardous effects of refugees in the host countries. These survey-based studies mainly discuss their common hypotheses and are constrained towards the humanitarian and other related issues. This study is devoted to exploring the issue in an economic context by utilizing existing macroeconomic data, although it is acknowledged that refugees are, on the whole, an incredibly complicated proposition which carries diverse implications regarding the social, economic, political, legal, humanitarian and institutional environment of the host countries. This study has attempted to untangle the most critical strand of that web by focusing exclusively on the economic impact of refugees, specifically on a developing host country. Our estimated results provide evidence that Pakistan has suffered considerably from the negative effects of refugees' influx, as mentioned above. Although the number of refugees displaced by the present ongoing civil conflict is rising, still the economic impacts of refugees on host countries are controversial and little understood. The major reason is that sometimes data have not been available. We use ARDL bound testing approach with macro data from refugee and host-country economic indicators to obtain the economic effects of refugee influx on nearby host country economies. Our results are consistent with UNHCR (1997); Rother et al. (2016) and Taylor et al. (2016). There is broad evidence that refugees' arrival has serious economic consequences for domestic economic performance, in both the short and the long run. Through our estimated results with such a rigorous framework, it is hoped that the current refugee crises at national and international levels have important implications for the host countries. Lastly, it is suggested that the host countries can utilize refugees as endowments if they take some steps towards their role in domestic economic outcomes.

CONCLUSION

Refugees crises are frequently seen as posing threats and have large economic, social, political and environmental consequences for the host countries. The issue has burned out recently, due to

contemporary refugee crises across the Middle East, Asia and Africa, although the issue captured the world's attention, with a high discourse on humanitarian and security implications only, especially for developed countries. Still, there is very little exposure on the presence of millions Afghan refugees across neighbouring countries including Pakistan. Surprisingly, most of the previous and recent academic and popular literature around historical and contemporary studies encounters few dimensions of refugees' crises either from their point of view or in the context of their host countries. On the other hand, there is little evidence to identify the positive and negative economic effects that refugee crises can have on their neighbouring host countries. Therefore, the empirical investigation into the effects of Afghan refugees on real economic activity of an ideal neighbouring host economy (Pakistan) is the main focus of this article. Specifically, using the ARDL bounds test approach with annual long-term data from 1979 to 2014, this article turns to the contemporary but long-standing refugee crises in Pakistan by examining the relevance of its economic effects in the host country. Along the way, the study provides some policy recommendations that can be employed in the Pakistani case to utilize the positive contribution of refugees while considering their negative consequences for the domestic economic outcomes. The estimated results yield evidence that Afghan refugees have a negative effect on the economic growth of Pakistan, in both the short and the long-run. The effects are highly significant with enough economic magnitude, especially in long run. The study indicates that the traditional growth determinants such as human capital, investment and population growth are carrying their expected significance with desirable signs.

The estimated results of this study identify some of the key important implications for the policy-makers in the country. As the internal and external conflicts have recently increased in the country and all the neighbouring countries in the region are hesitating to proceed towards consensus on political and economic ties, the empirical results of such a study can highlight the real scenario, particularly in neighbouring host countries, regarding their economic and political diplomacy towards refugee crises. Further evidence indicates that policies conducted for accelerating economic growth should also endorse strategies to mitigate the welfare costs of refugees' influx and to utilize their presence for contributing towards economic performance while constraining their informal activities through a systematic mechanism. In sum, our empirical findings suggest that Pakistan, which has experienced an influx of refugees from a neighbouring country, Afghanistan, is significantly more likely to experience lower economic growth. Thus, it is apparent that Pakistan should step up policies to avoid the adverse effect of refugees on economic growth.

Finally, the estimated results of this study investigate the long-term impact, but still a need arises to identify some of the key positive and negative economic effects of the refugee crises in the country. This can be done through a rigorous elucidation of the refugee crises on the sectoral performance of the host country. Research work is also required to identify how the host country can amplify the positive benefits of refugees while mitigating their negative economic consequences. A notable extension can also be made through considering the effects of immigrants. The study can also be extended by underscoring the impact of refugees' influx on economic growth though controlling the impact of other determinants of economic growth such as social, cultural, political and institutional. Last but not least, the issue can be further explored by noting the effects of refugees' impact on the political and economic institutions in the host country.

NOTES

1. See Koser (2007) for a complete explanation of migrants and refugees and their resulting effects on various aspects of the host country.
2. For a detailed review of positive and negative economic effects of refugees, see Shellito (2016) and the studies mentioned there. Also see Koser & Marsden (2013)
3. For a complete survey of Afghan refugees, see "Afghanistan's displaced people: 2014 and beyond", *Forced Migration Review*, 46, May 2014. Refugee studies centre, University of Oxford.

4. See Kuschminder & Koser (2016) for a detailed review of the Afghan refugees in Greece and Turkey.
5. For instance, see, Koser, 2014, and other related reports and the references mentioned therein for the descriptive analysis of Afghan refugees.
6. The existing literature discusses a number of ways in which refugees can bring benefits to host country. See for example, Whitaker (2002), Agier (2012), Campbell (2006), Salehyan & Gleditsch, (2006), Steimel (2010), Fargues & Fandrich (2012), Dryden-Peterson & Hovil (2003), Hall et al. (2011); Mounk (2012), Ghosh & Enami, (2015), Taylor et al. (2016).
7. In a related study, Borjas, Freeman, & Katz (1997) pointed out the same negative effects for immigrants.
8. See Taha & Aamir (2012) and Mohammad (2016) for a complete literature and the references therein.
9. See for example, Solow (1956); Barro (1991); Barro & Sala-i-Martin (1992); Knack & Barro (1998); Man-kiw, Romer, & Weil (1992) among many others.
10. See http://popstats.unhcr.org/en/time_series
11. <http://www.barrolee.com/>

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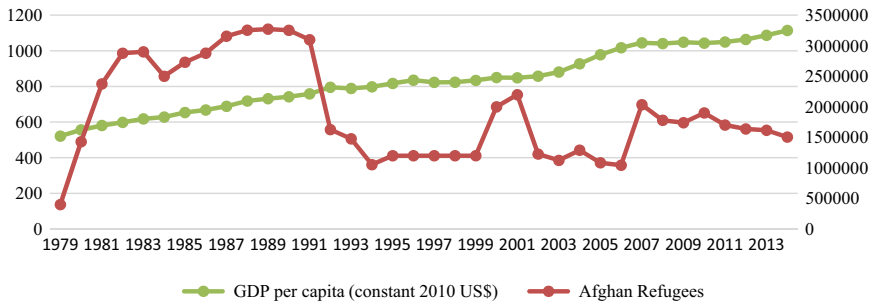
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APPENDIX A

FIGURE 1
 REFUGEES INFLOW AND ECONOMIC GROWTH IN PAKISTAN



Note: Refugees are shown in number while economic growth is measured as GDP per capita (constant 2010, US\$).

FIGURE 2
 MODEL STABILITY TEST GRAPHS OF CUSUM AND SQUARE OF CUSUM

