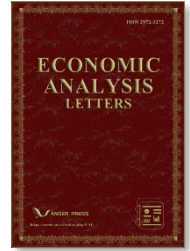# Beyond Their Borders – Economic Freedom: Uncovering One of the Motivations of Unauthorized Migration to the U.S.A.

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ABSTRACT

This study documents the relationship between economic freedom and unauthorized immigration to the U.S.A. and tries to answer a still-in-debate question, what motivates people to unauthorizedly migrate? Using the generated instrument variables methodology, and a data panel of 15 countries and 16 years, the endogenous variable is the gap in economic freedom between the country of origin and the U.S., and the dependent variable is the unauthorized immigrant's growth rate. The results show that for each 10% improvement in economic freedom in the country-of-origin unauthorized immigration decreases around 7%. Estimations are robust even after using other covariates and external instruments. The main conclusion is that economic and social factors play a significant role in shaping migration patterns and that the difference in economic freedom between the country of origin and the U.S. plays a fundamental role in deciding to unauthorizedly migrate

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1. Introduction

Migration has been a subject of extensive research, with scholars seeking to understand the determinants and causes that motivate individuals to migrate from their home countries to sometimes culturally, religiously, and linguistically diverse destinations. Numerous methodologies have been employed to investigate this phenomenon, including studies by Ramos and Suriñach (2017, Ramos (2016), Poprawe (2015), Docquier et al. (2011), Bygnes and Flipo (2017), Schon (2019), Baez et al. (2017), and Karamera, Ogudelo, and Davis (2000), among others.

Moreover, researchers have also explored the impact of immigration on the receiving country, state, or county, with a focus on institutions such as economic freedom, democracy, rule of law, and crime, as demonstrated by studies conducted by Clark et al. (2015), Powell, Clark, and Nowrasteh (2017), Padilla and Cachanosky (2018), and Ousey and Kubrin (2018), as well as economic variables like the labor market, income, and governmental expenditures, as examined by Angrist and Kugler (2003), Card (1990), Cigagna and Sulis (2015), and Carrasco, Jimeno, and Ortega (2008).

However, despite the extensive literature on migration, there is a notable gap in the in-depth analysis of unauthorized immigration. The clandestine nature of this form of immigration poses challenges in obtaining reliable statistics, as individuals tend to hide their status. Nevertheless, estimates of unauthorized immigrant populations are published by the Migration Policy Institute (MPI) based on U.S. Census Bureau data from the 2012-16 American Community Survey (ACS) pooled, and the 2008 Survey of Income and Program Participation (SIPP). Another source of data on unauthorized immigration in the United States is the PEW Research Center, which is conducting a project and research on this topic. However, there is a dearth of research that employs robust statistical and econometric methodologies to examine the relationship between economic freedom and unauthorized immigration in the United States.

The objective of this research is to measure the impact of the gap between the economic freedom of the country of origin and the United States on unauthorized immigration. This research contends that several factors influence the expected benefits of remaining in one's home country and the costs associated with unauthorized migration. Ultimately, individuals decide to unauthorizedly migrate if they expect greater benefits in the destination country than in their countries of origin.

To achieve the research objective, this paper is organized into five sections. The first section provides an introduction with a brief literature review and outlines the research intention. The second section presents methodology, data, and the econometric model. The third section presents the results and analysis of the findings, while the fourth section includes robustness tests and additional checks to report more convincingly results on the causality between economic freedom and unauthorized immigration in the U.S. Finally, the conclusion is presented.

2. Methodology

Unauthorized immigration poses numerous challenges for researchers, particularly when it comes to obtaining reliable data. As any unauthorized activity, undocumented immigrants often remain hidden, making it difficult to accurately measure their numbers. However, the PEW Research Center has been conducting one of the most accurate estimations of unauthorized immigrants in the United States, using a database that includes countries of origin with larger numbers of unauthorized immigrants. In this study, we aimed to analyze the economic factors associated with unauthorized immigration, using data from various sources including the PEW Research Center, the Fraser Institute, and previous literature.

2.1. The Data

The dataset is a panel consisting of 15 countries of origin: Brazil, China, Colombia, Dominican Republic, Ecuador,

El Salvador, Guatemala, Haiti, Honduras, India, Mexico, Peru, Philippines, and Venezuela, spanning 16 years from 1990 to 2017 with a 5-year gap between 1990 and 2005. Our variables were classified into three groups: the unauthorized immigrants as our dependent variable, the institutional factor as our endogenous variable, and the other factors as our control variables.

The estimation of the number of unauthorized immigrants is based on the methodology used by the PEW Research Center, which relies on data from Passel (2019). This methodology involves estimating the number of legal immigrants in the U.S. using official government data on permanent residents and refugees. A census or national survey is then used to measure the total number of immigrants, including both legal and undocumented immigrants. The difference between the total number of immigrants and the estimated number of legal immigrants provides a raw estimation of the number of unauthorized immigrants. However, to account for potential undercounting in the survey or census, an upward adjustment of the raw number is applied, estimated to fall in the range of 5% to 15% overall.

The main independent variable of interest in this research is economic freedom, which has been previously used in the literature to analyze the relationship between economic factors and unauthorized immigration (Ashby, 2007; Ashby, 2010; Borjas, 1987; Nejad and Young, 2016; Poprawe, 2015). We used the overall score of the Economic Freedom of the World index published by the Fraser Institute as our measure of economic freedom. This index measures the level of economic freedom in a country based on various indicators related to the size of government, legal system and property rights, sound money, free trade, and regulation.

Consistent with the literature, this research includes control variables to account for potential confounding effects. The control variables included the number of unauthorized immigrants in the U.S. from the previous year, GDP per capita, corruption, democracy, years of schooling, socioeconomic conditions, policy, executive constraints, unemployment, inflation, distance between the capital cities of the country of origin and the USA, poverty, Gini index, financial risk of the country, and a dummy variable indicating if Spanish is the mother language of the country of origin, all these variables are available from different sources. Table 1 presents the descriptive statistics of the dataset.

Table 1. Descriptive statistics.

Var	Description	N	Mean	SD	Min	Median	Max	Source
m	Unauthorized Immigrants	224	6.06e+05	1.41e+06	10000.000	1.70e+05	6.95e+06	The Pew Research Institute
efw	Economic Freedom Index	224	6.446	1.019	2.580	6.660	7.720	The Fraser Institute
ypc	GDP per capita	224	7957.775	4227.844	1223.465	7304.489	18360.423	Pen World Table 9.1
poverty	Poverty GAP at 1.90$/Day	128	3.362	3.670	0.200	2.050	24.100	The World Bank
gini	GINI Index	128	48.709	5.388	32.200	48.800	60.500	The World Bank
finrisk	Financial risk	224	38.535	5.127	20.750	39.208	48.000	The country risk
lndist	Distance	224	7.962	0.609	7.268	7.701	9.055	Distancefromto.net
school Years of School	Years of School	224	12.052	1.937	6.500	12.500	15.400	United Nations Development Programme
indv	Individualism	208	22.462	11.936	6.000	20.000	48.000	Hofstede Insights
too	Trust on Others	192	17.915	13.670	5.611	14.349	55.220	Our World in data
polity2	Polity	224	5.790	4.324	-7.000	8.000	9.000	Center for Systemic Peace

2.2. The Empirical Model

Based on Karemera, Ogudel, and Davis (2000), Nejad and Young (2016), Jandová and Paleta (2015), and Ramos and Suriñach (2017), the econometric model followed in this research is represented by equation (1).

$$\left(\frac{F_{iusa,t}}{F_{iusa,(t-1)}} \right) = b_0 \left(efw_{it}/efw_{usa,t} \right)^{b_1} \left(X_{it}/X_{usa,t} \right)^{b_2} \tag{1}$$

The left-hand side of the equation represents the ratio of unauthorized immigration from the country *i* to the USA in year *t* in relation to the previous year. The coefficient b_0 is a constant, *efw* represents economic freedom, and

X is a vector of control variables that aid or restrain unauthorized migration from the country *i* to the USA. This specification assumes a multiplicative relationship between the ratio of unauthorized immigrants and the economic freedom and other factors of the country of origin and the USA, rather than a constant propensity. Taking natural logarithms of both sides and simplifying the notation, the specification model is represented by equation (2).

$$\Delta m_{it} = \beta_0 + \beta_1 \tau_{it} + \beta_x X'_{it} + \mu_{it} \qquad (2)$$

Where Δm_{it} represents the annual growth rate of unauthorized immigrants (m_{it}) in the United States of America from the country of origin i in year t. τ_{it} represents the institutional factor which is the natural logarithm of the ratio between the Economic Freedom of the World Index of country i and the USA in year t, and X'_{it} represents a vector of exogenous variables for country i in year t, and μ is the error term.

The research expects a negative coefficient for β_1. Since economic freedom is computed as a ratio between the country of origin and the USA, the results can be analyzed as elasticities. In other words, assuming that the economic freedom in the country of origin i in year t is equal to the economic freedom of the USA ($\tau_{it} = 0$), it implies that institutions do not exert a push on the growth rate of unauthorized immigration. However, if the economic freedom of country i worsens (τ_{it}<0), and given the expected value of $\beta_1 < 0$, the growth rate of unauthorized immigration from this country to the USA is expected to increase.

3. Results

This research follows Lewbel's (2012) methodology for cases where instruments are unavailable or to enhance result reliability. The estimations control unobserved regional heterogeneity.

Table 2 presents robust estimations on the relationship between economic freedom and unauthorized immigration from the country of origin to the USA. The study finds that a 10% improvement in economic freedom in the home country leads to a decrease of approximately 7% in the growth rate of unauthorized immigration to the USA, with a statistical significance of at least 5%. Advanced estimators such as the two-step GMM estimator and the continuously updated GMM estimator (*cue*) further support the significant impact of economic freedom on unauthorized immigration.

This research also emphasizes the significance of control variables. The natural logarithm of unauthorized immigrants from the previous year (*lagum*) shows a negative and statistically significant relationship, indicating that more restrictive immigration policies implemented by the United States Homeland Security may have influenced unauthorized immigration. However, the degree of restrictiveness in the United States' legal immigration rules was not included in the research due to database limitations and should be addressed in future studies.

Furthermore, the study reveals that the ratio of schooling years in the country of origin has a positive and statistically significant relationship with unauthorized immigration. A 10% increase in schooling years for children in the home country leads to an increase in the growth rate of unauthorized immigration, ranging from 5.55% to 10.94% depending on the estimators used. This suggests that individuals from countries that place higher importance on education may perceive the educational system in the USA as a factor that increases their expected benefits and/or lowers the costs of unauthorized migration.

In addition, the research finds that an increase in poverty in the country of origin serves as an indicator for individuals to leave their home country. A 10% increase in poverty in the home country leads to an increase in the growth rate of unauthorized immigration to the USA, ranging from 5% to 7%. Surprisingly, positive and statistically significant relationships are observed for the income gap, suggesting that an improvement in income in a scenario of economic deprivation and lack of economic freedom could potentially help finance the costs associated with unauthorized migration to the USA.

Finally, the results of the baseline model indicate that economic freedom, schooling years, poverty, and income

in the country of origin are significant factors that impact the decision to migrate unauthorizedly to the USA. The study provides valuable insights into the complex nature of unauthorized immigration and highlights the need for further research to explore additional variables, such as the degree of restrictiveness in the United States' legal immigration rules, for a comprehensive understanding of this phenomenon.

Table 2. Baseline Model – What motivates unauthorized immigration?

		Generated-IV						
	OLS	(1)	(2)	(3)	(4)	(5)	(6)	(7)
gapefw	-0.728**	-0.209*	-0.670**	-0.610**	-0.699**	-0.667**	-0.815***	-1.484***
	[0.320]	[0.117]	[0.260]	[0.277]	[0.291]	[0.328]	[0.251]	[0.224]
Gapy	0.258**		0.236**	0.248***	0.260***	0.262***	0.300***	0.168***
	[0.106]		[0.095]	[0.086]	[0.086]	[0.087]	[0.078]	[0.054]
gapoverty	0.052***		0.049***	0.049***	0.052***	0.052***	0.053***	0.070***
	[0.012]		[0.012]	[0.013]	[0.010]	[0.010]	[0.010]	[0.006]
gapgini	-0.139			0.105	-0.126	-0.111	-0.334	-0.397***
	[0.408]			[0.269]	[0.324]	[0.326]	[0.204]	[0.139]
gapfinrisk	0.101			-0.074	0.094	0.085	0.098	0.310***
	[0.203]			[0.179]	[0.161]	[0.163]	[0.134]	[0.092]
lndist	0.107			0.215*	0.106	0.105	0.097	0.160***
	[0.141]			[0.119]	[0.115]	[0.116]	[0.079]	[0.062]
gapshool	0.555*				0.553**	0.551**	0.451**	1.094***
	[0.325]				[0.264]	[0.266]	[0.206]	[0.233]
lagum	-0.185**				-0.184***	-0.183***	-0.194***	-0.087
	[0.077]				[0.062]	[0.062]	[0.038]	[0.059]
Constant	1.586	0.072	-0.251***	-0.444***	-0.411**	-0.400**	-0.434***	-0.722***
	[1.553]	[0.048]	[0.065]	[0.158]	[0.167]	[0.174]	[0.126]	[0.097]
p(OID)		0.758	0.133	0.068	0.121	0.124	0.121	0.568
p(UID)		0.000	0.002	0.089	0.094	0.094	0.094	0.094

Notes: The dependent variable in all estimations is the Unauthorized Immigration Growth Rate. Regular beta coefficients; Standard errors in brackets. * p<0.10, ** p<0.05, *** p<.01. Model (5) estimated with Limited Information Likelihood (liml). Model (6) is estimated with a two-step efficient GMM estimator (gmm2s). Model (7) is estimated with a continuously updated GMM estimator (cue). p(OID) is the p-value of the Hansen-J statistic. p(UID) is the p-value of the Kleibergen and Paap (2006) under identification test. All specifications include region-fixed effects.

4. Robustness Tests

4.1. The Key Assumptions of the Generated-IV Methodology

The generated instruments methodology, used in this study, "generates the heteroscedasticity based constructed instruments, and then implements instrumental variables estimation" (Baum and Lewbel 2018: 6). These authors explain two key assumptions of this methodology: i) the square of the common unobservable factor of the error terms (let us call it V_{it}) is not correlated with the control variables (X', from equation (2)) used to construct valid instruments for the endogenous variable (τ_{it}, from equation (2)); ii) the square of the error term (let us call it $(\varepsilon_{it})^2$) of the structural equation of the endogenous variable (τ_{it}) is correlated with X'.

To validate those assumptions, this study uses the Pagan and Hall (1983) and the White/Koenker and Breusch and Pagan (1979) tests. If assumptions are right, then: i) results should not reject homoscedasticity for V_{it}; ii) results should reject homoscedasticity for ε_{it}.

Results in Table 3 validate the two key assumptions. First, V_{it} Is homoscedastic, as none of the results reject the null hypothesis. Secondly, $(\varepsilon_{it})^2$ is correlated with X', as all of the results reject the null hypothesis of homoscedasticity at least at 10%. Finally, Baum and Lewbel (2018) explain that while the generated instruments methodology is robust and reliable when these assumptions are proven, theoretical, and/or with statistical tests, other important robustness checks can be addressed using external instruments in the specification.

Table 3. Robustness Test – Checking the Methodology Assumptions.

Required Assumptions:	Test	Generated-IV			
		(1)	(2)	(3)	(4)
V_{it} (results do not reject homoscedasticity)	P-H	5.667	5.501	7.079	12.627
		[0.895]	[0.905]	[0.793]	[0.318]
	P-H Normality	7.602	7.431	11.059	9.536
		[0.749]	[0.763]	[0.438]	[0.573]
ε_{it} (results reject homoscedasticity)	White/Koenker	24.848***	24.848***	24.848***	24.848***
		[0.009]	[0.009]	[0.009]	[0.009]
	Breusch-Pagan	17.634*	17.634*	17.634*	17.634*
		[0.091]	[0.091]	[0.091]	[0.091]

*Notes: P-H test is the Pagan-Hall general test statistic. P-H Normality is the Pagan-Hall test with assumed normality. White/Koenker test statistic. Breusch-Pagan/Godfrey/Cook-Weisberg statistic. P-values in brackets. *, **, *** denotes rejection of the Ho at 10%, 5%, and 1%. Ho for all tests: disturbance is homoscedastic.*

4.2. Including External Instruments in the Model

Following March, Lyford, and Powell (2015) and Lawson, Murphy, and Powell (2020), who identified key covariates that serve as determinants of economic freedom, such as initial GNI per capita, ethnolinguistic fractionalization, democracy, political freedom, and inequality, this research incorporates these covariates as external instruments to conduct additional checks on the robustness of our findings.

Using external instruments suggested by the literature, including variables such as individualism, trust in others, democracy (polity2), executive constraints, and lag of economic freedom score, 30 different estimations are part of this robustness check (see Appendix 1). The most reliable and important statistic is the non-rejection of the Hansen-J test, which is rejected at the 10% level in only three results (see columns 1, 2, and 3 in Appendix 1). Table 4 displays the best results of these checks, indicating that the gap in economic freedom between the country of origin and the USA is a significant determinant with a negative and statistically significant relationship with unauthorized immigration.

Table 4. Robustness Tests – Including External Variables to the Model.

	(1)	(2)	(3)	(4)	(5)	(6)
gapefw	-0.725***	-0.904***	-0.700***	-1.194***	-0.662***	-0.264**
	[0.245]	[0.318]	[0.228]	[0.220]	[0.223]	[0.113]
lagum	-0.186***	-0.153**	-0.179***	-0.023	-0.156***	-0.157***
	[0.040]	[0.059]	[0.039]	[0.029]	[0.042]	[0.028]
gapy	0.335***	0.315***	0.324***	0.058	0.261***	0.208***
	[0.077]	[0.063]	[0.074]	[0.042]	[0.084]	[0.043]
gapoverty	0.048***	0.073***	0.048***	0.043***	0.055***	0.020***
	[0.009]	[0.006]	[0.009]	[0.006]	[0.012]	[0.006]
gapgini	-0.214	-0.469***	-0.142	-0.033	-0.090	0.140
	[0.201]	[0.124]	[0.177]	[0.091]	[0.161]	[0.181]
gapfinrisk	-0.018	0.077	-0.014	-0.089	0.100	-0.332***
	[0.122]	[0.086]	[0.118]	[0.098]	[0.122]	[0.078]
lndist	0.055	0.217**	0.073	0.156***	0.062	-0.081*
	[0.079]	[0.092]	[0.077]	[0.033]	[0.078]	[0.046]
gapschool	0.391*	0.974***	0.396*	0.772***	0.374*	0.098
	[0.212]	[0.191]	[0.208]	[0.203]	[0.195]	[0.093]
Constant	-0.346***	-0.633***	-0.351***	-0.494***	-0.317***	-0.196***
	[0.124]	[0.093]	[0.123]	[0.090]	[0.123]	[0.056]
p(OID)	0.108	0.424	0.120	0.747	0.154	0.572
p(UID)	0.063	0.063	0.100	0.100	0.145	0.145

*Notes: The dependent variable for all specifications is the unauthorized immigration growth rate. Regular coefficients. Robust Standard Errors in brackets. * p<0.10, ** p<0.05, *** p<.01. Models (1) and (2) include as external instrument the economic freedom score of the previous year; Models (3) and (4) include as external instrument individualism, polity2, and*

the economic freedom score of the previous year; Models (5) and (6) include as external instrument trust on others, executive constraints, and the economic freedom score of the previous year. Models (1), (3), and (5) were estimated with a two-step efficient GMM estimator (gmm2s). Models (2), (4), and (6) were estimated with a continuously updated GMM estimator (cue). p(OID) is the p-value of the Hansen-J statistic. p(UID) is the p-value of the Kleibergen and Paap (2006) underidentification test. All specifications include region-fixed effects.

4.3. Including Other Covariates to the Model

As a final robustness test, we changed the covariates in our model to include only variables related to the country of origin. We controlled for socioeconomic conditions, Gini index, income, corruption, financial risk, democracy, distance to the U.S., Spanish as the mother language, and years of school. Additionally, we estimated results with only generated instruments, as well as with both generated and external instruments, and checked the second and third assumptions of the methodology. Table 5 presents the main results of these checks (see Appendix 2 for the full set of estimations), which suggest that the negative relationship and statistical significance of our endogenous variable remain strong as an explanatory factor for unauthorized immigration to the United States of America.

Table 5. Robustness Check – Including Other Covariates to the Model.

	Generated-IV				Generated and External - IV			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
gapefw	-1.473***	-1.427***	-1.064***	-1.473***	-1.817***	-1.858***	-1.437***	-1.817***
	[0.433]	[0.516]	[0.301]	[0.433]	[0.459]	[0.533]	[0.313]	[0.459]
lypc	-0.020	-0.019	0.012	-0.020	0.126	0.131	0.150*	0.126
	[0.075]	[0.076]	[0.068]	[0.075]	[0.108]	[0.111]	[0.083]	[0.108]
se_cond	-0.038	-0.036	-0.038*	-0.038	-0.033	-0.034	-0.022	-0.033
	[0.025]	[0.026]	[0.022]	[0.025]	[0.024]	[0.024]	[0.019]	[0.024]
gini	0.006	0.006	0.005	0.006	0.014**	0.014**	0.013***	0.014**
	[0.004]	[0.004]	[0.003]	[0.004]	[0.006]	[0.006]	[0.005]	[0.006]
finrisk	-0.003	-0.004	-0.007	-0.003	-0.004	-0.004	-0.010*	-0.004
	[0.006]	[0.006]	[0.005]	[0.006]	[0.006]	[0.006]	[0.005]	[0.006]
corruption	0.101**	0.098*	0.092**	0.101**	0.115***	0.117***	0.097***	0.115***
	[0.046]	[0.050]	[0.037]	[0.046]	[0.042]	[0.045]	[0.031]	[0.042]
polity2	0.004	0.003	-0.001	0.004	0.012	0.013	0.007	0.012
	[0.006]	[0.007]	[0.005]	[0.006]	[0.009]	[0.009]	[0.006]	[0.009]
school	-0.016	-0.017	-0.022	-0.016	-0.015	-0.015	-0.025	-0.015
	[0.027]	[0.027]	[0.019]	[0.027]	[0.025]	[0.025]	[0.018]	[0.025]
lndist	0.546**	0.526**	0.453***	0.546**	0.826***	0.848***	0.700***	0.826***
	[0.224]	[0.249]	[0.171]	[0.224]	[0.278]	[0.307]	[0.199]	[0.278]
sp_spk	0.257**	0.247**	0.221***	0.257**	0.507***	0.521**	0.486***	0.507***
	[0.103]	[0.116]	[0.085]	[0.103]	[0.191]	[0.211]	[0.146]	[0.191]
Constant	-0.630***	-0.607**	-0.465***	-0.630***	-0.749***	-0.768***	-0.532***	-0.749***
	[0.240]	[0.272]	[0.179]	[0.240]	[0.246]	[0.273]	[0.179]	[0.246]
p(OID)	0.246	0.242	0.246	0.246	0.133	0.132	0.133	0.133
p(UID)	0.022	0.022	0.022	0.022	0.003	0.003	0.003	0.003

*Notes: Regular beta coefficients; Standard errors in brackets. * p<0.10, ** p<0.05, *** p<.01. Model (2) and (6) estimated with Limited Information Likelihood (liml). Model (3) and (7) were estimated with a two-step efficient GMM estimator (gmm2s). Models (4) and (8) were estimated with a continuously updated GMM estimator (cue). p(OID) is the p-value of the Hansen-J statistic. p(UID) is the p-value of the (Kleibergen and Paap 2006) under identification test. All specifications include region-fixed effects. Models (5) to (8) have as external instruments the score of the economic freedom of the previous year and individualism.*

In summary, our robustness checks validated the key assumptions of the methodology, used external instruments, and changed covariates in our model. The results obtained in all those tests confirm the reliability and robustness of our findings regarding the strong relationship and potential causality between the differences in economic freedom and unauthorized immigration. In addition, these results support the validity of the methodology used in this research.

5. Conclusion

The findings of this research provide compelling evidence of a strong and statistically significant negative relationship between the gap in economic freedom and unauthorized immigration to the USA. Results confirm the reliability and robustness of the estimations, even after controlling for other economic covariates and potential confounding factors. This suggests that economic freedom, as reflected in the country of origin's economic policies compared to the United States, is a significant determinant of unauthorized immigration.

This research adds to the existing literature on immigration by highlighting the importance of economic and social factors in shaping migration patterns. Its findings support the arguments of scholars such as Clark et al. (2015), Powell, Clark, and Nowrasteh (2017), Padilla and Cachanosky (2018), and Bologna, Lujan, and Powell (2019) that immigrants may not erode institutions, but rather promote and protect institutions, such as economic freedom, in the countries of arrival. If freedom and good institutions promote immigration, even unauthorized, it is most likely that immigrants will not damage what they were looking for at the moment of migrating.

Finally, this research contributes to understanding how economic freedom and other variables could be influencing unauthorized immigration in the U.S. While the results provide evidence of the relationship and a clear signal of a potential causality between economic freedom and unauthorized immigration, further research utilizing comprehensive data and sophisticated econometric techniques may help address potential caveats and provide additional insights into the drivers of unauthorized immigration, deepening the understanding of this complex phenomenon. In the meantime, it becomes evident that individuals are strongly motivated by a desire for economic freedom and/or the benefits of economic freedom beyond the borders of their home countries.

Conflict of interest

All the authors claim that the manuscript is completely original. The authors also declare no conflict of interest.

Author contributions

Conceptualization: Rafael Acevedo; Investigation: Rafael Acevedo; Methodology and Econometrics: Rafael Acevedo; Formal analysis: Rafael Acevedo; Data collection: Juan Bogado; Writing – original draft: Rafael Acevedo and Juan Bogado; Writing – review & editing: Rafael Acevedo and Juan Bogado.

Appendix

A1. Robustness Tests – Including External Variables to the Model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Gapefw	-0.705**	-0.668*	-0.895***	-1.580***	-0.672**	-0.763**	-0.870***	-0.575**	-0.694**	-0.655**	-0.785***	0.098
	[0.290]	[0.344]	[0.247]	[0.198]	[0.297]	[0.351]	[0.251]	[0.238]	[0.319]	[0.286]	[0.234]	[0.131]
Lagum	-0.184***	-0.183***	-0.183***	-0.165***	-0.178***	-0.181***	-0.170***	-0.141***	-0.184***	-0.183***	-0.195***	-0.132**
	[0.062]	[0.062]	[0.037]	[0.032]	[0.060]	[0.060]	[0.042]	[0.032]	[0.062]	[0.062]	[0.038]	[0.059]
Gapy	0.260***	0.262***	0.329***	0.133*	0.213**	0.209**	0.219***	0.190***	0.261***	0.263***	0.295***	0.370***
	[0.086]	[0.087]	[0.075]	[0.070]	[0.097]	[0.096]	[0.081]	[0.069]	[0.086]	[0.087]	[0.075]	[0.058]
Gapoverty	0.052***	0.052***	0.048***	0.058***	0.056**	0.056***	0.059***	0.037***	0.052***	0.052***	0.054***	0.071***
	[0.010]	[0.010]	[0.009]	[0.010]	[0.013]	[0.012]	[0.012]	[0.011]	[0.010]	[0.010]	[0.009]	[0.009]
Gapgini	-0.129	-0.172	-0.172	-0.297*	-0.067	-0.113	-0.264	0.133	-0.123	-0.106	-0.341*	-0.360*
	[0.325]	[0.328]	[0.168]	[0.161]	[0.360]	[0.370]	[0.179]	[0.160]	[0.323]	[0.324]	[0.201]	[0.187]
Gapfinrisk	0.096	0.086	0.019	0.360***	0.204	0.226	0.220*	-0.070	0.093	0.083	0.106	0.020
	[0.161]	[0.164]	[0.121]	[0.119]	[0.159]	[0.165]	[0.127]	[0.128]	[0.163]	[0.165]	[0.127]	[0.097]
Lndist	0.106	0.105	0.076	0.104*	0.104	0.106	0.062	-0.012	0.106	0.105	0.102	0.032
	[0.115]	[0.116]	[0.077]	[0.060]	[0.111]	[0.111]	[0.076]	[0.068]	[0.115]	[0.115]	[0.076]	[0.082]
Gapschool	0.554**	0.551**	0.464**	0.782***	0.483*	0.493*	0.500**	0.305*	0.553**	0.550**	0.449**	0.541***
	[0.264]	[0.266]	[0.206]	[0.180]	[0.255]	[0.259]	[0.199]	[0.162]	[0.264]	[0.266]	[0.207]	[0.192]
Constant	-0.413**	-0.401**	-0.413***	-0.622***	-0.395**	-0.425**	-0.398***	-0.334***	-0.409**	-0.396**	-0.433***	-0.176*
	[0.167]	[0.178]	[0.125]	[0.104]	[0.172]	[0.184]	[0.125]	[0.105]	[0.167]	[0.173]	[0.126]	[0.097]
p(OID)	0.098	0.096	0.098	0.463	0.237	0.236	0.237	0.529	0.167	0.171	0.167	0.610
p(UID)	0.132	0.132	0.132	0.132	0.138	0.138	0.138	0.138	0.127	0.127	0.127	0.127

	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
gapefw	-0.614**	-0.353	-0.716**	-0.697**	-0.844***	-0.634**	-0.404	-0.703**	-0.846**	-0.924***	-0.285*	-0.590**	-0.529
	[0.294]	[0.360]	[0.281]	[0.331]	[0.233]	[0.334]	[0.334]	[0.343]	[0.343]	[0.162]	[0.162]	[0.287]	[0.329]
lagum	-0.182***	-0.176***	-0.184***	-0.184***	-0.184***	-0.182***	-0.177***	-0.179***	-0.183***	-0.169***	-0.161***	-0.175***	-0.173***
	[0.063]	[0.067]	[0.062]	[0.062]	[0.037]	[0.063]	[0.066]	[0.060]	[0.060]	[0.042]	[0.034]	[0.061]	[0.061]
gapy	0.266***	0.282***	0.259***	0.260***	0.316***	0.264***	0.279***	0.212**	0.206**	0.217**	0.120	0.216**	0.219**
	[0.086]	[0.093]	[0.086]	[0.087]	[0.073]	[0.086]	[0.092]	[0.097]	[0.096]	[0.079]	[0.085]	[0.099]	[0.100]
gapoverty	0.052***	0.051***	0.052***	0.052***	0.050***	0.052***	0.052***	0.056***	0.056***	0.059***	0.040***	0.056***	0.056***
	[0.010]	[0.011]	[0.010]	[0.010]	[0.009]	[0.010]	[0.011]	[0.013]	[0.012]	[0.011]	[0.012]	[0.013]	[0.013]
gapgini	-0.087	0.033	-0.134	-0.125	-0.172	-0.096	0.009	-0.083	-0.155	-0.263	0.054	-0.026	0.005
	[0.325]	[0.334]	[0.326]	[0.329]	[0.166]	[0.330]	[0.337]	[0.371]	[0.383]	[0.176]	[0.179]	[0.374]	[0.383]
gapfinrisk	0.072	0.003	0.098	0.094	0.043	0.077	0.017	0.211	0.246	0.232*	-0.007	0.184	0.169
	[0.155]	[0.157]	[0.166]	[0.169]	[0.118]	[0.159]	[0.161]	[0.165]	[0.173]	[0.125]	[0.137]	[0.159]	[0.160]
lndist	0.104	0.095	0.107	0.106	0.091	0.104	0.097	0.105	0.109	0.060	0.040	0.102	0.100
	[0.116]	[0.122]	[0.115]	[0.116]	[0.075]	[0.115]	[0.120]	[0.111]	[0.112]	[0.072]	[0.074]	[0.113]	[0.114]
gapschool	0.547**	0.530*	0.554**	0.553**	0.472**	0.549**	0.533*	0.486*	0.503*	0.514**	0.287*	0.473**	0.466*
	[0.266]	[0.276]	[0.264]	[0.265]	[0.205]	[0.265]	[0.274]	[0.255]	[0.261]	[0.196]	[0.158]	[0.251]	[0.252]
Constant	-0.382**	-0.295	-0.416**	-0.410**	-0.418***	-0.389**	-0.312*	-0.405**	-0.453**	-0.411***	-0.362***	-0.367**	-0.346*
	[0.164]	[0.180]	[0.168]	[0.177]	[0.124]	[0.164]	[0.177]	[0.176]	[0.187]	[0.124]	[0.106]	[0.176]	[0.186]
p(OID)	0.108	0.190	0.117	0.116	0.117	0.120	0.145	0.302	0.306	0.302	0.586	0.154	0.163
p(UID)	0.063	0.063	0.170	0.170	0.170	0.100	0.100	0.177	0.177	0.177	0.177	0.145	0.145

Notes: The dependent variable is unauthorized Immigration Growth Rate for all specifications. Regular coefficients. Robust Standard Errors in brackets. * p<0.10, ** p<0.05, *** p<.01. Models (1) to (4) include as external instrument individualism; Models (5) to (8) include as external instrument trust on others, both from Hofstede (2001); Models (9) to (12) include as external instrument polity2. Models (2), (5), and (10) estimated with Limited Information Likelihood (liml). Models (3), (6), and (11) estimated with two-step efficient GMM estimator (gmm2s). Models (4), (8), and (12) estimated with Continuously-updated GMM estimator (cue). p(OID) is the p-value of the Hansen-J statistic. p(UID) is the p-value of the Kleibergen and Paap (2006) underidentification test. All specifications include region fixed effects. The dependent variable is unauthorized Immigration Growth Rate for all specifications. Regular coefficients. Robust Standard Errors in brackets. * p<0.10, ** p<0.05, *** p<.01. Models (15) to (17) include as external instruments individualism and polity2; Models (18) and (19) include as external instrument individualism, polity2, and the economic freedom score of the previous year; Models (20) and (21) include as external instrument trust on others and executive constraints. Models (22) to (25) include as external instruments trust on others, executive constraints, and the economic freedom score of the previous year. Models (14), (16), (19), (22), and (25) estimated with Limited Information Likelihood (liml). Models (17) and (22), estimated with two-step efficient GMM estimator (gmm2s). Model (23) estimated with Continuously-updated GMM estimator (cue). p(OID) is the p-value of the Hansen-J statistic. p(UID) is the p-value of the Kleibergen and Paap (2006) underidentification test. All specifications include region fixed effects.

A2. Robustness Check – Including other Covariates to the Model.

	Generated-IV											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Gapefw	-0.275***	-0.717**	-1.064***	-0.268***	-0.666**	-1.064**	-0.203**	-0.363***	-0.666***	-0.275***	-0.717**	-1.064***
	[0.101]	[0.281]	[0.371]	[0.102]	[0.327]	[0.443]	[0.089]	[0.128]	[0.246]	[0.101]	[0.281]	[0.371]
Lypc	-0.284***	-0.088	-0.085	-0.284***	-0.091*	-0.085	-0.277***	-0.094*	-0.045	-0.284***	-0.088	-0.085
	[0.071]	[0.054]	[0.062]	[0.071]	[0.054]	[0.062]	[0.068]	[0.048]	[0.058]	[0.071]	[0.054]	[0.062]
se cond	0.075***	0.007	-0.013	0.075***	0.008	-0.013	0.075***	0.009	-0.028	0.075***	0.007	-0.013
	[0.025]	[0.018]	[0.023]	[0.025]	[0.018]	[0.023]	[0.022]	[0.016]	[0.021]	[0.025]	[0.018]	[0.023]
Gini		0.007	0.005		0.007	0.005		0.008**	0.005		0.007	0.005
		[0.004]	[0.004]		[0.004]	[0.005]		[0.004]	[0.004]		[0.004]	[0.004]
Finrisk		-0.009	-0.003		-0.009*	-0.003		-0.011**	-0.003		-0.009	-0.003
		[0.005]	[0.007]		[0.005]	[0.007]		[0.005]	[0.006]		[0.005]	[0.007]
corruption			0.069*			0.069			0.079**			0.069*
			[0.041]			[0.045]			[0.034]			[0.041]
polity2			0.007			0.007			0.003			0.007
			[0.007]			[0.008]			[0.006]			[0.007]
School												
Lndist												

sp_spk												
Constant	-0.077	-0.101	-0.163*	-0.076	-0.088	-0.163	-0.068	0.021	-0.092	-0.077	-0.101	-0.163*
	[0.048]	[0.094]	[0.095]	[0.048]	[0.103]	[0.107]	[0.041]	[0.060]	[0.074]	[0.048]	[0.094]	[0.095]
p(OID)	0.480	0.064	0.331	0.480	0.066	0.331	0.480	0.064	0.331	0.480	0.064	0.331
p(UID)	0.000	0.008	0.056	0.000	0.008	0.056	0.056	0.000	0.008	0.000	0.008	0.056

	Generated and External-IV											
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Gapefw	-0.408***	-0.732***	-1.049***	-0.412***	-0.682**	-1.036***	-0.288***	-0.381***	-0.643***	-0.408***	-0.732***	-1.049***
	[0.114]	[0.266]	[0.342]	[0.116]	[0.296]	[0.367]	[0.106]	[0.129]	[0.219]	[0.114]	[0.266]	[0.342]
Lypc	-0.502***	-0.111	-0.123	-0.502***	-0.112	-0.122	-0.430***	-0.119**	-0.100	-0.502***	-0.111	-0.123
	[0.081]	[0.072]	[0.081]	[0.081]	[0.072]	[0.081]	[0.076]	[0.058]	[0.073]	[0.081]	[0.072]	[0.081]
se_cond	0.065***	0.007	-0.013	0.065***	0.008	-0.013	0.047***	0.006	-0.026	0.065***	0.007	-0.013
	[0.020]	[0.017]	[0.022]	[0.020]	[0.017]	[0.022]	[0.018]	[0.015]	[0.020]	[0.020]	[0.017]	[0.022]
Gini		0.006	0.005		0.006	0.005		0.007**	0.005		0.006	0.005
		[0.005]	[0.005]		[0.005]	[0.005]		[0.003]	[0.004]		[0.005]	[0.005]
Finrisk		-0.008	-0.003		-0.008	-0.003		-0.010*	-0.003		-0.008	-0.003
		[0.006]	[0.006]		[0.006]	[0.007]		[0.005]	[0.006]		[0.006]	[0.006]
corruption			0.073*			0.071*			0.078**			0.073*
			[0.040]			[0.042]			[0.034]			[0.040]
polity2			0.005			0.005			-0.001			0.005
			[0.007]			[0.008]			[0.006]			[0.007]
School												
Lndist												
sp_spk												
Constant	-0.134***	-0.112	-0.177*	-0.135***	-0.099	-0.174*	-0.074	0.006	-0.110	-0.134***	-0.112	-0.177*
	[0.051]	[0.096]	[0.095]	[0.051]	[0.102]	[0.098]	[0.046]	[0.063]	[0.075]	[0.051]	[0.096]	[0.095]
p(OID)	0.008	0.234	0.539	0.008	0.238	0.541	0.008	0.234	0.539	0.008	0.234	0.539
p(UID)	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.000	0.000	0.002	0.000	0.000

*Notes: The dependent variable is unauthorized Immigration Growth Rate for all specifications. Regular beta coefficients; Standard errors in brackets. * p<0.10, ** p<0.05, *** p<.01. Models (4) to (6) estimated with Limited Information Likelihood (liml). Models (7) to (9) estimated with two-step efficient GMM estimator (gmm2s). Models (10) to (12) estimated with Continuously-updated GMM estimator (cue). p(OID) is the p-value of the Hansen-J statistic. p(UID) is the p-value of the Kleibergen and Paap (2006) underidentification test. All specifications include region fixed effects. The dependent variable is unauthorized Immigration Growth Rate for all specifications. Regular beta coefficients; Standard errors in brackets. * p<0.10, ** p<0.05, *** p<.01. Models (16) to (18) estimated with Limited Information Likelihood (liml). Models (19) to (21) estimated with two-step efficient GMM estimator (gmm2s). Models (22) to 24) estimated with Continuously-updated GMM estimator (cue). p(OID) is the p-value of the Hansen-J statistic. p(UID) is the p-value of the Kleibergen and Paap (2006) underidentification test. All specifications include region fixed effects and the score of the economic freedom of the previous year and individualism as external instrument variables.*

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