

How Mass Immigration Affects Countries with Weak Economic Institutions

A Natural Experiment in Jordan

Alex Nowrasteh
Andrew C. Forrester
Cole Blondin



WORLD BANK GROUP

Development Economics Vice Presidency

Strategy and Operations Team

April 2019

Abstract

To what extent does immigration affect the economic institutions in destination countries? While there is much evidence that economic institutions in developed nations are either unaffected or improved after immigration, there is little evidence of how immigration affects the economic institutions of developing countries that typically have weaker institutions. Using the Synthetic Control Method, this study estimates a significant and long-lasting positive effect on Jordanian economic institutions from the surge of

refugees from the First Gulf War. The surge of refugees to Jordan in 1990–1991 was massive and equal to 10 percent of Jordan's population in 1990. Importantly, these refugees were able to have a large and direct impact on Jordanian economic institutions because they could work, live, and vote immediately upon entry due to a quirk in Jordanian law. The refugee surge was the main mechanism by which Jordan's economic institutions improved in the decades that followed.

This paper is a product of the Strategy and Operations Team, Development Economics Vice Presidency. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://www.worldbank.org/research>. The authors may be contacted at anowrasteh@cato.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

How Mass Immigration Affects Countries with Weak Economic Institutions: A Natural Experiment in Jordan

Alex Nowrasteh, Andrew C. Forrester, and Cole Blondin

JEL classification: P1, J6, P16, F22

Keywords: Jordan, institutions, immigration, refugees, governance

1. Introduction

The economic benefits of immigration are large. Persistent global wages differences for observably identical workers indicate that economic efficiency losses from immigration barriers are large and one or two orders of magnitude larger than the losses resulting from barriers on trade and capital flows (Clemens 2011).

However, immigrants could alter destination countries' economic institutions that are vital causes of economic development and the source of the vast observed differences in worker productivity between nations (Acemoglu and Robinson 2012; Dell 2010; Rodrik, Subramanian, and Trebbi 2004). The economist George Borjas argued that the "the entry/exit of perhaps hundreds of millions of people" would likely have a negative impact on the institutions of developed countries perhaps even to the point of wiping out all of the expected efficiency gains from immigration (Borjas 2015). Thus, the efficiency gains from liberalized immigration to the developed world hold only if the immigrants do not import negative social

Alex Nowrasteh (corresponding author) is the senior immigration policy analyst at the Cato Institute, Washington, DC; his email is anowrasteh@cato.org. Andrew C. Forrester is a research associate at the Cato Institute, Washington, DC; his email is aforrester@cato.org. Cole Blondin is a student at Middlebury College, Middlebury, VT; his email is ctblondin@gmail.com.

capital to the extent that it overwhelms and degrades the destination-country's institutions (Clemens and Pritchett 2019).

Much research has subsequently examined how immigration affects economic institutions in destination countries. Clark et al. (2015) find a positive and statistically significant relationship between both initial stocks and flows of immigrants with improvement in the economic freedom score from 1990 to 2011. Clemens and Pritchett built a novel epidemiological model that assumes immigrants bring stagnation factors with them, finding no real-world impact (Clemens and Pritchett 2019). Powell, Clark, and Nowrasteh (2017) examine a natural experiment whereby Israel absorbed a massive exogenous shock of Jewish refugees from the Soviet Union that substantially improved its economic institutions.

The existing research is primarily focused on the impact of immigrants on the economic institutions of developed nations. This paper expands the literature by examining immigration's impact on a country with much weaker economic institutions: Jordan.

In 1990 and 1991, about 300,000 Palestinians were expelled from Kuwait by Saddam Hussein's invasion and could not return after the war (van Hear 1992; Colton 2002). These Kuwaiti-Palestinian refugees were forced to take refuge in Jordan where, due to a quirk of Jordanian law, they arrived as citizens who could vote, work, own property, and otherwise influence the political and economic system of Jordan even though most of them had never lived in Jordan before. The surge of 300,000 Kuwaiti-Palestinians was equal to about 10 percent of Jordan's pre-surge population. To make it more challenging, the Kuwaiti-Palestinians arrived during a severe recession in a country with weak economic institutions.

Natural experiments like these are valuable because they remove concerns about endogeneity. Economists have successfully used natural experiments to study how exogenous immigration shocks affect labor markets (Borjas 2015). This paper uses the Synthetic Control Method (SCM) to measure how the immigrants affected Jordan's economic institutions (Abadie and Gardeazabal 2003; Abadie, Diamond, and Hainmueller 2010, 2015; Peri and Yasenov 2017). SCM makes it possible to weight pre-surge economic institutional quality scores in various countries to create a counterfactual Synthetic Jordan. The Synthetic Jordan's economic institutional quality score is charted after 1990 as if no refugee surge had occurred and provides a comparison to Real Jordan. The refugee surge can thus plausibly explain the difference between Real Jordan and Synthetic Jordan after the intervention date.

The next section provides a brief history of institutions in Jordan and the 1990–1991 exogenous surge of Kuwait-Palestinian refugees. Section 3 focuses on the upsides and downsides of using Jordan as a natural experiment. Section 4 describes the data used. Section 5 explains the methodology. Section 6 includes the results and robustness tests. Section 7 discusses how the SCM results are consistent with Jordan's history of institutional change. Section 8 concludes.

2. Jordan's Institutional History and the Refugee Surge

Jordan is a small Middle Eastern country that became fully independent in 1946. It is bordered by Iraq, Israel, Saudi Arabia, Syria, and the West Bank. The original inhabitants of Jordan are called Transjordanians.

The Jordanian Government and Economic Institutions Prior to the Refugee Surge

The Jordanian government is an authoritarian monarchy advised by a strong cabinet with a parliament that swings between extremes of total acquiescence to the monarchy and partial openness (Richards 1993). In practice, the Jordanian monarch shares power with parliament, a cabinet, and the Legislative Council that includes religious and ethnic minorities in a wide governing coalition (Alon 2007; Piro 1998). Over Jordan's history, Jordanian kings incorporated growing minority and interest groups into the governing coalition (Lucas 2003; Richards 1993). For instance, Palestinians who arrived as refugees in 1949 earned citizenship, but the government denied them access to many state benefits, employment in state-owned enterprises (SOE), and employment by the state itself (Brynen 1992).

Economically, Jordan adopted an import substitution industrialization (ISI) development policy after 1950 whereby Transjordanians were offered employment in large SOEs, employment in Jordan state agencies and the military, and government subsidies for consumer goods (Piro 1998). Palestinians paid high taxes, were heavily regulated, and could not access credit due to government financial favoritism for large SOEs. Few Palestinians were part of the governing coalition in the 1980s and never in proportion to their numbers (Sütalan 2006). The distinction between the governing Transjordanians who received government benefits and the Palestinians who worked in the private economy produced a politically tense situation by 1990.

Foreign loans, foreign aid, monopoly rents, high taxes on the small Palestinian-dominated private sector, and worker remittances propped up the underperforming Jordanian economy until the late 1980s (Knowles 2005; De Bel-Air 2007; Gelos 1995; Brynen 1992; Piro 1998). In 1989, chronic inflation produced a 60 percent devaluation of the Jordanian currency as the government was perilously close to defaulting on several international loans (Kanaan and Kardoosh 2003; El-Sakka 2007; Amerah 1993). Jordan called in the International Monetary Fund (IMF) and the World Bank for assistance. The government held elections in 1989 during an economic crisis, the Palestinian Intifada in neighboring Israel, and domestic unrest in opposition to loan conditions from the International Monetary Fund and World Bank (Lucas 2003).

The first IMF agreement sought to reduce Jordan's budget deficit, reform taxes, reduce inflation, institute more prudent debt management, and reduce protectionism to stimulate export-based development in exchange for debt rescheduling (Richards 1993; U.S. Department of State 1995). Shortly thereafter, the First Gulf War deepened the recession, so the IMF delayed the signature of the first agreement due to the political strain it placed on Jordan's government (Swaidan and Nica 2002; Piro 1998). In 1991, a second IMF agreement placed a temporary moratorium on debt payments in exchange for additional economic reforms (Richards 1993). The Jordanian government published a National Charter in July 1991 to gradually introduce democratic reforms, include Palestinians in the governing coalition, support free market economic reforms, and protect private property (Knowles 2005; Maktabo 1998; Richards 1993; Brynen 1992; Sütalan 2006; Robinson 1998). The World Bank also suspended repayments until 1992 (World Bank 1995).

From 1975 to 1990, Jordan fell from the 49th freest economy in the world to the 54th according to the economic freedom of the world (EFW) score (Gwartney, Lawson, and Hall 2017). During the same period Jordan's chain-linked EFW score rose from a low of 5.37 in 1975 to 5.65 in 1990. The shrinking economy, regional political instability, war, and a precarious situation with foreign lenders made the timing difficult to absorb a massive surge of refugees or reform economic institutions (Gelos 1995; Troquer and alOudat 1999; Mruwat, Adwan, and Cunningham 2001; Manuel 1991).

Refugees in Jordan

Jordan has absorbed many waves of refugees, especially Palestinians who arrived after the Arab-Israeli War ended in 1949 and after the Six Day War in 1967. The United Nations Relief and Works Agency for Palestinians counts the Palestinian refugees and their descendants born afterward as refugees so it is difficult to estimate the total number of Palestinians who entered Jordan in surges after 1949. According to one estimate, there were a total of 100,000 Palestinian refugees on the East Bank of the Jordan River in 1949, roughly equal to a quarter of Jordan's population at the time (Piro 1998). Jordan also temporarily extended its sovereignty over the West Bank, which brought Jordan's total Palestinian population to over 500,000 (Migration Policy Center 2013).

Jordan integrated the Palestinians by granting citizenship to those in its territory in 1954 and to all Palestinians living in the West Bank and their descendants—an action with important ramifications when the Kuwaiti-Palestinians began to arrive in 1990 (Maktabo 1998). In 1988, Jordan relinquished territorial claims on the West Bank and adjusted citizenship laws to exclude Palestinians from the West Bank who had

two-year Jordanian passports from Jordanian citizenship, thus limiting citizenship to Palestinians living in Jordan and Palestinians with five-year Jordanian passports (British Refugee Council 1994). Palestinians who lived in Kuwait held the five-year Jordanian passport.

Saddam Hussein's unexpected invasion of Kuwait on August 2, 1990, created two waves of refugees to Jordan. The first lasted from August 3 to November of that year, during which nearly 1.2 million refugees from Iraq, Kuwait, and other states travelled to Jordan (van Hear 1992; Mruwat, Adwan, and Cunningham 2001; UNDR0 1990). About 800,000 refugees were repatriated within two weeks of arrival, but about 230,000 were Kuwaiti-Palestinians with five-year Jordanian passports (UNDR0 1990; Mruwat, Adwan, and Cunningham 2001). A second wave of about 65,000 Kuwaiti-Palestinians arrived in Jordan from March to August 1991 (van Hear 1992; Troquer and al Oudat 1999). The first wave of Kuwaiti-Palestinians fled Saddam Hussein's invasion, and the second wave were expelled by the Kuwaiti government in what the king of Kuwait called a "cleansing" (van Hear 1992; Haddad 2010; Kuttub 2005; Ibrahim 1991; Rosen 2012).

Many of the Kuwaiti-Palestinian refugees had been working and living in Kuwait for decades, and the majority had never lived in Jordan. They moved to Kuwait from the West Bank in two waves from the 1940s to the 1970s, and over 90 percent had been out of the West Bank for more than 10 years, 43 percent for more than 20 years, and nearly a quarter had emigrated prior to 1960 (Troquer and al Oudat 1999). Jordan's grant of citizenship did not require residence, so the refugees could immediately work, live, vote, lobby the government, and affect Jordan's economic institutions even though they "were unfamiliar with Jordanian culture and were economically maladapted to a country in which most had never lived" (van Hear 1995; Troquer and al Oudat 1999).

Kuwaiti-Palestinians, faced with circumstances as bad as anything Palestinians had experienced in the past, fled to a new country with unfamiliar culture and institutions. Anti-Palestinian sentiment in Jordan was strong. "They have their own country; let them go and live there" was a common Transjordanian sentiment (Mruwat, Adwan, and Cunningham 2001). Many Palestinians considered their own displacement from Kuwait as equivalent to the personal and socio-economic impacts of the Arab-Israeli War and the Six Day War (van Hear 1992). Yasser Arafat, head of the Palestinian Liberation Organization, said, "What Kuwait did to the Palestinian people is worse than what has been done by Israel to Palestinians in the occupied territories" (Rosen 2012).

3. Jordan as a Natural Experiment

The movement of Kuwaiti-Palestinians into Jordan was an exogenous shock caused by outside actions and not by changes in Jordan's economy, policy, or institutions, and thus an excellent example of a natural experiment.

First, Saddam Hussein's invasion of Kuwait was unexpected by Jordan, Kuwait, the Kuwaiti-Palestinians, and the rest of the world. The surge of refugees was so sudden that they began to leave Kuwait for Jordan the day after the invasion of August 2, 1990 (UNDR0 1990). In September 1990, the Jordanian government did not even realize that many of the refugees were Jordanian citizens and didn't know how many would arrive (UNDR0 1990).

Second, there was no change in Jordanian policy that attracted the Kuwaiti-Palestinians. The 1988 reform to the citizenship laws did not affect the Kuwaiti-Palestinians who already held five-year Jordanian passports. Jordan was poorer than Kuwait, suffering through a serious economic contraction that worsened during the Gulf War, and Kuwaiti-Palestinian salaries in Jordan were approximately 30 percent of the average monthly pay in Kuwait (Colton 2002; Gelos 1995).

Third, the number of Kuwaiti-Palestinian refugees was about 10 percent of Jordan's pre-Gulf War population. By contrast, the surge of *Marielitos* to Miami in 1980, a famous natural experiment in the immigration literature, was just 7 percent of Miami's pre-Mariel population. The Kuwaiti-Palestinians

were confined to Jordan unlike the *Marielitos*, many of whom eventually left Miami (Peri and Yasenov 2017).

Fourth, Kuwaiti economic institutions were of lower quality than Jordan's in 1990, so the Kuwaiti-Palestinians were not going to bring experience of superior economic institutions with them (Gwartney, Lawson, and Hall 2017). Kuwait had the 70th-freest economy in the world in 1990 compared to Jordan's rank of 54.

Fifth, the substantial population of Palestinians already living in Jordan strengthens the case that this is an exogenous shock that would quickly impact Jordanian institutions. The Kuwaiti-Palestinian refugees faced lower transaction costs to enter established political and economic networks occupied by their co-ethnics. Instead of spending time learning about local politics, the Kuwaiti-Palestinians had an immediate impact on Jordan's economic institutions facilitated by networks of their longer-settled co-ethnics (van Hear 1998). This is similar to how the large population of Cubans living in Florida in 1980 helped facilitate the rapid labor market integration of *Marielitos*. Refugee surges tend to upset ethnic balances and produce governing tensions and sometimes civil war, especially when the refugees possess ethnic ties with large groups in the host country (Buhaug and Gleditsch 2008; Salehyan and Gleditsch 2006). The surge's upsetting of ethnic balances and the governing coalition explain Jordan's subsequent economic reforms.

The last and best feature of this sudden natural experiment is that the Kuwaiti-Palestinians had full legal, political, and economic rights immediately upon entering Jordan, a situation unique in the Arab world (Zureik 1994).

Three features of this exogenous shock make it less useful as a natural experiment. The first is that the Kuwaiti-Palestinians were overwhelmingly Sunni Muslims, just like Jordan's population. The second is that Jordan did not have a democracy like other nations that accepted large numbers of immigrants. Jordanians voted in the 1989 elections and expected future elections, but their impact on policy through voting was limited. Third, Jordan did not have a welfare state as large as those in the developed world (Brynen 1992).

4. Data

This study uses Gwartney, Lawson, and Hall (2017) Economic Freedom of the World Annual Report (EFW) to measure changes in Jordan's economic institutions. The EFW index is a reasonable proxy for economic institutions, incorporating 42 variables collected from numerous sources (including the World Bank and IMF) across five categories including the size of government, legal structure and property rights, access to sound money, freedom to trade internationally, and regulation of credit, labor, and business (Powell, Clark, and Nowrasteh 2017; Feldmann 2017). The EFW index ranges from 0 to 10, in which a higher score denotes a greater level of economic freedom. Polity IV is used as a measure of democratic political institutions (Center for Systemic Peace 2018). The Polity IV index measures how democratic a country's political institutions are on a scale of -10 to +10, in which a higher score denotes a more democratic government.

Political liberalization in Jordan in 1989 was not a permanent transition toward democracy and it occurred before the refugees arrived (Sütalan 2006). In contrast, the economic institutions did change permanently and rapidly after the surge of Kuwaiti-Palestinians. The study relies on the EFW index as the outcome of interest as it represents economic reforms (Sütalan 2006). EFW scores were originally calculated in five-year intervals with most countries' series of scores beginning in 1975, and on an annual basis following 2000. The uneven spacing of EFW time series and relatively short time series of observed EFW scores prior the Jordanian refugee surge in 1990 are two potential problems. The study therefore conducts multiple specification checks that probe the sensitivity of the results to avoid overstating the precision of our findings.

The study supplements data on the EFW with additional measures of institutional characteristics from Freedom House, the Polity IV Project, the Database of Political Institutions, JuriGlobe, legal systems, and parliamentary or presidential political systems as predictor variables in the SCM (Center for Systemic Peace 2018; Scartascini, Cruz, and Keefer 2018; Freedom House 2018; Wislon and Lafleur 2008). Data on Structural Adjustment Loan (SAL) recipients come from the World Bank and International Monetary Fund (IMF).

Jordan and Kuwait have very different EFW scores prior to the surge of Kuwaiti-Palestinian refugees and nearly-identical Polity IV scores. After Jordan reinstated elections in 1989, Jordan's Polity IV score improved from a near completely autocratic score of -9 to -4 . This political liberalization occurred in the five-year period when Jordan's EFW score fell from 5.5 to 5.4. After the surge of Kuwaiti-Palestinians, Jordan's EFW score increased from 5.43 in 1990 to 6.14 in 1995, 7 in 2000, 7.3 in 2005, 7.45 in 2010, and 7.47 in 2015 (Gwartney, Lawson, and Hall 2017). Jordan went from having an EFW score similar to other Organisation of Islamic Cooperation (OIC) countries to having a score similar to OECD countries.

5. Methodology

The goal of this study is to estimate the difference between the observed EFW score in Jordan after 1990 compared to what the score would have been without the surge of Kuwaiti-Palestinian refugees. The study employs the Synthetic Control Method (SCM) of Abadie and Gardeazabal (2003) and Abadie, Diamond, and Hainmueller (2010) (henceforth ADH). This method estimates a counterfactual EFW score for Jordan in the absence of the 1990/91 refugee shock as a weighted average of similar countries to construct a synthetic control. These weights are determined by matching countries that share similar observable characteristics with Jordan. Given a set of weights, the study can estimate the impact of the refugee surge as the difference, or gap, between Real Jordan's EFW and Synthetic Jordan's EFW.

To outline this procedure, let Y_j be the sample mean of an outcome of interest for country j . The estimated treatment effect τ for Jordan ($j = 1$) is constructed as a weighted average of $N+1$ donor countries of them form:

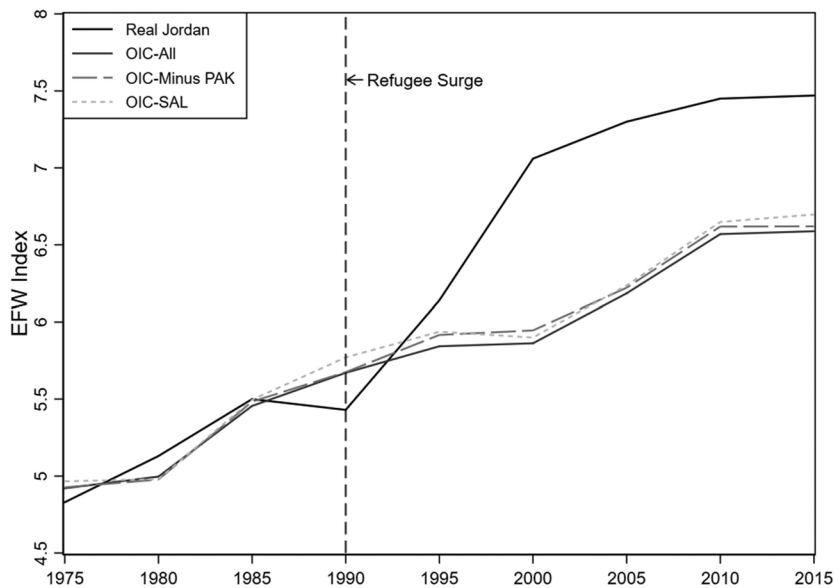
$$\tau = Y_1 - \sum_{j=2}^{N+1} w_j Y_j. \quad (1)$$

This procedure considers the weighting vector $W = [w_2, \dots, w_{N+1}]^1$ which assigns a weight w_j to control countries subject to non-negativity ($w_j \geq 0; j = 2, \dots, N+1$) and additive ($w_2 + \dots + w_{N+1} = 1$) constraints (ADH).¹ A Synthetic Jordan must be constructed from a donor pool of comparable countries to avoid interpolation bias from comparing countries with vastly different characteristics (ADH). Since the outcome of interest considers Jordan's economic liberalization following the refugee surge, a donor pool of countries is selected with similar economic, political, and legal institutions as Jordan. The study therefore begins with countries that belong to the present day OIC. The study further narrows down this list to countries that report only complete pretreatment data for the EFW index, leaving 15 countries including Jordan, for the Full OIC donor pool (see table S1.1 in supplementary appendix S1). Real Jordan is then compared to Synthetic Jordan's constructed using slightly different donor pools of countries in the OIC.

6. Empirical Results

Figure 1 shows that Real Jordan's EFW score changed trend after the 1990 Kuwaiti-Palestinian refugee surge relative to the Synthetic Jordan constructed based on the Full OIC donor pool, the OIC countries minus Pakistan, and the OIC countries that received an SAL prior to 1990. The study created a Synthetic

1 See ADH for a more technical description of this procedure.

Figure 1. Economic Freedom Score, Real v. Synthetic Jordan

Source: Authors' analysis of the [Gwartney, Lawson, and Hall \(2017\)](#) Economic Freedom of the World (EFW) index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Dashed line indicates the timing of the 1990 refugee shock. Solid black line=Real Jordan's EFW score; solid grey line=Synthetic Jordan using full Organisation of Islamic Cooperation (OIC) countries; long dashed line=Synthetic Jordan using OIC donor pool minus Pakistan (PAK); short dashed line=Synthetic Jordan using OIC donor pool with only Structural Adjustment Loan (SAL) recipient countries.

Table 1. Effects of the Jordanian Refugee Surge, EFW Index

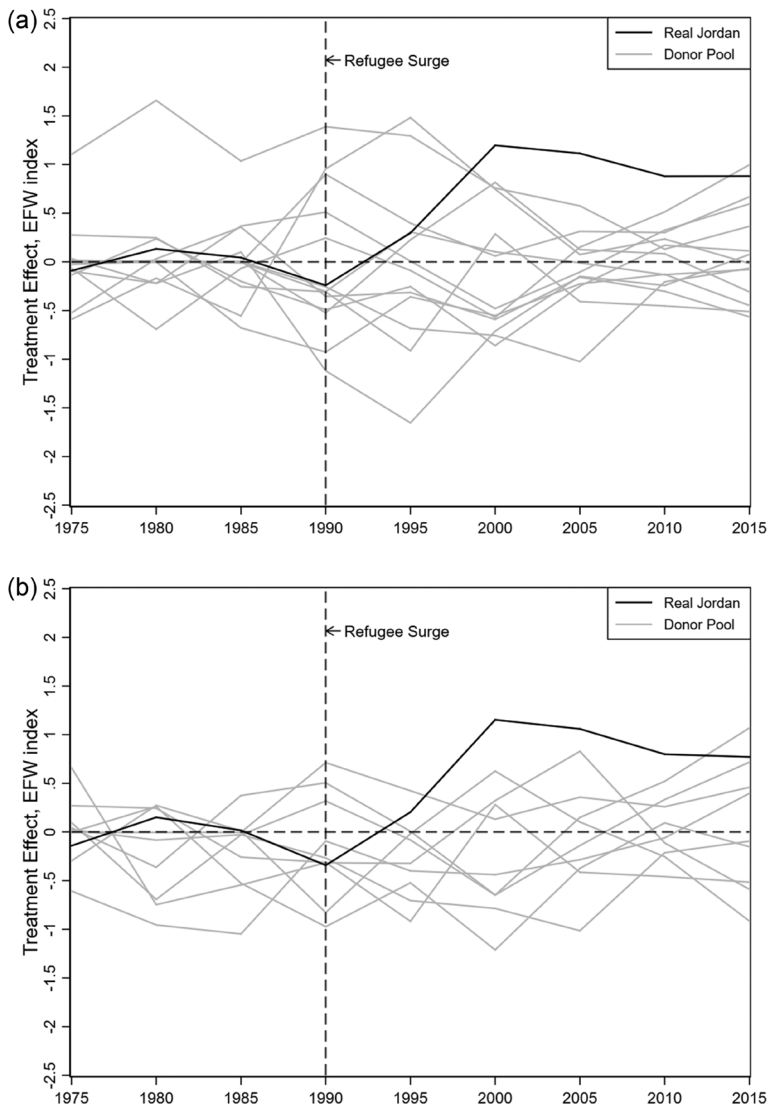
	OIC All		OIC Minus PAK		OIC SAL	
	(1) Effect	(2) <i>p</i> -value	(3) Effect	(4) <i>p</i> -value	(5) Effect	(6) <i>p</i> -value
1995	0.204	0.692	0.223	0.769	0.202	0.625
2000	1.153	0.000	1.114	0.000	1.160	0.000
2005	1.059	0.000	1.078	0.000	1.063	0.000
2010	0.799	0.000	0.831	0.000	0.801	0.000
2015	0.771	0.077	0.850	0.154	0.773	0.125

Source: Authors' analysis of the [Gwartney, Lawson, and Hall \(2017\)](#) Economic Freedom of the World (EFW) index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Table presents estimated treatment effects on Jordan's EFW score and corresponding permutation test *p*-values that indicate the fraction of estimated treatment effects that are larger than the estimated effect on Jordan's EFW score following the 1990 refugee surge. OIC denotes the full Organisation of Islamic Cooperation donor pool; OIC minus PAK denotes the OIC donor without Pakistan; and OIC SAL denotes the donor pool limited to OIC countries that received Structural Adjustment Loans (SALs) from either the World Bank or International Monetary Fund (IMF).

Jordan using the OIC (minus Pakistan) donor pool of countries because Pakistani economic institutions are very intertwined with the Pakistani military, which differs greatly from those of other OIC countries ([Staniland, Naseemullah, and Butt 2018](#)). The study constructed a third Synthetic Jordan from the OIC countries that received SALs prior to 1990 to address the potential that the SALs prompted the change in the EFW score. Due to the relatively short time series of observed EFW scores prior to 1990, it may be that Jordan lies on the convex hull of multiple combinations of treated units. To address this possibility, we re-estimate Synthetic Jordan using alternative donor pools to demonstrate the robustness of our results.

Table 1 presents the numerical estimates for figure 1. Columns (1), (3), and (5) in table 1 show the positive differences between the EFW scores between the Real and Synthetic Jordans for each of the

Figure 2. Economic Freedom Score, Placebo Tests

Source: Authors' analysis of the [Gwartney, Lawson, and Hall \(2017\)](#) Economic Freedom of the World (EFW) index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Vertical dashed line indicates the timing of the 1990 refugee shock, and horizontal dashed line indicates zero treatment effect. Y axis denotes the estimated treatment effect/gap between each country and its corresponding synthetic control (including Jordan). Solid black line=Real Jordan's EFW score; solid grey lines=in-place placebo synthetic control units.

three donor pools. To test the significance of the gaps between the Real and Synthetic Jordans in [table 1](#), the study presents p -values from permutation tests next to point estimates in [table 1](#). This p -value test corresponds to the in-place placebo test suggested in ADH that creates a synthetic control unit for each other OIC country and estimates the gap τ for each control unit. The p -values measure the fraction of gaps in the in-place placebo test that is larger than the gap between Real Jordan and Synthetic Jordan. Pooling these placebo effects together therefore estimates the distribution of observed treatment effects in the sample. The p -value denotes the probability that the estimated treatment effect for Jordan is larger than all other placebo effects for the other countries. Results for these placebo tests are shown graphically in [figure 2](#) panels (a) and (b).

Table 2. Goodness of Fit Estimates for Synthetic Jordan, EFW Index

	OIC All	OIC Minus PAK	OIC SAL
<i>Pre-treatment fit</i>			
(1) RMSPE	0.097	0.104	0.119
<i>Permutation tests</i>			
(2) Pr(post RMSPE \geq Jordan)	0.154	0.077	0.000
(3) Pr(pre/post RMSPE \geq Jordan)	0.308	0.231	0.000
(4) Pr(pre RMSPE \geq Jordan)	0.692	0.769	0.875

Source: Authors' analysis of the [Gwartney, Lawson, and Hall \(2017\)](#) Economic Freedom of the World (EFW) index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Table presents goodness of fit metrics for Synthetic Jordan with the EFW index as the outcome of interest. Goodness of fit for Synthetic Jordan is denoted by its Root Mean Squared Prediction Error (RMSPE). Placebo tests reassign the 1990 refugee surge to each control country and report the fraction of countries with a post-treatment RMSPE greater than Jordan's RMSPE, normalized ratio of pre- to post-treatment RMSPE greater than Jordan's RMSPE, and pre-treatment RMSPE greater than Jordan's. OIC denotes the full Organisation of Islamic Cooperation donor pool; OIC minus PAK denotes the OIC donor without Pakistan; and OIC SAL denotes the donor pool limited to OIC countries that received Structural Adjustment Loans (SALs) from either the World Bank or International Monetary Fund (IMF).

Table 3. Predictor Balance for Synthetic Jordan

	Real Jordan	Sample means	OIC All	OIC minus PAK	OIC SAL
EFW (1975)	4.830	4.663	4.921	4.926	4.893
EFW (1985)	5.500	4.546	5.456	5.483	5.482
Political rights	5.667	5.143	5.556	5.462	5.489
Civil liberties	5.667	5.143	5.561	5.477	5.525
Exec. constraints	1.333	0.238	1.907	1.854	1.917
Presidential	1.000	0.595	0.328	0.232	0.297
Parliamentary	0.000	0.190	0.034	0.001	0.031
Civil law	1.000	0.643	0.899	0.998	0.908
Common law	0.000	0.357	0.101	0.002	0.092
Muslim law	1.000	0.714	0.739	0.769	0.774

Source: Authors' analysis of the [Gwartney, Lawson, and Hall \(2017\)](#) Economic Freedom of the World (EFW) index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Table presents pre-treatment predictor variables for Jordan, their corresponding pre-treatment sample means, and the weighted averages used to construct Synthetic Jordan. OIC denotes the full Organisation of Islamic Cooperation donor pool; OIC minus PAK denotes the OIC donor without Pakistan; and OIC SAL denotes the donor pool limited to OIC countries that received Structural Adjustment Loans (SALs) from either the World Bank or International Monetary Fund (IMF). 'Political rights' and 'civil liberties' refer to the respective Freedom House Freedom in the World report indexes. 'Executive constraints' reference to the Polity IV measure of executive constraints $xconst$, 'Presidential' and 'parliamentary' are dummies equal to one for countries with presidential or parliamentary political systems as recorded in the DPI, respectively. Civil, Common, and Muslim law are dummies equal to one for a country's legal system belonging to each category as reported by the JuriGlobe database.

[Table 2](#) presents goodness of fit indicators for the Synthetic Jordans. The first row indicates the specification's Root Mean Square Predicted Error (RMSPE), which measures the distance between the synthetic control unit and the predictors used to construct it during the pretreatment period. The predictor variables and their weighted values are listed in [table 3](#), and the country weights for each specification are listed in [table 4](#).

[Table 1](#) column (1) is the preferred model, as it constructs Synthetic Jordan from the Full OIC list of countries with an EFW score and has the best pretreatment fit with an RMSPE of 0.097. [Table 2](#) and [Figure 1](#) show that Real Jordan had a gap of 0.204 in the Full OIC's first post-treatment year of 1995 but a p -value of 0.692, meaning that Real Jordan's EFW score was 0.204 points above Synthetic Jordan and the difference is insignificant. Although the gap is insignificant, the trend changed beginning in 1990 and Real Jordan's EFW score is significantly higher in 2000, 2005, and 2010 with a p -value of 0.0 in each year. In those statistically significant years, the gap between Synthetic Jordan's projected EFW score and its actual score was 1.15 points in 2000, 1.06 points in 2005, and nearly 0.80 points in 2010. These

Table 4. Synthetic Jordan Country Weights

	Weight		Weight
<i>Panel A. OIC All</i>			
Mali	0.261	Turkey	0.000
Niger	0.000	Egypt	0.000
Sierra Leone	0.000	Syria	0.000
Nigeria	0.000	Pakistan	0.101
Morocco	0.000	Bangladesh	0.000
Tunisia	0.000	Malaysia	0.000
Iran	0.000	Indonesia	0.638
<i>Panel B. OIC Minus PAK</i>			
Mali	0.231	Turkey	0.000
Niger	0.000	Egypt	0.086
Sierra Leone	0.000	Syria	0.000
Nigeria	0.000	Pakistan	-
Morocco	0.000	Bangladesh	0.002
Tunisia	0.000	Malaysia	0.000
Iran	0.000	Indonesia	0.681
<i>Panel C. OIC SAL</i>			
Mali	0.226	Turkey	0.000
Niger	0.000	Egypt	-
Sierra Leone	0.000	Syria	-
Nigeria	-	Pakistan	0.092
Morocco	0.000	Bangladesh	0.000
Tunisia	0.010	Malaysia	-
Iran	-	Indonesia	0.672

Source: Authors' analysis of the [Gwartney, Lawson, and Hall \(2017\)](#) Economic Freedom of the World (EFW) index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Table presents estimated country weights to construct Synthetic Jordan based on the EFW index as the outcome. OIC denotes the full Organisation of Islamic Cooperation donor pool; OIC minus PAK denotes the OIC donor without Pakistan; and OIC SAL denotes the donor pool limited to OIC countries that received Structural Adjustment Loans (SALs) from either the World Bank or International Monetary Fund (IMF).

sizable gaps in Real and Synthetic Jordan's EFW score in 2000 and 2005 correspond to a difference in EFW score of more than one standard deviation (see table S1.2 in the supplementary appendix S1). This result suggests that the improvements in economic institutions resulting from the refugee shock led to long-term improvements in Jordanian economic institutions.

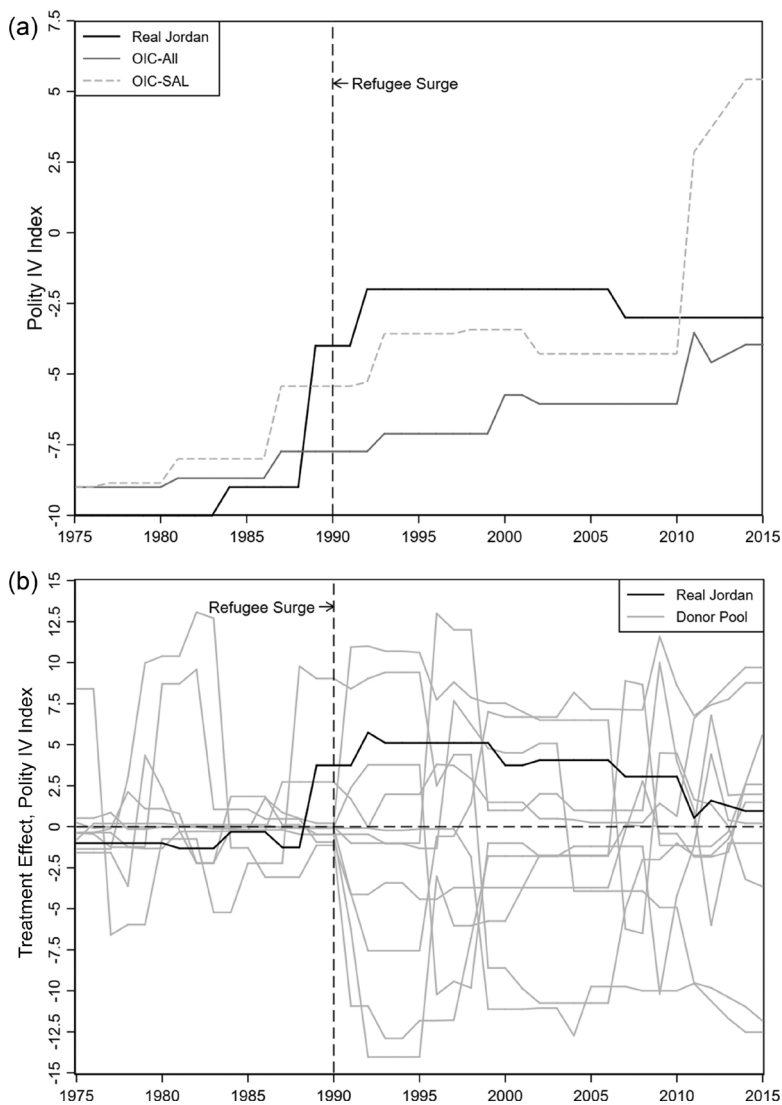
Table 1 columns (3) and (5) are the gaps between the Real Jordan and Synthetic Jordans constructed from the OIC (minus Pakistan) and OIC-SAL pools of countries. These fits are poorer as the pretreatment RMSPE for OIC (minus Pakistan) and OIC-SAL were 0.104 and 0.119, respectively. However, the increase in Real Jordan's EFW relative to the Synthetic Jordans in these two additional donor pools are similarly large to the preferred Full OIC specification and statistically significant in the same years of 2000, 2005, and 2010.

The RMSPEs in table 2 rows (2), (3), and (4) show the degree to which Synthetic Jordan fits Real Jordan relative to the placebo synthetic control in pretreatment and post-treatment periods. Relatively high p -values show that a large proportion of the placebo synthetic control units have a worse fit than Synthetic Jordan, which provides evidence in favor of the Full OIC "donor pool."

Economic v. Political Liberalization

Lastly, we consider whether the refugee surge impacted political institutions. The study constructs a Synthetic Jordan based on the donor pool of 14 OIC countries with the Polity IV index as the outcome variable. The results in figure 3 panel (a) and supplementary appendix table S1.3 show a discrete jump in Jordan's Polity IV score from 1988 to 1989 but that the OIC countries are a poor pretreatment

Figure 3. Polity IV Score, Real v. Synthetic Jordan: (a) Synthetic Control Specifications (b) In-Place Placebo Tests



Source: Authors' analysis of the Polity IV dataset. Additional data come from the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: (a) Dashed line indicates the timing of the 1990 refugee shock. Solid black line=Real Jordan's EFW score; solid grey line=Synthetic Jordan using full Organisation of Islamic Cooperation (OIC) countries; dashed grey line=Synthetic Jordan constructed using only OIC countries receiving Structural Adjustment Loans (SAL). (b) Vertical dashed line indicates the timing of the 1990 refugee shock, and horizontal dashed line indicates zero treatment effect. Solid black line=Real Jordan's EFW score; solid grey lines=in-place placebo synthetic control units.

fit with RMSPEs of 1.382 to 1.822.^{2,3} Similarly, placebo tests in supplementary appendix table S1.3 show that the gap between Real Jordan's and Synthetic Jordan's Polity IV score is small following the refugee surge in 1990. Figure 3 panel b shows no discernible pattern in Polity IV score following the refugee shock,

- 2 Tables S1.4, S1.5, and S1.6 in the supplementary appendix S1 contain the Polity IV specification goodness of fit measures, predictor balance, and country weights, respectively.
- 3 The study omits the OIC minus Pakistan specification since Pakistan receives no weight in the baseline specification and is therefore equivalent to the baseline.

relative to the universe of potential synthetic controls. Results in table S1.3 show that there is no evidence of a statistically significant divergence in Polity IV scores caused by the 1990 refugee surge.

7. Discussion

Successive Jordanian governments wanted to liberalize and privatize much of the state-dominated economy prior to the surge of Kuwaiti-Palestinian refugees in 1990, but the poor economy and a strong Transjordanian-dominated political coalition halted their efforts. The surge of Kuwaiti-Palestinians upset the ethnic balance enough to prompt a change in the ethnic composition of the governing coalition by including Palestinians who favored liberalization and privatization. The widening of membership in the governing coalition to include a group that supported liberalization and privatization was responsible for the committed and sustained economic reforms that followed. Furthermore, the Kuwaiti-Palestinians caused a surge in Jordanian economic activity that produced enough growth to make the promarket reforms politically sustainable.

Economic Reform Prior to the Kuwaiti-Palestinians

Several proposed economic liberalizations in Jordan failed in 1985, 1986, and 1989 (Knowles 2005; Brynen 1992). In 1989, Jordan's worsening economy and growing debt prompted the country to seek an emergency aid and debt-relief loan package from the IMF. According to Prime Minister Mudar Badran in February 1990, that "economic reform program is principally based on improving the efficiency of the public sector and reducing it as far as possible; and on increasing, broadening, and diversifying the private sector's investment opportunities" (Knowles 2005). The loans were supposed to incentivize Jordan to liberalize its economy, but the IMF cancelled the conditions after the refugees arrived (Troquer and al-Oudat 1999).

The IMF loans diminished political support for the Jordanian government prior to the Kuwaiti-Palestinian refugee surge. The IMF reforms were so unpopular that they sparked riots in the town of Ma'an, a political base of Bedouin support for the monarchy (Kanaan and Kardoosh 2003; Ryan 2003; Amerah 1993). The anti-IMF riots spread to other Transjordanian-populated cities in the south that were supposedly the bedrock of the monarchy's popular support (Sütalan 2006).

Transjordanians opposed liberalization because they were the beneficiaries of the state-dominated economic system (World Bank 1995). Reducing government expenditures, privatizing industries, and liberalizing the economy would have diminished the incomes of Transjordanians while benefiting the private sector Palestinians (Sütalan 2006). The economic and debt crises, diminishment of Transjordanian political support, and a large Palestinian population created a fragile political situation on the eve of the surge of Kuwaiti-Palestinian refugees in 1990.

Refugees Jump-Started and Sustained the Economic Reforms

The regime's desire to survive is why the surge of Kuwaiti-Palestinians led to economic liberalization instead of political repression. The Jordanian monarchy has survived by mostly incorporating political, ethnic, religious, regional, tribal, and economic groups into its governing coalition rather than attempting to destroy them (Mufti 1999).

The economy was in dire straits when the Kuwaiti-Palestinians arrived in 1990. The following year, the refugees expanded the size of the labor force by 12 percent and accounted for 27 percent of the unemployed (Amerah 1993; van Hear 1998). The Jordanian government erroneously estimated that GDP declined by 30 percent in the last five months of 1990 (Piro 1998). As the Jordanian government saw it, their most important task was to get the refugees working without expanding the public sector (al Khouri 2007; Troquer and al Oudat 1999).

In January 1991, Prime Minister Mudar Badran favored liberalization and privatization with the goal of guaranteeing the survival of the state (Mufti 1999; Knowles 2005). Prime Minister Taher al-Masri

succeeded Badran in mid-1991 and continued his policies by saying that it is “no longer reasonable that the public sector should assume the responsibility of running commercial and industrial companies and institutions, or interfere ... in pricing policies, and confiscate the freedom of the private sector” (Knowles 2005). The immediate beneficiaries were the long-settled Palestinians who already dominated the private sector and the newly arrived Kuwaiti-Palestinians eager to enter the workforce and start firms (Richards 1993; Brynen 1992; Piro 1998; Sütalan 2006).

The refugees upset the ethnic balance between Transjordanians and Palestinians and created an opportunity for the monarchy to gain Palestinian support to help compensate for the diminishment of Transjordanian support (Richards 1993). The Transjordanians attempted to forestall such an expansion of the governing coalition by adopting anti-Palestinian policies by severing political ties with the West Bank in 1988, limiting Palestinian immigration, decreasing Palestinian representation in Parliament, and considering a peace treaty with Israel (Mufti 1999; Brynen 1992; Sütalan 2006).

Previous aborted reform efforts in 1985, 1986, and 1989 were followed by increased government spending on Transjordanian public sector managers, rent seekers, and bureaucrats who dominated the governing coalition (Piro 1998; Sütalan 2006). The addition of proliberalization Palestinians to the governing coalition because of the refugee surge broke the antireform cycle (Piro 1998; Brynen 1992). In June 1991, the king included a record seven Palestinian ministers in his proreform government (Kimmerling and Migdal 2003).

Unlike previous reforms, the early-1990s' economic reforms were intended to improve the business climate for the Palestinian-dominated private sector (Richards 1993). King Hussein's National Charter in June 1991 distinguished the latest round of reforms from earlier failed attempts, affirmed protection for private-property rights and free markets, and was a conciliatory message to Palestinians (Robinson 1998).

The Palestinian coalition made the economic reforms more radical. Initially the government proposed cutting taxes on income and capital and replacing the revenue with a national sales tax. The Palestinian-dominated small business sector supported the tax cuts on capital and income but successfully delayed the sales tax's implementation by years, convinced the government to exempt many goods altogether, and to reduce the proposed maximum rate (Knowles 2005). They also lobbied against licensing, regulatory barriers to entry, and trade restrictions that prevented them from importing their property from Kuwait (van Hear 1995; Gelos 1995; Troquer and al Oudat 1999; Zaghal and Freij-Dergarabedian 2004; UNDRO 1990).

One reason the government was able to sustain the reforms is that the refugees caused an unexpected economic and employment boom (van Hear 1995). Jordanian GDP shrank by 10.7 percent in 1989 and a further 0.3 percent in 1990 but grew by 1.6 percent in 1991 and 14.4 percent in 1992 (World Bank 2017). In 1992, Jordan ran a balanced budget for the first time in the country's history (van Hear 1995; Sab 2014). Total factor productivity growth accelerated in the early 1990s, and macroeconomic indicators like inflation, investment as a percent of GDP, and real GDP growth improved markedly immediately after the refugee surge (Sab 2014; Kanaan and Kardoosh 2003). The refugees boosted the supply side by starting firms in the construction, retail, financial, commercial, and industrial sectors (Troquer and al Oudat 1999). They also invested capital in Jordan, compensating for the decline in remittances from oil workers expelled during the Gulf War (Troquer and al Oudat 1999; Athamneh 2012; El-Sakka 2007; Migration Policy Center 2013). Total investment as a percentage of GDP peaked at over 35 percent in 1993 as the refugees repatriated billions in investment from their accounts in Kuwait (Sab 2014; Troquer and al Oudat 1999; British Refugee Council 1994). The annual trade on Amman's stock market more than doubled from 1990 to 1992, foreign exchange reserves increased tenfold, and the net foreign assets of the central bank and monetary system more than doubled (van Hear 1995; Gelos 1995; Ebrahimi 1996).

Table 5. EFW, Polity IV, and Freedom House Indexes, Jordan v. Kuwait

	Total index	Size of gov.	Legal system	Sound money	Internat. trade	Regulation	Polity II	Political rights	Civil liberties
<i>Panel A. Jordan</i>									
1975	4.83	1.53	.	5.65	5.76	6.40	−10.00	6.00	6.00
1980	5.13	4.77	1.81	6.82	5.76	6.49	−10.00	6.00	6.00
1985	5.50	4.60	2.74	7.74	6.00	6.42	−9.00	5.00	5.00
1990	5.43	6.12	3.10	6.20	4.81	6.93	−4.00	5.00	5.00
1995	6.14	5.71	4.63	7.15	6.63	6.61	−2.00	4.00	4.00
2000	7.06	6.08	5.09	9.67	7.22	7.17	−2.00	4.00	4.00
2005	7.30	6.27	5.28	9.21	7.94	7.81	−2.00	5.00	4.00
2010	7.45	7.35	4.79	9.12	7.89	8.08	−3.00	6.00	5.00
2015	7.47	7.38	4.76	9.66	7.63	7.91	−3.00	6.00	5.00
<i>Panel B. Kuwait</i>									
1975	.	.	.	6.40	.	5.14	−8.00	4.00	3.00
1980	3.69	2.97	1.47	5.18	.	5.13	−10.00	6.00	4.00
1985	5.46	1.19	4.65	8.92	7.07	5.49	−8.00	4.00	4.00
1990	4.98	3.15	2.17	7.51	7.07	4.99	.	7.00	7.00
1995	6.41	4.83	5.91	8.89	7.13	5.29	−7.00	5.00	5.00
2000	6.97	6.37	5.99	8.09	7.96	6.46	−7.00	4.00	5.00
2005	7.08	6.72	5.81	7.84	7.56	7.47	−7.00	4.00	5.00
2010	6.95	6.18	5.65	8.07	7.59	7.24	−7.00	4.00	5.00
2015	6.62	6.40	4.99	7.58	6.76	7.39	−7.00	5.00	5.00

Source: Authors' tabulation of the [Gwartney, Lawson, and Hall \(2017\)](#) Economic Freedom of the World (EFW) index, Center for Systemic Peace Polity IV Index, and Freedom House Freedom in the World Report (2018).

Note: Table presents the EFW Index, its components, the Polity IV Index, and the Freedom House Political Rights and Civil Rights Indexes over 1975–2015 for Jordan in panel a and Kuwait in panel b.

The refugees also boosted the demand side of the economy. Figure S1.1 in the supplementary online appendix S1 shows that the largely Transjordanian-owned real-estate sector boomed, housing starts doubled, and construction employment expanded ([Troquer and al Oudat 1999](#); [van Hear 1995, 1998](#); [De Bel-Air 2007](#)).

In terms of Jordan's EFW scores, improvements in Jordanian monetary policy translated into substantial gains in Jordan's sound money EFW subscore—rising 15.3 percent from 1990 to 1995 and by 35.2 percent from 1995 to 2000. Reforms to tariffs and the removal of trade barriers also saw a rise in Jordan's trade liberalization subscore by nearly 38 percent over 1990 to 1995, increasing from 4.8 to over 6.6 ([table 5](#)).

[Acemoglu and Robinson \(2008\)](#) note that often it is necessary that there be a shock to the distribution of power in order to overcome institutional persistence. Accordingly, these changes are mirrored by significant changes in Jordan's legal system sub-score within the EFW index, rising from 3.1 in 1990 to 4.63 in 1995—a change of nearly 49 percent. This was a substantial improvement in Jordanian legal institutions, the most rigid economic institution ([Acemoglu and Robinson 2008](#)).

Jordan liberalized its economy to settle the Kuwaiti-Palestinians, and they, in turn, were a pro-market cohort that tipped the political balance in favor of further free market reforms after being included in the governing coalition ([Brynen 1992](#)). The resulting economic boom caused by the refugees and continued by the reforms reduced opposition to liberalization and the risk of policy backtracking as had happened often before.

8. Conclusion

The Kuwaiti-Palestinian refugee surge to Jordan in 1990 and 1991 is a natural experiment that allows us to understand how a government changed its economic policy after experiencing mass

immigration. The quality of Jordan's economic institutions improved significantly after 1990 relative to several combinations of OIC countries—essentially rising from that of a poor Muslim country to that of an OECD country without significant changes in political or civil freedoms. Jordan's success is especially striking as it has relatively weak economic institutions compared to developed nations that are concerned over comparatively smaller flows of immigrants. In at least one country, massive immigration from the developing world improved economic institutions in a country with weak institutions.

References

- Abadie, A., A. Diamond, and J. Hainmueller. 2010. "Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program." *Journal of the American Statistical Association* 105 (490): 493–505.
- . 2015. "Comparative Politics and the Synthetic Control Method." *American Journal of Political Science* 59 (2): 495–510.
- Abadie, A., and J. Gardeazabal. 2003. "The Economic Costs of Conflict: A Case Study of the Basque Country." *American Economic Review* 93 (1): 113–32.
- Acemoglu, D., and J. Robinson. 2008. "The Role of Institutions in Growth and Development." Commission on Growth and Development Working Paper No. 10, World Bank, Washington, DC.
- . 2012. *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. New York: Crown Business.
- al Khouri, R. 2007. "Aspects of Migration and Development in Jordan." Paper prepared for the Migration and Refugee Movements in the *Middle East and North Africa Conference*, Forced Migration and Refugee Studies Program, American University in Cairo, Egypt, October 23–25.
- Alon, Y. 2007. *The Making of Jordan: Tribes, Colonialism, and the Modern State*. New York: I.B.Tauris & Co. Ltd.
- Amerah, M. 1993. "Unemployment in Jordan: Dimensions and Prospects." Center for International Studies, Royal Scientific Society, Amman, Jordan.
- Athamneh, A. B. 2012. "General Overview of Migration Into, From and Through Jordan." CARIM Analytic and Synthetic Notes, Mediterranean and Sub-Saharan Migration, European University Institute, San Domenico di Fiesole, Italy.
- Borjas, G. J. 2015. "Immigration and Globalization: A Review Essay." *Journal of Economic Literature* 53 (4): 961–74.
- British Refugee Council. 1994. *Gulf Information Project, Information Pack*. British Refugee Council.
- Brynen, R. 1992. "Economic Crisis and Post-Rentier Democratization in the Arab World: The Case of Jordan." *Canadian Journal of Political Science* 25 (1): 69–98.
- Buhaug, H., and K. S. Gleditsch. 2008. "Contagion or Confusion? Why Conflicts Cluster in Space." *International Studies Quarterly* 52 (2): 215–33.
- Center for Systemic Peace. 2018. *Polity IV Annual Time-Series, 1800–2017*. (Accessed March 1, 2018), <https://www.systemicpeace.org/inscrdata.html>.
- Clark, J., R. Lawson, A. Nowrasteh, B. Powell, and R. Murphy. 2015. "Does Immigration Impact Institutions?" *Public Choice* 163 (3): 321–35.
- Clemens, M. A. 2011. "Economics and Emigration: Trillion-Dollar Bills on the Sidewalk?" *Journal of Economic Perspectives* 25 (3): 83–106.
- Clemens, M. A., and L. Pritchett. 2019. "The New Economic Case for Migration Restrictions: An Assessment." *Journal of Economic Development* 138 (May): 153–64.
- Colton, N. A. 2002. *Between "Supply Shocked" Markets: The Case of Jordanian and Palestinian Returnees*. New York: Palgrave.
- De Bel-Air, Françoise. 2007. "State Policies on Migration and Refugees in Jordan." Paper prepared for the Migration and Refugee Movements in the Middle East and North Africa conference, Forced Migration and Refugee Studies Program, American University in Cairo, Egypt, October 23–25.
- Dell, M. 2010. "The Persistent Effects of Peru's Mining Mita." *Econometrica* 78 (6): 1863–903.
- Ebrahimi, F. 1996. "Structural Adjustment in Jordan." Operations Evaluation Department, OED Precip, World Bank, Washington, DC.
- El-Sakka, M. 2007. "Migrant Workers' Remittances and Macroeconomic Policy in Jordan." *Arab Journal of Administrative Sciences* 14 (2): 1–22.

- Feldmann, H. 2017. "Economic Freedom and Human Capital Investment." *Journal of Institutional Economics* 13 (2): 421–45.
- Freedom House. 2018. *Freedom in the World Comparative and Historical Data, 1973–2018*. (Accessed March 1, 2018), <https://freedomhouse.org/report-types/freedom-world>.
- Gelos, G. 1995. "Investment Efficiency, Human Capital and Migration: A Productivity Analysis of the Jordanian Economy." Discussion Paper Series No. 14, World Bank, Washington, DC.
- Gwartney, James, Robert Lawson, and Joshua Hall. 2017. "Economic Freedom of the World: 2017 Annual Report." Fraser Institute. <https://www.fraserinstitute.org/studies/economic-freedom>.
- Haddad, T. 2010. "Palestinian Forced Displacement from Kuwait: The Overdue Accounting." Resource Center for Palestinian Residency and Refugee Rights, Badil Center, Summer-Autumn (accessed November 6, 2018), <http://www.badil.org/en/component/k2/item/1514-art07.html>.
- Ibrahim, Y.M. 1991. "After the War: Kuwait; Palestinians in Kuwait Face Suspicion and Probably Exile." *New York Times*, March 14. <https://www.nytimes.com/1991/03/14/world/after-the-war-kuwait-palestinians-in-kuwait-face-suspicion-and-probable-exile.html>.
- Kanaan, Taher H., and Marwan A. Kardoosh. 2003. "The Story of Economic Growth in Jordan: 1950–2000." GDN Working Paper: Explaining Growth.
- Kimmerling, B., and J. S. Migdal. 2003. *The Palestinian People: A History*. Cambridge, MA: Harvard University Press.
- Knowles, W. 2005. *Jordan Since 1989: A Study in Political Economy*. London: I.B. Taurus and Co. Ltd.
- Kuttab, D. 2005. "Kuwait." In *Encyclopedia of the Palestinians: Revised Edition*, edited by P. Matter, 288–290. New York: Infobase Publishing.
- Lucas, R. E. 2003. "Deliberalization in Jordan." *Journal of Democracy* 14 (1): 137–44.
- Maktabo, R. 1998. *Membership and Political Participation in Jordan, Kuwait, and Lebanon*. FAFO Institute for Applied Social Science, Oslo, Norway.
- Manuel, Marcus. 1991. "The Impact of the Gulf Crisis on Developing Countries." Briefing Paper, Overseas Development Institute, London, UK. <https://www.odi.org/publications/5466-impact-gulf-crisis-developing-countries>.
- Migration Policy Center. 2013. "MPC Migration Profile, The Demographic-Economic Framework of Migration." European University Institute, Florence, Italy.
- Mruwat, E., Y. Adwan, and R. Cunningham. 2001. "Transforming Danger into Opportunity: Jordan and the Refugee Crisis of 1990." In *Handbook of Crisis and Emergency Management*, edited by A. Farazmand, 649–57. New York: Marcel Dekker.
- Mufti, M. 1999. "Elite Bargains and the Onset of Political Liberalization in Jordan." *Comparative Political Studies* 32 (1): 100–29.
- Peri, G., and V. Yasenov. 2017. "The Labor Market Effects of a Refugee Wave: Synthetic Control Method Meets the Mariel Boatlift." IZA Discussion Papers No. 10605, Institute for the Study of Labor (IZA), Bonn, Germany.
- Piro, T. J. 1998. *The Political Economy of Market Reform in Jordan*. Lanham, MD: Rowman and Littlefield.
- Powell, B., J. Clark, and A. Nowrasteh. 2017. "Does Mass Immigration Destroy Institutions? 1990s Israel as a Natural Experiment." *Journal of Economic Behavior and Organization* 141 (C): 83–95.
- Richards, A. 1993. "Political Economy Review of Jordan." Written for Chemonics International and the United States Agency for International Development (USAID), Near East Bureau, Washington, DC.
- Robinson, G. E. 1998. "Defensive Democratization in Jordan." *International Journal of Middle East Studies* 30 (3): 387–410.
- Rodrik, D., A. Subramanian, and F. Trebbi. 2004. "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development." *Journal of Economic Growth* 9 (2): 131–65.
- Rosen, S. J. 2012. "Kuwait Expels Thousands of Palestinians." *Middle East Quarterly* 19 (4): 75–83.
- Ryan, C. R. 2003. "Liberalization and Deliberalization in Jordan." *Perihelion: Online Journal of the European Rim Policy and Investment Council*.
- Sab, R. 2014. "Economic Impact of Selected Conflicts in the Middle East: What Can We Learn from the Past?" IMF Working Paper WP/14/100, International Monetary Fund, Washington, DC.
- Salehyan, I., and K. S. Gleditsch. 2006. "Refugees and the Spread of Civil War." *International Organization* 60 (2): 335–66.
- Scartascini, C., C. Cruz, and P. Keefer. 2018. *Database of Political Institutions 2017* (accessed March 1, 2018), <https://publications.iadb.org/handle/11319/8806>.

-
- Staniland, P., A. Naseemullah, and A. Butt. 2018. "Pakistan's Military Elite." *Journal of Strategic Studies* (August 7): 1–30.
- Sütalan, Z. 2006. "Globalization and the Political Economy of Reform in Jordan." Master's thesis, Graduate School of Social Sciences of Middle East Technical University, Ankara, Turkey.
- Swaidan, Z., and M. Nica. 2002. "The 1991 Gulf War and Jordan's Economy." *MERIA Journal* 6 (2). <http://www.mafhoum.com/press4/114E11.htm>.
- Troquer, Y. L., and R. H. al Oudat. 1999. "From Kuwait to Jordan: The Palestinians' Third Exodus." *Journal of Palestine Studies* 28 (3): 37–51.
- United Nations Disaster Relief Organization (UNDRO). 1990. "The Iraq/Kuwait Crisis: International Assistance to Displaced People Through Jordan." Case Report, United Nations, Geneva, Switzerland.
- U.S. Department of State. 1995. "Background Notes: Jordan." Bureau of Public Affairs, Washington, DC.
- van Hear, N. 1992. "Consequences of the Forced Mass Repatriation of Migrant Communities: Recent Cases from West Africa and the Middle East Options." United Nations Research Institute for Social Development, DP 38, United Nations, Geneva, Switzerland.
- . 1995. "The Impact of the Involuntary Mass 'Return' to Jordan in the Wake of the Gulf Crisis." *International Migration Review* 29 (2): 352–74.
- . 1998. *New Diasporas: The Mass Exodus, Dispersal and Regrouping of Migrant Communities*. Seattle: University of Washington Press.
- Wislon and Lafleur (eds.). 2008. *Les systèmes juridiques dans le monde/World Legal Systems*. Montreal. <http://www.juriglobe.ca/eng/sys-juri/index-alpha.php>.
- World Bank. 1995. *Jordan - Country Assistance Strategy (English)*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/627791468087870965/Jordan-Country-assistance-strategy>.
- World Bank. 2017. *World Development Indicators 2017*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/26447>.
- Zaghal, A. S., and A. Freij-Dergarabedian. 2004. "Cooperation Project on the Social Integration of Immigrants, Migration, and the Movement of Persons." European Commission, MEDA Programme, Euro-Mediterranean Consortium for Applied Research on International Migration, European University Institute, Florence, Italy.
- Zureik, E. 1994. "Palestinian Refugees and Peace." *Journal of Palestine Studies* 24 (1): 5–17.

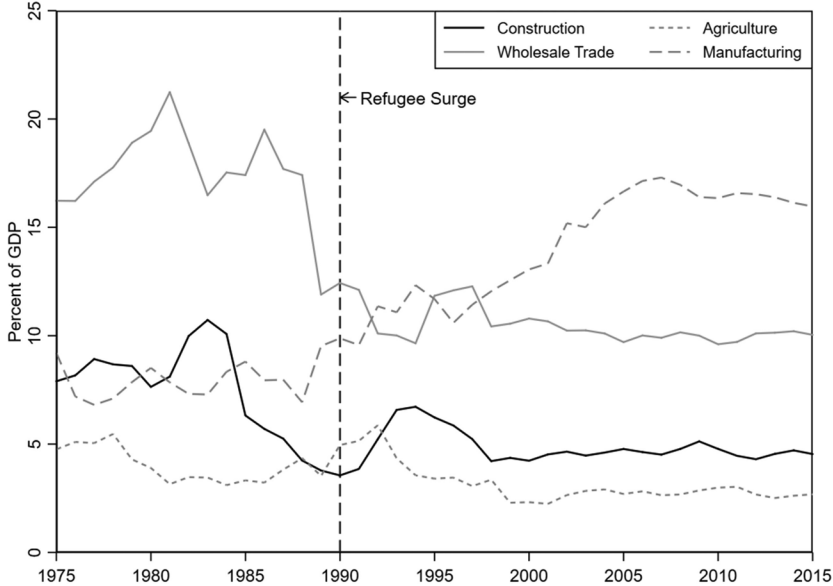
Supplementary Appendix

**How Mass Immigration Affects Countries with Weak Economic
Institutions: A Natural Experiment in Jordan**

Alex Nowrasteh, Andrew C. Forrester, and Cole Blondin

Supplementary Appendix S1: Additional Figures and Results

Figure S1.1. Sectors of the Jordanian Economy



Source: National Accounts Main Aggregates Database United Nations Statistical Division (UNSD).

Note: Sectors of the Jordanian economy as shares of Jordan's GDP.

Table S1.1. OIC Countries and Donor Pool Selection

Country	Joined	EFW data	Country	Joined	EFW data
Afghanistan	1969		Malaysia	1969	*
Albania	1992		Maldives	1976	
Algeria	1969		Mali	1969	*
Azerbaijan	1992		Mauritania	1969	
Bahrain	1972		Morocco	1969	*
Bangladesh	1974	*	Mozambique	1994	
Benin	1983		Niger	1969	*
Brunei	1984		Nigeria	1986	*
Burkina Faso	1974		Oman	1972	
Cameroon	1974		Pakistan	1969	*
Chad	1969		Palestine	1969	
Comoros	1976		Qatar	1972	
Côte d'Ivoire	2001		Saudi Arabia	1969	
Djibouti	1978		Senegal	1969	
Egypt	1969	*	Sierra Leone	1972	*
Gabon	1974		Somalia	1969	
Gambia	1974		Sudan	1969	
Guinea	1969		Suriname	1996	
Guinea-Bissau	1974		Syria	1972	*
Guyana	1998		Tajikistan	1992	
Indonesia	1969	*	Togo	1997	
Iran	1969	*	Tunisia	1969	*
Iraq	1975		Turkey	1969	*
Jordan	1969	*	Turkmenistan	1992	
Kazakhstan	1995		Uganda	1974	
Kuwait	1969		UAE	1972	
Kyrgyz Republic	1992		Uzbekistan	1996	
Lebanon	1969		Yemen	1969	
Libya	1969				

Source: Organisation of Islamic Cooperation (OIC) and Gwartney, Lawson, and Hall (2017) Economic Freedom of the World (EFW) report.

Note: Listing of sample OIC countries with complete EFW data prior to 1990. * denote inclusion in the donor pool used to construct Synthetic Jordan.

Table S1.2. EFW Index and Components, Summary Statistics

	Mean	Std. dev.	Min	Max	N
0. EFW index	5.802	0.910	3.010	7.650	315
1. Size of government	6.424	1.332	1.529	9.170	315
2. Rule of law	4.035	1.142	1.368	6.393	308
3. Sound money	6.947	1.498	0.059	9.679	315
4. International trade freedom	5.652	1.668	0.000	7.955	315
5. Regulation	5.928	1.123	2.722	8.678	312

Source: Gwartney, Lawson, and Hall (2017) Economic Freedom of the World (EFW) report.

Note: Summary statistics for the Gwartney, Lawson, and Hall (2017) EFW index and its components, 1990–2015.

Table S1.3. Effects of the Jordanian Refugee Surge, Polity IV Index

	OIC all		OIC minus PAK		OIC SAL	
	Effect (1)	<i>p</i> -value (2)	Effect (3)	<i>p</i> -value (4)	Effect (5)	<i>p</i> -value (6)
1991	3.740	0.545	3.740	0.500	1.930	0.714
1992	5.740	0.455	5.740	0.417	3.620	0.714
1993	5.110	0.455	5.110	0.417	2.240	0.857
1994	5.110	0.455	5.110	0.417	2.240	0.857
1995	5.110	0.455	5.110	0.417	2.240	0.857
1996	5.110	0.364	5.110	0.500	2.240	0.714
1997	5.110	0.545	5.110	0.583	2.240	0.714
1998	5.110	0.545	5.110	0.583	1.930	0.571
1999	5.110	0.455	5.110	0.333	1.930	0.714
2000	3.740	0.545	3.740	0.417	1.930	0.714
2001	3.740	0.545	3.740	0.333	1.930	0.714
2002	4.055	0.455	4.055	0.333	2.620	0.429
2003	4.055	0.455	4.055	0.333	2.620	0.429
2004	4.055	0.364	4.055	0.250	2.620	0.429
2005	4.055	0.364	4.055	0.250	2.620	0.429
2006	4.055	0.364	4.055	0.250	2.620	0.429
2007	3.055	0.545	3.055	0.417	1.620	0.571
2008	3.055	0.455	3.055	0.417	1.620	0.571
2009	3.055	0.545	3.055	0.667	1.620	0.714
2010	3.055	0.545	3.055	0.583	1.620	0.571
2011	0.535	0.909	0.535	0.917	-4.520	0.429
2012	1.590	0.818	1.590	0.917	-5.210	0.429
2013	1.275	0.545	1.275	0.750	-5.900	0.286
2014	0.960	0.909	0.960	0.750	-6.590	0.286
2015	0.960	0.909	0.960	0.750	-6.590	0.286

Source: Authors' analysis of the Polity IV index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Estimated treatment effects on Jordan's Polity IV score and corresponding permutation test *p*-values that indicate the fraction of estimated treatment effects that are larger than the estimated effect on Jordan's Polity IV score following the 1990 refugee surge. OIC denotes the full Organisation of Islamic Cooperation donor pool; OIC minus PAK denotes the OIC donor without Pakistan; and OIC SAL denotes the donor pool limited to OIC countries that received Structural Adjustment Loans (SALs) from either the World Bank or International Monetary Fund (IMF).

Table S1.4. Goodness of Fit Estimates for Synthetic Jordan, Polity IV Index

	OIC all	OIC minus PAK	OIC SAL
<i>Pre-treatment fit</i>			
(1) RMSPE	1.382	1.382	1.822
<i>Permutation tests</i>			
(2) Pr(post RMSPE \geq Jordan)	0.909	0.833	1.000
(3) Pr(pre/post RMSPE \geq Jordan)	0.636	0.667	1.000
(4) Pr(pre RMSPE \geq Jordan)	0.455	0.417	0.000

Source: Authors' analysis of the Polity IV index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Table presents goodness of fit metrics for Synthetic Jordan with the Polity IV index as the outcome of interest. Goodness of fit for Synthetic Jordan is denoted by its Root Mean Squared Prediction Error (RMSPE). Placebo tests reassign the 1990 refugee surge to each control country and report the fraction of countries with a post-treatment RMSPE greater than Jordan's RMSPE, normalized ratio of pre- to post-treatment RMSPE greater than Jordan's RMSPE, and pre-treatment RMSPE greater than Jordan's. OIC denotes the full Organisation of Islamic Cooperation donor pool; OIC minus PAK denotes the OIC donor without Pakistan; and OIC SAL denotes the donor pool limited to OIC countries that received Structural Adjustment Loans (SALs) from either the World Bank or International Monetary Fund (IMF).

Table S1.5. Predictor Balance for Synthetic Jordan, Polity IV Index

	Real Jordan	Sample means	OIC all	OIC minus PAK	OIC SAL
Polity II (1975)	-10.000	2.104	-9.000	-9.000	-9.000
Polity II (1985)	-9.000	-1.201	-8.685	-8.685	-8.000
Political rights	5.667	4.409	5.646	5.646	5.371
Civil liberties	5.600	4.370	6.124	6.124	4.781
Exec. constraints	1.467	0.360	1.126	1.126	1.467
Presidential	1.000	0.556	1.000	1.000	1.000
Parliamentary	0.000	0.271	0.000	0.000	0.000
Civil law	1.000	0.757	1.000	1.000	1.000
Common law	0.000	0.325	0.000	0.000	0.000
Muslim law	1.000	0.222	1.000	1.000	1.000

Source: Authors' analysis of the Polity IV index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Table presents pre-treatment predictor variables for Jordan, their corresponding pretreatment sample means, and the weighted averages used to construct Synthetic Jordan. OIC denotes the full Organisation of Islamic Cooperation donor pool; OIC minus PAK denotes the OIC donor without Pakistan; and OIC SAL denotes the donor pool limited to OIC countries that received Structural Adjustment Loans (SALs) from either the World Bank or International Monetary Fund (IMF).

Table S1.6. Synthetic Jordan Country Weights, Polity IV Index

	Weight		Weight
<i>Panel A. OIC all</i>			
Mali	0.000	Turkey	0.000
Niger	0.000	Egypt	0.000
Sierra Leone	0.000	Syria	0.685
Nigeria	0.000	Pakistan	0.000
Morocco	0.000	Bangladesh	0.000
Tunisia	0.315	Malaysia	0.000
Iran	0.000	Indonesia	0.000
<i>Panel B. OIC minus PAK</i>			
Mali	0.000	Turkey	0.000
Niger	0.000	Egypt	0.000
Sierra Leone	0.000	Syria	0.685
Nigeria	0.000	Pakistan	-
Morocco	0.000	Bangladesh	0.000
Tunisia	0.315	Malaysia	0.000
Iran	0.000	Indonesia	0.000
<i>Panel C. OIC SAL</i>			
Mali	0.000	Turkey	0.000
Niger	0.000	Egypt	-
Sierra Leone	0.000	Syria	-
Nigeria	-	Pakistan	0.000
Morocco	0.310	Bangladesh	0.000
Tunisia	0.690	Malaysia	-
Iran	-	Indonesia	0.000

Source: Authors' analysis of the Polity IV index. Additional data come from the Polity IV dataset, Freedom House, the Database of Political Institutions (DPI), and the JuriGlobe database.

Note: Estimated country weights to construct Synthetic Jordan based on the Polity IV index as the outcome. OIC denotes the full Organisation of Islamic Cooperation donor pool; OIC minus PAK denotes the OIC donor without Pakistan; and OIC SAL denotes the donor pool limited to OIC countries that received Structural Adjustment Loans (SALs) from either the World Bank or International Monetary Fund (IMF).

Reference

Gwartney, James, Robert Lawson, and Joshua Hall. 2017. "Economic Freedom of the World: 2017 Annual Report." Fraser Institute. <https://www.fraserinstitute.org/studies/economic-freedom>.