Reply to Referee Report 1

A Comparative Analysis of Forced Migration: Cold War Versus Post-Cold War Eras

The comments and suggestions in Referee Report 1 prompted us to take a deeper and reflective look at all the aspects of our work, especially the model selection process and estimation strategy. With deep appreciation, we respond to the referee's comments one by one below.

The Data

1. *Why sudden drop in refugee stock in early 1990s? What do negative refugee flow and refugee stock numbers suggest?*

   Does your sample include the former Soviet Union and former communist countries? From the list of sample countries in the appendix table it does not appear so. The former communist countries are important for explaining the story in this manuscript, including the graph; ignoring these countries may lead to a selection bias that is similar to the one author(s) of this manuscript guarded against on p. 4, while criticizing the literature.

(1) There are several reasons for the pronounced plunge in refugee stock in early to middle 1990's. First, the chaos and turmoil around the turn of the 1990s caused by ethnic conflicts, ethnic wars, and international wars by and large settled down by middle to late 1990's, resulting in considerable return migration. Second, in the face of a massive inflow of refugees, developed countries restricted access to their territories and toughened asylum procedures, which also contributed to voluntary and forcible return migration. Third, refugee hosting developed countries made strong efforts to improve conditions in the origin countries to induce and facilitate safe return home of refugees. These explain the trend reversal of refugee stock around the turn of the 1990s.

(2) As shown in the country list, the sample of countries used in our estimations does not include the former Soviet and Eastern Bloc countries. We excluded them as we intended to examine the patterns and determinants of refugee migration for precisely the same group of countries for both the Cold War and the post-Cold War periods. We were also mindful of the fact that, for the USSR and Yugoslavia, the data for many of the explanatory variables are not available in full. Yet we agree with the suggestion of the referee that former communist countries be included in the sample to avoid a possible selection bias problem. In what follows, therefore, the number of countries in our country sample for post-Cold War period is now 146 including

the 21 former Soviet and Eastern Bloc countries.[1] For the Cold War country sample, it will still be 125 countries due to data availability problem with the USSR and Yugoslavia.

Figure R1. Refugee Stock and Refugee Flow (millions of persons): 125 Country Sample
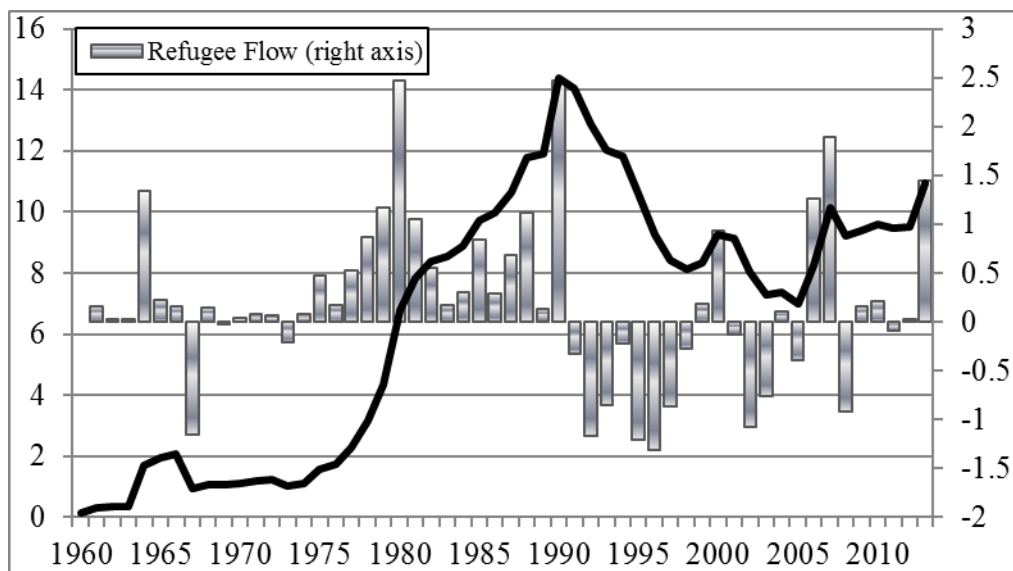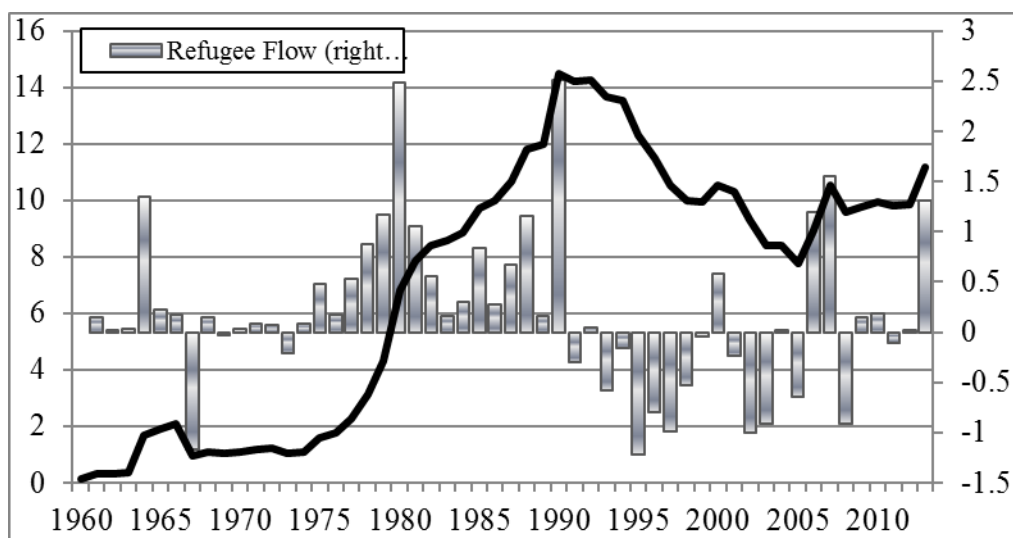

Figure R2. Refugee Stock and Refugee Flow (millions of persons): 146 Country Sample

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[1]Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, Czech Republic, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan

(3) It is not indicated in the manuscript, but the refuge data chart in Figure 1 comprises of 175 countries – the largest number of countries for which refugee stock data are available. For comparison, we add two more charts below. Figure R1 is for 125 country sample and Figure 2, for 146 country sample that includes former USSR and Eastern Bloc countries. The pattern of change in the refuge stock and refugee flow is not significantly different between the two country samples.

(4) In the Appendix to this reply, we report result of Arellano-Bond Dynamic Panel GMM regression for 146 country sample that includes 21 former Soviet Union and Eastern Bloc countries. As shown in Table-PCW146 in the Appendix, inclusion of former communist countries in the sample does not produce notable differences that contradict the findings in Table 1 in the manuscript.

Motivation

2. *Motivation on why the two periods should be examined separately should be spelled out.*

(1) As stated in the manuscript, we suspected a possible 'regime change' in refugee migration dynamics with the collapse of the Cold War such that some of the known causes may suffer loss of significance while some new drivers emerge as important over the post-Cold War period. And demise of the Cold War system coincided with the advent of information age, suggesting consideration of ICT, among others, as a possible facilitator variable.

(2) As an initial check for a possible structural change, we employed time dummies in the regression analysis for the entire sample period, assigning 0 for the Cold War period and 1 for the post-Cold War period. We tested the performance of the period dummies with Pooled Negative Binomial Regression Model (Table-TDPNB). We will discuss our model selection process in the Methodology section of this reply. We used Stata 14 for all analyses and regressions from here on unless indicated otherwise. As shown in the Table, the results reveal highly significant probability values for the period dummy, suggesting a structural change between the two periods.

Table-TDPNB. Estimation Results for Pooled Negative Binomial Regression Model with Time Dummies

Dependent Variable: Refugee Stock	Sample Period 1969-2012		
	[TDPNB-1]	[TDPNB-2]	[TDPNB-3]

Refugee Stock(-1)	1.1E-05**	1.1E-05**	1.1E-05**
	(4.5E-06)	(4.5E-06)	(4.5E-06)
Log (GDPPC)	-0.297**	-	-
	(0.13)		
Log (Population Density)	-0.094	-0.068	-0.066
	(0.12)	(0.11)	(0.11)
Civil Liberties	0.514***	0.672***	0.593***
	(0.1)	(0.09)	(0.09)
Non Violent Conflict	0.194**	0.119*	0.151**
	(0.07)	(0.07)	(0.07)
Violent Conflict	0.090**	0.12***	0.101**
	(0.03)	(0.04)	(0.04)
Genocide/Politicide	0.675***	0.663***	0.702***
	(0.24)	(0.25)	(0.25)
Civil War	1.230***	1.373***	1.319***
	(0.25)	(0.27)	(0.26)
Inter State War	0.466	0.437	0.449*
	(0.29)	(0.28)	(0.27)
Log (Internet)	-	0.047*	-
		(0.02)	
Log (Telcom)	-	-	-0.085
			(0.06)
Period Dummy	**2.008***	**1.571***	**2.119***
	(0.27)	*(0.33)*	*(0.29)*
Constant	6.668***	3.902***	5.025***
	(1.24)	(0.68)	(0.87)
α	8.335	8.430	8.433
χ^2	123.53***	125.52***	125.93***
Log-likelihood	-42802.1	-42986.5	-42987.6
# of countries	146	146	146
# of observations	5,964	6,006	6,006

Notes: *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are robust standard errors (clustered on country codes). The number of observations varies across the models because of unavailability of data for some countries (post Soviet and Eastern Bloc countries) for earlier years. The regression results are estimated in three different models (Models [TDPNB -1], [TDPNB -2], and [TDPNB -3]) to control for high collinearity among three variables (Log (GDPPC), Log (Internet), and Log (Telcom)).

(3) As a next step, we implemented a Wald test to check for a structural break with a known break point - the year of 1991 - for each individual country year recursively for the entire sample. The test results revealed significant outcomes (χ^2 p-values) for 58 countries out of the 146 country sample (amounting to 61.8% of the entire refugee population) for the 1969-2012 period. In the case of the Cold War period, the test results were significant for 47 countries. Using the data for the selected countries with a structural break, we ran a Pooled Negative Binomial estimation. As demonstrated in the Table-SB, the explanatory power of the determinants reveal some notable differences between the two periods.

Table-SB. **Pooled Negative Binomial estimation for countries with a structural break in 1991**

Dependent Variable: Refugee Stock	Cold War Era	Post-Cold War Era	
	[SB-1]	[SB-2]	[SB-3]
Refugee Stock(-1)	2.60E-06	6.40E-06	6.88E-06
	(1.84E-06)	(5.10E-06)	(5.43E-06)
Log (GDPPC)	-0.965**	-0.132	-0.162
	(0.463)	(0.228)	(0.223)
Log (Population Density)	-1.219***	0.145	0.152
	(0.395)	(0.175)	(0.169)
Civil Liberties	0.704***	0.384**	0.423**
	(0.239)	(0.17)	(0.178)
Non Violent Conflict	0.626**	0.079	0.171
	(0.286)	(0.128)	(0.126)
Violent Conflict	-0.041	0.192***	-
	(0.114)	(0.069)	
Genocide/Politicide	1.230**	-0.290	-0.073
	(0.543)	(0.65)	(0.823)
Civil War	1.756***	0.229	0.784***
	(0.604)	(0.32)	(0.223)
Inter State War	-0.059	0.015	0.157
	(0.521)	(0.319)	(0.419)
Constant	13.302***	7.554***	7.597***
	(3.653)	(2.021)	(2.004)
α	21.282	3.358	3.419
χ^2	119.39	79.25	149.62
Log-likelihood	-4623.43	-13132.5	-13150.9
# of observations	1,034	1,334	1,334
# of countries	47	58	
Sample Period	1969-1990	1991-2012	

Notes: *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are robust standard errors (clustered on country codes). Model [SB-3] is specified in order to control for slight collinearity between the measure of Violent Conflict and Genocide/Politicide and Civil War. The measures of Log(Internet) and Log(Telcom) did not reveal any significant outcomes for post-Cold War period.

Methodology

3. *The missing values are filled through interpolation. Footnote 1, p.5, suggests that the results without interpolation do not differ. I like to see those results reported in the appendix.*

(1) For the Cold War period, interpolations were employed for two variables, GDPPC and Civil Liberties. United Nations Statistics Division (UNSD, 2014) GDPPC data start from 1970, so that the data for 1969 were taken from the World Bank data source, which also contained considerable missing values. Freedom House Indices (2014) data start from 1972 and to obtain interpolated data for 1969 and 1971, the beginning years' data were considered unless a country experienced major socio-eco-political changes.

(2) Considering these interpolations, we dropped the first three years' data from the analysis. Table-NoINT below shows estimation results without interpolated data points for the Cold War period [Model 1]. The data used are for the period 1972-1990. The estimation model is no longer our preferred model but we are presenting the results as requested (We used Eviews for this particular estimation for comparison with the results in our manuscript). The results are not significantly different from the results reported in Table 1 in our manuscript.

Table-NoINT. Arellano-Bond Dynamic Panel GMM Estimation Results Without Interpolated Data Points.

Dependent Variable: Log (Refugee Stock)	Cold War	Post-Cold War	
	[1]	[2]	[3]
Log(Refugee Stock(-1))	0.5308***	0.7897***	0.7913***
	(0.0000)	(0.0000)	(0.0000)
Log(GDPPC)	0.1844	-0.0992***	-0.1642***
	(0.1595)	(0.0043)	(0.0015)
Log(Population Density)	-1.2005**	-0.0816	-0.2270
	(0.0328)	(0.7303)	(0.5497)
Civil Liberties	0.0601*	0.1569***	0.1348***
	(0.0840)	(0.0000)	(0.0000)
Non Violent Conflict	0.0447	0.0320***	0.0290***
	(0.2933)	(0.0000)	(0.0001)
Violent Conflict	-0.0569**	0.0379***	0.0376***
	(0.0293)	(0.0000)	(0.0005)
Genocide/Politicide	1.3097***	**0.3993***	0.2665
	(0.0000)	**(0.0000)**	(0.4517)
Civil War	0.5562***	0.2555***	0.2129***
	(0.0002)	(0.0000)	(0.0000)
Inter State War	0.5606***	-0.1359	-0.0987
	(0.0004)	(0.3307)	(0.5913)

Log (Internet)	-	-0.0152***	-0.0222***
		(0.0006)	(0.0001)
Log (Telecommunication)	-	-0.0992***	-0.0438**
		(0.0000)	(0.0172)
Specification Tests (p-values)			
a) Sargan Test	0.2290	0.1779	0.1587
b) AB Serial Correlation Test			
First-Order	0.0028	0.0003	0.0411
Second-Order	0.1057	0.5529	0.6146
# of observations	2375	1720	2338
# of countries	125	125	125
Sample Period	1972-1990	1991-2006	1991-2011

Notes: *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are p values. The e estimation strategy follows exactly same method as in Table-1(in the manuscript). Results are derived are based on two-step GMM estimator and White period robust standard errors option are specified (in Eviews).

(3) In the case of the post-Cold War era, interpolations were employed for the measure of Internet Users (25 data points), Mobile Phone Users (12 data points), Population Density (3 data points), Non Violent Conflicts (875 data points), and Violent Conflicts (875 data points).The most recent data publications of Minorities at Risk (Minorities at Risk Project (2009) and Gurr's (1993) Minorities at Risk data provide data until 2006 so that the remaining years (2007-2012) were interpolated. In interpolating these missing values, each country's socio-eco-political conditions were considered. If a country experienced major changes during the period, the data were interpolated accordingly by assigning highest magnitude of conflicts.

(4) Considering major interpolations that had to be employed for the measures of Non Violent Conflicts and Violent Conflicts for the period 2007-2012, Model 2 in Table-NoINT reports regression results for the 1991-2006 period. Compared with the results for the 1991-2012 period in Model 3, the results do not show major differences except for Genocide/Politicide, which loses significance in Model 3. Overall, as we argued in the manuscript, the regression analysis with and without interpolated data points did not reveal much difference.

4. *What is the proportion of zeros in the dependent variable? The dependent variable is a count – the number of refugees. Therefore, count regression models such as Poisson or Negative Binomial estimators (depending on your data) are appropriate.*

Why a count regression was not applied? I am interested in seeing the count regression results.

(1) As shown in the table below, the proportion of zeros in the dependent variable is 65.2% for the Cold War era and 4.7% for the Post-Cold War era.

The Proportions of Zeros for Two Periods	
Cold War Era (1969-1990 period, 125 country sample)	Post-Cold War (1991-2012 period, 146 country sample)
1794 (zeros) / 2750 (total) = **0.652**	151 (zeros) / 3212 (total) = **0.047**

(2) The dependent variable, refugee stock, is essentially a stock concept and as such its period-by-period observations are likely to contain a certain amount of inertia even at a frequency of 12 months. However, as the variable takes on nonnegative integer values, it can still be treated as a count variable. As suggested by the referee, we considered count regression models including Poisson, Negative Binomial and Zero Inflated Models.

(3) A visual inspection of histograms showed that the data are not normally distributed. And the summary statistics of the dependent variable showed that the variance is substantially larger than the mean indicating the presence of overdispersion. Although the presence of overdispesion violates the Poisson assumption of equality between the mean and the variance of the counts, we first estimated Poisson regression models to compare the results with Negative Binomial regression results. Negative Binomial models' ratio test for $\alpha=0$ and the $\chi 2$ tests reveal that the means and the variances are not the same suggesting the appropriateness of the use of Negative Binomial model over the Poisson model. Due to the presence of considerable number of zero counts in our data set, we applied the Vuong test to check whether the Zero Inflated Negative Binomial regression is more appropriate than Negative Binomial model. The Vuong test results also pointed to the appropriateness of Negative Binomial model over the Zero Inflated NB model. We, therefore, chose to use Negative Binomial regression model for the estimation.

(4) Negative Binomial regression model can be estimated in several different ways when panel data are used. We first used the Pooled Negative Binomial model (Table-PNB) which basically disregards the space and time dimensions of the pooled data (however, we clustered robust standard errors on country codes). The results, overall, are consistent with the findings of previous studies including the results in our manuscript.

We also used Unconditional Fixed Effects Negative Binomial model (Table-UFENB) and the results from the Post-Cold War period estimation look promising. For the Cold War period also, the results, while weaker, overall, are supportive of previous findings in the literature. (Detailed interpretations will follow in our revision after thoroughly checking all our estimation models another time). Allison and Waterman (2002) conducts a simulation study that obtains good results from applying an Unconditional Negative Binomial Regression estimator.

(5) In addition, for the purpose of comparison, we also used Conditional Fixed Effects Negative
Binomial (or Poisson) regression models (Table-CFEP) but the results reveal notable
differences from the previous two models and look far less promising. Allison and Waterman
(2002) argue that this approach does not control for all covariates. They argue that the
Conditional Negative Binomial model for panel data, proposed by Hausman, Hall, and
Griliches (1984) is not a true fixed-effects method.

Table-PNB. **Estimation Results for Pooled Negative Binomial Regression Model**

Dependent Variable: Refugee Stock	Cold War Era	Post-Cold War Era		
	[PNB-1]	[PNB-2]	[PNB-3]	[PNB-4]
Refugee Stock(-1)	1.7E-05**	8.3E-06***	8.2E-06***	8.2E-06***
	(8.2E-06)	(2.9E-06)	(2.7E-06)	(2.7E-06)
Log (GDPPC)	-0.45	-0.37***	-	-
	(0.29)	(0.12)		
Log (Population Density)	-0.42**	0.07	0.04	0.05
	(0.17)	(0.09)	(0.1)	(0.10)
Civil Liberties	0.76***	0.32***	0.48***	0.46***
	(0.16)	(0.09)	(0.09)	(0.09)
Non Violent Conflict	0.19	0.32***	0.2***	0.21***
	(0.16)	(0.08)	(0.07)	(0.07)
Violent Conflict	0.18**	0.11***	0.14***	0.13***
	(0.08)	(0.04)	(0.04)	(0.04)
Genocide/Politicide	0.57*	-0.18	-0.35	-0.33
	(0.31)	(0.31)	(0.28)	(0.29)
Civil War	2.2***	0.43**	0.54**	0.51**
	(0.44)	(0.21)	(0.22)	(0.22)
Inter State War	0.64**	0.38	0.42	0.4
	(0.31)	(0.52)	(0.37)	(0.38)
Log (Internet)	-	-	0.01	-
			(0.02)	
Log (Telcom)	-	-	-	-0.01
				(0.05)
Constant	6.88***	9.35***	6.22***	6.43***
	(2.55)	(1.05)	(0.59)	(0.77)
α	22.74	3.59	3.69	3.69
χ^2	120.12***	111.56***	120.99***	120.13***
Log-likelihood	-11134	-30231	-30298	-30298
# of observations	2,750	3,212	3,212	3,212
# of countries	125	146	146	146
Sample Period	1969-1990	1991-2012	1991-2012	1991-2012

Notes: *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are robust standard errors (clustered on country codes). The regression results for post-Cold War era are estimated in three different models (Models [PNB-2], [PNB-3], and [PNB-4]) to control for high collinearity among three variables (Log (GDPPC), Log (Internet), and Log (Telcom)).

Table-UFENB. **Estimation Results for Unconditional Fixed Effects Negative Binomial Regression Model**

Dependent Variable: Refugee Stock	Cold War Era		Post-Cold War Era			
	[UFENB-1]	[UFENB -2]	[UFENB -3]	[UFENB -4]	[UFENB -5]	[UFENB -6]
Refugee Stock(-1)	1.1E-06***	1.23e-06**	2.9E-06***	3.1E-06***	2.9E-06***	2.9E-06***
	(1.6E-07)	(6.02e-07)	(1.1E-06)	(1.1E-06)	(1.1E-06)	(1.1E-06)
Log (GDPPC)	-0.016	-0.171	0.233	0.239	-	-
	(0.8)	(0.225)	(0.14)	(0.15)		
Log (Pop-Density)	11.352***	3.013***	2.207***	2.061***	1.428**	1.413**
	(2.6)	(0.977)	(0.58)	(0.59)	(0.63)	(0.7)
Civil Liberties	0.311	0.101	0.144	0.167*	0.188**	0.185**
	(0.25)	(0.127)	(0.09)	(0.09)	(0.09)	(0.09)
Non Violent Conflict	0.294	0.229**	0.020	0.035	0.052	0.043
	(0.19)	(0.106)	(0.04)	(0.04)	(0.05)	(0.04)
Violent Conflict	0.101	0.067	0.151***	-	-	-
	(0.14)	(0.112)	(0.04)			
Genocide/Politicide	1.811*	1.47*	0.410	0.495*	0.559**	0.443
	(0.95)	(0.77)	(0.3)	(0.28)	(0.27)	(0.29)
Civil War	1.778	1.774**	0.362**	0.499***	0.504***	0.527***
	(1.15)	(0.737)	(0.18)	(0.16)	(0.17)	(0.17)
Inter State War	0.401	0.142	-0.007	0.149	0.150	0.130
	(0.72)	(0.613)	(0.22)	(0.19)	(0.2)	(0.17)
Log (Internet)	-	-	-	-	0.059**	-
					(0.03)	
Log (Telcom)	-	-	-	-	-	0.150**
						(0.08)
Country Dummies	-//-	-//-	-//-	-//-	-//-	-//-
Constant	-27.5***	-1.154	-1.236	-0.915	2.018	0.928
	(6.88)	(2.343)	(2.02)	(2.07)	(2.15)	(2.1)
α	8.004	2.821	1.330	1.345	1.338	1.341
χ^2	-	-	-	-	-	-
Log-likelihood	-10230.3	-13603.1	-28033.4	-28054.7	-28044.8	-28048.9
# of observations	2,750		3,212			
# of countries	125		146			
Sample Period	1969-1990		1991-2012			

Notes: *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are robust standard errors (clustered on country codes). The χ^2 statistics are not reported due to estimation difficulties. The coefficients and standard errors for country dummies are not presented in the table for brevity. As shown in the table, the estimation results are presented for two models for the Cold War period and four models for the post-Cold War period. Model [UFENB-1] did not converge and as a way to achieve convergence of the model, we added the value of 1 to all observations of the dependent variable and reestimated the results (Model [UFENB-2]). We specified Model [UFENB-4] in order to control for slight collinearity between the measure of Violent Conflict and Genocide/Politicide and Civil War. The regression results for post-Cold War era are further estimated for two additional models [UFENB-5] and [UFENB-6] to control for high collinearity among three variables (Log (GDPPC), Log (Internet), and Log (Telcom)).

Table-CFEP. **Estimation Results for Conditional Fixed Effects Poisson Regression Model**

Dependent Variable: Refugee Stock	Cold War Era	Post-Cold War Era		
	[CFEP-1]	[CFEP-2]	[CFEP-3]	[CFEP-4]
Refugee Stock(-1)	5.1E-07***	2.8E-07*	2.9E-07*	2.6E-07*
	(1.4E-07)	(1.5E-07)	(1.5E-07)	(1.4E-07)
Log (GDPPC)	-0.179	-0.025	-	-
	(0.43)	(0.12)		
Log (Population Density)	2.426*	-0.115	-0.030	-0.392
	(1.27)	(0.5)	(0.6)	(0.57)
Civil Liberties	0.188	0.169***	0.162**	0.191***
	(0.12)	(0.06)	(0.06)	(0.06)
Non Violent Conflict	-0.051	0.018	0.019	0.017
	(0.07)	(0.03)	(0.03)	(0.03)
Violent Conflict	0.003	0.012	0.010	0.014
	(0.1)	(0.02)	(0.02)	(0.02)
Genocide/Politicide	0.275	0.177	0.177	0.139
	(0.19)	(0.12)	(0.11)	(0.14)
Civil War	0.747***	0.230*	0.238*	0.236*
	(0.24)	(0.13)	(0.13)	(0.13)
Inter State War	0.091	0.439***	0.437***	0.457***
	(0.32)	(0.16)	(0.16)	(0.17)
Log (Internet)	-	-	-0.007	-
			(0.01)	
Log (Telcom)	-	-	-	0.029
				(0.04)
χ^2	491.87***	67.49***	74.87***	71.88***
Log-likelihood	-31585108	-36797278	-36786571	-36752529
# of observations	2,112	3,212	3,212	3,212
# of countries	96	146		
Sample Period	1969-1990	1991-2012		

Notes: *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are robust standard errors (clustered on country codes). Stata estimations dropped 29 countries (638 obs) in Model [CFEP-1] because of all zero outcomes, due to this procedure Stata failed to estimate Conditional Negative Binomial regression model. The regression results for post-Cold War era are estimated in three different models (Models [CFEP -2], [CFEP -3], and [CFEP -4]) to control for high collinearity among three variables (Log (GDPPC), Log (Internet), and Log (Telcom)).

> **5.** *Further, the Dynamic Panel GMM estimator is not reliable with well-known issues. First, be careful with overstating that the endogeneity of variables are addressed; the assumptions the dynamic GMM estimator makes regarding the excludability restriction of the internal instruments should be discussed and justified. Second, I did not find any information and justification on exogenous and endogenous variables and the lag structure in the estimated models. Third, are the results based on a two-step efficient GMM estimator or one-step GMM estimator? Have you used Windmeijer's robust standard errors in the second step? Fourth, the Dynamic Panel GMM estimator suffers from instrument-proliferation problem as the number of time-periods increases, which is the case in this paper. How is the problem of too many instruments addressed? More important, how many instruments does each regression model have? The validity of results depends on this.*

(1) The estimation results in Table-1 (in the manuscript) were based on a two-step GMM estimator. We used White period robust standard errors on Eviews 8 which reports the number of instruments only when it exceeds the critical value.

(2) We reestimated the models with Stata-14 and the regression results in Table-AB are estimated with robust VCE and Windmeijer bias-corrected robust VCE in one-step and two-step GMM estimators, respectively. The number of instruments in each model is provided in the Table. Restricting the number of instruments did not significantly improve the outcomes. Although the estimation results for post-Cold War period reveal relatively closer findings to those in Table-1 (in the manuscript), the results for Cold War period are notably different. Most importantly, a considerable number of explanatory variables became insignificant including ICT variables.

Table-AB. **Arellano-Bond Dynamic Panel GMM Estimation Results with Robust Standard Errors (Stata estimations)**

Dependent Variable: *Log (Refugee Stock)*	Cold War Era		Post-Cold War Era			
	One-Step	Two-Step	One-Step	Two-Step	One-Step	Two-Step
	[AB-1]	[AB-2]	[AB-3]	[AB-4]	[AB-5]	[AB-6]
Log (Refugee Stock(-1))	0.579***	0.582***	0.797***	0.794***	0.783***	0.779***
	(0.068)	(0.072)	(0.033)	(0.035)	(0.037)	(0.039)
Log (GDPPC)	0.114	0.044	-0.299**	-0.289**	-0.231*	-0.235*
	(0.404)	(0.363)	(0.122)	(0.125)	(0.123)	(0.121)
Log (Population Density)	-2.493**	-2.281	0.732	0.651	0.906	0.999
	(1.032)	(1.445)	(0.839)	(0.88)	(0.907)	(0.926)
Civil Liberties	0.173**	0.161**	0.042	0.051	0.04	0.032
	(0.08)	(0.078)	(0.065)	(0.065)	(0.065)	(0.063)
Non Violent Conflict	0.166*	0.146**	0.051*	0.050*	0.053**	0.05*

	(0.086)	(0.085)	(0.026)	(0.028)	(0.026)	(0.027)
Violent Conflict	-0.059	-0.072	0.061*	0.055*	0.062**	0.051
	(0.075)	(0.072)	(0.032)	(0.031)	(0.031)	(0.031)
Genocide/Politicide	1.05	0.902	-0.147	-0.147	-0.069	-0.088
	(0.681)	(0.597)	(0.14)	(0.146)	(0.132)	(0.13)
Civil War	0.668	0.745	0.263**	0.287**	0.224*	0.245*
	(0.445)	(0.498)	(0.127)	(0.125)	(0.128)	(0.132)
Inter State War	0.682	0.749	-0.149	-0.083	-0.119	-0.038
	(0.52)	(0.5)	(0.738)	(0.67)	(0.734)	(0.716)
Log (Internet)	-	-	-	-	-0.037	-0.03
					(0.037)	(0.04)
Log (Telcom)	-	-	-	-	-0.072	-0.074
					(0.07)	(0.069)
Specification Tests						
AB Serial Corr-Test P-values						
First-Order	0.000	0.000	0.000	0.000	0.000	0.000
Second-Order	0.003	0.006	0.207	0.204	0.205	0.199
# of instruments	238	238	235	235	237	237
# of observations	2,500	2,500	2,920	2,920	2,920	2,920
# of countries	125		146			
Sample Period	1969-1990		1991-2012			

Notes: *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are robust standard errors (clustered on country codes), Windmeijer's robust standard errors are used in the second step.

6. ***Given the issues surrounding dynamic panel GMM estimator, the fixed-effects regression with lagged dependent variable should be estimated and the results should be reported for comparison.***

Table-OLSFE shows fixed effects regression results for Cold War and post-Cold War periods. The regression models for post-Cold War era were reported in three separate models in order to control for collinearity within three variables, such as Log(GDPPC), Log (Internet), and Log (Telcom).

Table-OLSFE. Ordinary Least Squares Fixed Effects Estimation Results

Dependent Variable: Refugee Stock	Cold War Era	Post-Cold War Era		
	[OLSFE-1]	[OLSFE-2]	[OLSFE-3]	[OLSFE-4]
Refugee Stock(-1)	0.99***	0.68***	0.68***	0.68***
	(0.02)	(0.03)	(0.03)	(0.03)
Log (GDPPC)	-91.81	1459.23	-	-
	(3386.15)	(5369.26)		
Log (Population Density)	4772.34	-3227.36	-7010.02	-22178.89

	(7823.69)	(15241.55)	(15911.47)	(20974.72)
Civil Liberties	3462.38**	3488.85	3554.86	4292.25*
	(1728.23)	(2276.57)	(2237.81)	(2315.41)
Non Violent Conflict	2253.28*	616.3	673.3	734.66
	(1283.79)	(1714.16)	(1696.86)	(1687.13)
Violent Conflict	2820.82	5995.3*	6080.99*	6156.22*
	(3539.12)	(3130.69)	(3160.03)	(3169.06)
Genocide/Politicide	26710.36*	96824.26**	97151.66**	95237.15**
	(15609.2)	(38775.26)	(38867.68)	(38505.4)
Civil War	33551.93**	37418.86**	37285.93**	38393.20**
	(15542.74)	(16293.71)	(15663.19)	(16191.37)
Inter State War	22481.61	68387.3	68460.09	68681.16
	(18625.36)	(63227.98)	(63198.98)	(63511.32)
Log (Internet)	-	-	329.62	-
			(409.53)	
Log (Telcom)	-	-	-	2926.23
				(2170.2)
Constant	-39083.28*	-3799.13	18978.86	44511.24
	(23155.02)	(48838.27)	(58573.99)	(61084.63)
R^2:	0.9559	0.9279	0.9266	0.9138
F-Statistic	2234.96***	244.24***	245.63***	231.33***
# of observation	2,750	3,212	3,212	3,212
# of countries	125	146	146	146
Sample Period	1969-1990		1991-2012	

Notes: *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are robust standard errors.

Interpretations

7. *First, the comments in methodology part should be addressed. Then, the findings should be explained in more details.*

We have addressed the referee's comments in methodology part as much as we could as reported above but we will conduct another round of reviews on the estimation models for further improvement. Our ongoing revision will contain detailed, refined interpretations of the results.

Lastly, we would like the referee to know how grateful we are for the valuable comments, advice and suggestions given to us.

Appendix

<u>Table-PCW146</u>. Arellano-Bond Dynamic Panel GMM Estimation Results for a 146-Country Sample (Eviews estimations)

Dependent Variable: Log (Refugee Stock)	Post-Cold War Era
Log(Refugee Stock(-1))	0.7630*** (0.0000)
Log(GDPPC)	-0.1961*** (0.0000)
Log(Population Density)	0.8284*** (0.0000)
Civil Liberties	0.0240 (0.1522)
Non Violent Conflict	0.0522*** (0.0000)
Violent Conflict	0.0551*** (0.0000)
Genocide/Politicide	-0.0686 (0.2363)
Civil War	0.1840*** (0.0000)
Inter State War	-0.0980* (0.0598)
Log (Internet)	-0.0444*** (0.0000)
Log (Telecommunication)	-0.1312*** (0.0001)
Specification Tests (p-values)	
a) Sargan Test	(0.2046)
b) AB Serial Correlation Test	
First-Order	(0.0000)
Second-Order	(0.2473)
# of observations	2920
# of countries	146
Sample Period	1991-2012

Notes: *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are p values. The country sample consists of 125 non-communist and 21 former communist countries (15 former USSR and 6 former Eastern Bloc countries).