CSEF

Centre for Studies in Economics and Finance

WORKING PAPER NO. 615

Employment Effects of Economic Sanctions

Ali Moghaddasi Kelishomi and Roberto Nisticò

June 2021

University of Naples Federico II

University of Salerno

Bocconi University, Milan

CSEF - Centre for Studies in Economics and Finance
DEPARTMENT OF ECONOMICS – UNIVERSITY OF NAPLES
80126 NAPLES - ITALY
Tel. and fax +39 081 675372 – e-mail: csef@unina.it
ISSN: 2240-9696

CSEF
Centre for Studies in Economics and Finance

WORKING PAPER NO. 615

Employment Effects of Economic Sanctions

Ali Moghaddasi Kelishomi[†] and Roberto Nisticò[‡]

Abstract
This paper investigates the effect of economic sanctions on employment. We exploit the imposition of a series of unexpected and unprecedented international economic sanctions on Iran in 2012 and estimate the short-run effects of the change in import exposure on manufacturing employment at the industry level. Our estimates indicate that the sanctions led to an overall decline in manufacturing employment growth rate by 16.4 percentage points. Yet, we uncover significant asymmetric effects across industries with different *ex-ante* import shares. Interestingly, the effects are mostly driven by labor-intensive industries and industries that heavily depend on imported inputs. This suggests that the overall negative impact of the sanctions on employment might have been largely due to the decline in productivity experienced by industries with a high propensity to import inputs from abroad.

Keywords: Trade Shock, Economic Sanctions, Employment.

JEL Classification: F16, F51, J21.

Acknowledgements: We thank Vincenzo Bove, Huw Edwards, Federico Esposito, Ben Ferrett, Bo Gao, Dennis Novy, Annalisa Scognamiglio, and Chris Wilson for their valuable comments. The usual disclaimer applies.

[†] School of Business and Economics, Loughborough University. E-mail: a.moghaddasi@lboro.ac.uk

[‡] Università di Napoli Federico II, CSEF, and IZA. E-mail: roberto.nistico@unina.it (*Corresponding author*)

Table of Contents

1 Introduction

Economic sanctions have become a popular foreign policy tool in international politics over the last decades. While sanctions are designed as a non-violent instrument to persuade governments to comply with the interests of the imposing countries (often viewed as a more humane option than military intervention), they have in fact the aim of changing the policy of the target country by inflicting severe economic damages.

The study of the effects of economic sanctions has attracted considerable attention among economists and political scientists in recent years. Prior studies have mainly focused on human rights (Gutmann et al., 2020; Peksen, 2009; Wood, 2008), government and political leader stability (Allen, 2008; Marinov, 2005; McLean and Radtke, 2018), the level of democracy (Adam and Tsarsitalidou, 2019; Peksen and Drury, 2010), and on conflict intensity (Hultman and Peksen, 2017).

Several papers have looked at the economic effects of sanctions, documenting significant effects on GDP growth (Hufbauer et al., 2009; Neuenkirch and Neumeier, 2015), international trade (Afesorgbor, 2019; Haidar, 2017), banking crises (Hatipoglu and Peksen, 2018) as well as on income inequality and poverty (Afesorgbor and Mahadevan, 2016; Neuenkirch and Neumeier, 2016), and on corruption and crime (Andreas, 2005).

Surprisingly, however, the labor market impact of economic sanctions has been so far overlooked. This paper aims at filling this gap in the literature by providing first evidence on the impact that economic sanctions have on the labor market. More specifically, we exploit the imposition of a series of unexpected and unprecedented international sanctions on the Iranian economy in 2012 as a natural experiment to study the short-run effects of economic sanctions on employment.

While there were UN sanctions already in place since 2006 that mainly targeted Iran's nuclear program, the new sanctions that were imposed on Iran in 2012 aimed to bring Iran's economy close to a complete financial and trade autarky. These sanctions are the most comprehensive international sanctions regime ever imposed on a country. As an unprecedented step, the European Union froze Iran's central bank's assets and denied Iranian financial sector's access to SWIFT messaging service in March 2012, thus cutting off Iran's access to a secure international payment system.[1] This was in addition to the oil embargo imposed in 2012.

The EU sanctions followed a number of US sanctions that were imposed in late 2011 and aimed to cut Iranian financial sector's connections to the US and the world financial system, forcing foreign banks and companies to choose between doing business with Iran or the US. The sanctions sought to reduce Iranian export earnings as well as restricting the country's access to its foreign reserves mainly to the purchase of humanitarian goods.

Since the sanctions on Iran were substantially eased after 3 years - with the Joint Comprehensive Plan Of Action (JCPOA) signed in July 2015 - and the Iranian economy had been open to international trade for a long time before the sanctions, this study ultimately investigates the short-run effects of moving from a trading equilibrium to near-autarky.

Our empirical analysis builds on (Acemoglu et al., 2016) and estimates the direct impact of economic sanctions on manufacturing employment at the industry level. In particular, we exploit the sanctions-induced change in the industry-level import exposure, fitting the model for stacked first differences covering the subperiods 2008–2010 and 2012–2014. We then analyse how the effect of the change in import exposure varies across industries with different

[1] This was one of the first sanctions Iran asked to be lifted (Economist, 2014).

share of import in the year before the sanctions.

The exposure to the trade shock varies across manufacturing industries. The impact on employment, however, depends on how each industry responds to trade restrictions. In some industries, the sanctions could have re-routed or deflected imports (exports) from (to) other markets where informal financial channels are still available and enforcing compliance with sanctions is more difficult. In industries where deflection is costly, domestic production may replace imports. In the case of imported inputs, this could lead to input autarky or ceasing production completely. We, therefore, exploit the heterogeneous responses of industries to the trade shock and estimate their relative short-run employment loss/gain.

We find that the sanctions asymmetrically affect industries with different level of exposure to international trade, thus leading to significant reallocation effects in employment. According to our baseline results, a 1 percentage point rise in industry import exposure increases industry employment by 0.209 percentage points for industries with import share below the median, while it decreases employment by 0.060 percentage points for industries with import share above the median.

These findings are robust to controlling for potential industry confounding factors and for a set of industry-level start-of-period controls to capture exposure to technical change. In addition, we obtain similar results when we account for the change in export exposure to capture the total effect of the sanctions. Furthermore, we show that the results do not change when we drop industries in the top and bottom 1 or 5 percent of the overall import share distribution.

Moreover, the results from our quantile regression analysis show that the change in import exposure induced by the sanctions is highly asymmetric

when moving from the 1st to the 4th quartile of the industry import share distribution. Specifically, we find that an increase in import competition positively affects employment for industries in the 1st quartile, but this effect turns negative for industries belonging to the 3rd and 4th quartile, and becomes larger in magnitude as industries move from the former to the latter. Again, this points to important reallocation effects in employment across industries with different degrees of openness to trade.

We also explore whether the employment effects are heterogeneous by the extent to which industries use production labor and capital as well as by their degree of dependence on imported inputs. Our heterogeneity analysis reveals that the estimated effects are mainly driven by labor-intensive industries as opposed to capital-intensive industries.

Importantly, we also find that the effects are mainly observed in industries that heavily rely on imported inputs in the production process, therefore indicating that the manufacturing sector in Iran is characterized by a strong complementarity between imported inputs and labor. This suggests that the sanctions might have affected employment mainly through a decline in productivity within industries that use imported inputs intensively. This result is in line with (Etkes and Zimring, 2015), who show that the overall welfare loss of the Gaza blockade in 2007-2010 was largely due to the decline in productivity experienced by import-competing industries.

Finally, turning to the economic magnitude of our results, we compute the implied changes in employment in the spirit of Acemoglu et al. (2016) and Feenstra et al. (2019). We first estimate the direct effects of the sanctions and then compute the indirect effects via the industry input-output linkages. While we do not detect significant indirect effects through upstream or downstream industries, we do find relevant direct effects.

Our calculations suggest that absent the sanctions Iranian manufacturing employment would have experienced almost 18,000 fewer job losses. This implies that, overall, the sanctions had a negative effect on manufacturing employment. Precisely, we estimate that the sanctions led to a reduction in the employment growth rate by 16.4 percentage points. However, we show that this effect is mostly attributable to relatively closed industries, i.e. industries with low import share in the year before the sanctions.

This study contributes to two other strands of research. First, we add to the vast literature on the effects of trade shocks. Previous studies focus on the "China Shock" (Autor et al., 2013; Acemoglu et al., 2016; Autor et al., 2016; Pierce and Schott, 2016) - mainly looking at the US labor market[2] - and show that rising import penetration have detrimental effects on employment, especially in the manufacturing sector. Our contribution to this strand of research is twofold. On the one hand, Iran is a net (non–oil) importer country, in particular in manufacturing. Thus, differently from most of the aforementioned studies, who focused on the effects of surging import penetration, we can instead address labor market dynamics following a reduction in import competition.

On the other hand, the case of Iran provides a unique setting to revisit the impact of trade shocks on employment through the lens of a developing economy. While there is evidence that employment adjustment to trade shocks is mainly between import-competing industries and exporting ones (Feenstra et al., 2019), this margin of adjustment, however, is likely to be less effective when the country largely depends on imported inputs, as it is the case of less developed economies such as Iran.[3] Furthermore, focusing on the effect of

[2] A few exceptions are Balsvik et al. (2015) and Dauth et al. (2014), who focused on Norway and Germany, respectively

[3] McCaig and Pavcnik (2018), for instance, examine the labor allocation effects of a positive export shock in Vietnam and find that the reallocation of labor from informal

sanctions is interesting because reallocation effects from import-competing to exporting industries is even more restrained as both have limited access to world markets.

Second, our analysis complements the literature on the impact of autarky (Bernhofen and Brown, 2004; Irwin, 2005; Coulibaly, 2009; Etkes and Zimring, 2015; Esposito, 2020) along two dimensions. First, by providing evidence from one of the rare cases of near-autarky in modern history. Previous episode of autarky that have been investigated in the literature refers to the Jeffersionian trade embargo in 1807 (Irwin, 2005; Esposito, 2020) or the case of Japan in 1860 (Bernhofen and Brown, 2004). Thus, in the spirit of (Etkes and Zimring, 2015), we advance the literature on the effects of autarky by looking at how such an event affects the economy in the age of globalization. Second, while the extant research mainly focused on the welfare effects of autarky, this paper investigates its employment consequences.

The remainder of the paper is organized as follows. Section 2 presents some theoretical considerations on why and how the imposition of sanctions could affect employment and outlines the main research questions. Section 3 provides an institutional background for Iran and a timeline of the sanctions. Section 4 introduces our estimation strategy, describes the data used in the empirical analysis and presents some descriptive statistics. Section 5 discusses our main results. Section 6 provides some concluding remarks.

2 Theoretical arguments and hypotheses

The existing empirical evidence shows that economic sanctions have significant adverse effects on the target states' economic development (Hufbauer

household businesses to employers in the formal enterprise sector provides an important margin of adjustment to exporting.

et al., 2009; Neuenkirch and Neumeier, 2015).

From a theoretical viewpoint, there are different mechanism through which the imposition of economic sanctions can negatively impact the economy of the target country and as a consequence its labor market. First, economic sanctions can lead to a sharp contraction in imports and exports. Hufbauer et al. (2009) show that the volume of bilateral trade between the imposing countries and the target state drops dramatically. Moreover, sanctions can cause a slump in international capital flows due to the withdrawal of foreign direct investment, foreign aid and financial grants. This can happen even in the absence of explicit imposition of trade embargoes or suspensions of international aid and capital flows. According to Whang (2011), as economic sanctions are often used symbolically to stigmatize political regimes, the isolation of the sanctioned economy within the international community is a result of the loss of reputation that discourage also donors from providing aid and investments.

Second, as economic sanctions often have the objective to overthrown the target's political regime, by increasing political instability, they can generate uncertainty on the future of the political system, thus producing harmful effects on the country's trade and financial relations and also on its domestic and foreign direct investments. The existing empirical evidence suggests that economic sanctions are indeed associated with increased political instability and societal conflicts (Adam and Tsarsitalidou, 2019; Allen, 2008; Hultman and Peksen, 2017; Marinov, 2005; McLean and Radtke, 2018; Peksen and Drury, 2010), which in turn are estimated to have adverse effects on both investment and economic growth (Alesina et al., 1996; Alesina and Perotti, 1996; Ray and Esteban, 2017). By the same token, sanctions may adversely affect the access to the international credit markets and the relative credit

costs as investors might perceive the higher political instability as a signal of the increased risk of insolvency.

Third, sanctions are also followed by an increase in the shadow economy as both individuals and governments may promote illegal economic activities. As Andreas (2005) put it: "sanctions can unintentionally contribute to the criminalization of the state, economy, and civil society of both the targeted country and its immediate neighbors, fostering a symbiosis between political leaders, organized crime, and transnational smuggling networks. This symbiosis, in turn, can persist beyond the lifting of sanctions, contributing to corruption and crime and undermining the rule of law". These criminalizing consequences of sanctions cause an increase in transaction costs and lead to a more unproductive use of the available resources.

The size of the impact of economic sanctions on the target's economy and labor market may depend on a variety of factors. On the one hand, it may depend on the severity of the sanctions. UN sanctions, for example, can differ for their level of severity, ranging from restrictions on arms and other military hardware to restrictions on trade in primary commodities and the freezing of public and/or private assets to embargoes on all or most economic activity between UN member states and the target.[4] Similarly, previous US sanctions vary from retracting foreign aid and banning loans, grants or credits to restricting trade, finance and investment to imposing embargoes on all economic activities between the US and the sanctioned country.

On the other hand, the size of the effect changes whether it relates to unilateral sanctions versus multilateral ones. The former should, in principle, have smaller effects than the latter as the target country can potentially circumvent the sanctions by switching to alternative trading partners. On the

[4]We refer to Neuenkirch and Neumeier (2015) for an overview of sanction categories.

contrary, when sanctions are multilateral -as in the case on UN sanctions - the target country cannot avoid losing access to goods or markets by increasing its trade with other partners. Neuenkirch and Neumeier (2015), indeed, find that UN sanctions are associated with a decrease in the sanctioned country's GDP per capita growth rate by more than 2 percentage points, while US sanctions are associated with a drop by nearly 1 percentage point.

The set of international sanctions imposed on Iran in 2012 are deemed very severe. In fact, as a consequence of the 2012 sanctions, Iran's economy has been almost completely isolated. The EU freezing of Iran's central bank's assets and the denial of Iranian financial sector's access to SWIFT messaging service in March 2012 was unprecedented. Because of this, Iran lost access to a secure international payment system. In addition, besides these multilateral sanctions coupled with the oil embargo, Iran faced a number of US sanctions, aimed at cutting off Iranian financial sector's connections to the US and the world financial system by forcing foreign banks and companies to choose between doing business with Iran or the US.

The main objective of this paper is to investigate the employment consequences of the sanctions for the manufacturing sector. As Iran is a net importer in the manufacturing sector, the sanctions might be expected to mitigate the negative effects of import competition (Autor et al., 2013; Acemoglu et al., 2016; Autor et al., 2016; Pierce and Schott, 2016; Feenstra et al., 2019). It follows that a reduction in import competition - as the one caused by the sanctions - should be expected to exert a positive impact on employment at least in import-competing industries. As import deflection might be costly under the imposition of sanctions, domestic production could replace imports. Thus, our first hypothesis is that the sanctions would generate some labor reallocation across industries with different degree of exposure to

import competition.

However, given the severity and multilateral nature of the sanctions and the fact that Iran's manufacturing sector largely depends on imported inputs (as it is often the case in the context of developing countries), it is very unlikely that domestic production could entirely replace imports in the short run. As a result, our prediction - in line with the evidence provided by Etkes and Zimring (2015) for the case of the Gaza blockade in 2007-2010 - is that the sanctions would necessarily entail a decline in productivity. As a matter of fact, this could even lead to the interruption of the production process in industries that intensively rely on imported inputs.

Therefore, based on all the arguments above, our second hypothesis is that the sanctions should have detrimental effects on Iran's overall manufacturing employment.

3 Institutional Background

The history of the current episode of sanctions against Iran which are of interest in this study, goes back to the referral of Iran to the UN Security Council over Iran's disputed nuclear energy program in 2006 by International Atomic Energy Agency (see Samore, 2015).[5] During 2006 to 2010 the UN Security Council passed several resolutions against Iran's nuclear and military program which were consequently followed by the European Union and the United States in late 2011 and 2012.

The disputes over Iran's nuclear program continued to escalate. A new regime of sanctions that were imposed on Iran in 2012, however, were unprecedented in terms of its tools, severity, and its scope and non-discriminatory

[5]U.S. unilateral sanctions against Iran, however, began in 1979 after Iran revolution and following the hostage crisis.

nature. While the previous sanctions were limited in scope and often targeted designated individual or companies involved in the nuclear or military program, the new sanctions targeted Iran's economy as a whole.

The European Union imposed oil embargo in January 2012[6] which banned import, purchase or transport of Iranian crude oil, natural gas and petrochemical products, and prohibited provision of related financing, insurance or reinsurance. In addition, the EU froze Iran's central bank's assets and denied Iranian financial sector's access to SWIFT messaging service, as an unprecedented step, in March 2012[7]. This was to cripple Iranian financial sector's ability, including Iran's central bank, to conduct international business. This was the first time that the Society for Worldwide Interbank Telecommunication (SWIFT), a consortium based in Belgium, denied the entire financial system of a country's access to its vital service (Gladstone and Castlel, 2012). The EU sanctions followed a set of U.S. unilateral sanctions in November and December of 2011 that designated Iranian financial sector as jurisdiction of "primary money laundering concern" and restricted export of Iranian oil, respectively.[8]

The international sanctions led to a sharp decline in economic activity in Iran. The non-oil real GDP contracted by 3.1% and 1.1% in 2012 and 2013, respectively, compared to a 3.2% expansion in 2011 (IMF, 2014). Figure (1) illustrates aggregate import and export for Iran between 2008 and 2014. The figure also shows trade flows between Iran and two groups of destinations, sanctioning countries and non-sanctioning countries.[9] The left

[6]Council Decision 2012/35/CFSP and 2012/635/CFSP

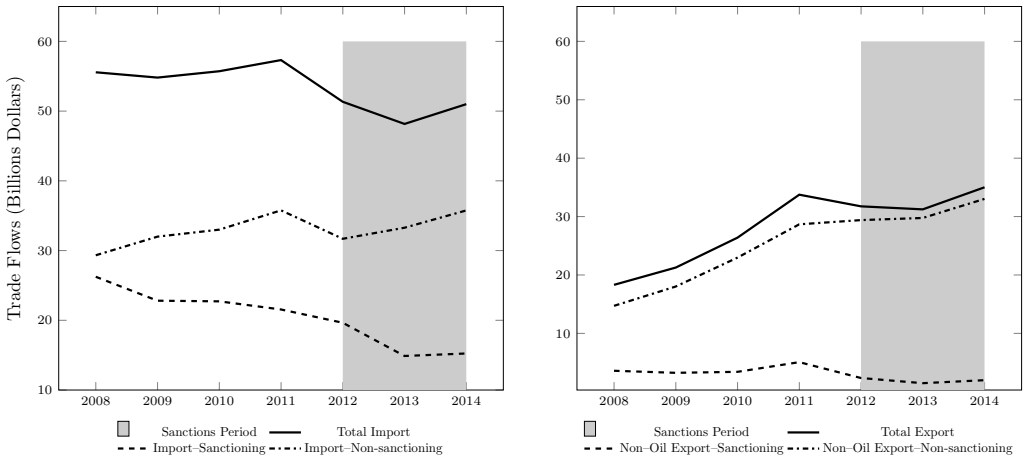
[7]Council Decision 2012/635/CFSP

[8]We refer to Samore (2015) for a detailed description and timeline of the sanctions imposed on Iran by different entities over the course of the period considered here.

[9]Sanctioning countries include the European Union, United States, and countries that are deemed to enforce sanctions against Iran more aggressively, namely Canada, Japan, South Korea, Australia, Mexico, and Singapore.

panel (a) shows that aggregate import remained steady before 2011 and then decreased after the imposition of new regime of sanctions, imposed in 2012, by 18% between 2011 and 2013.

There are stark differences in how imports from sanctioning countries and non-sanctioning countries respond to the sanctions. While import from sanctioning countries declined sharply after the sanctions (a 31 percent decline in import from sanctioning countries between 2011 and 2013), import form non-sanctioning countries increased after an initial fall in 2012.



(a) Import (b) Non-Oil Export

Figure 1: Trends in Import and Non-Oil Export

Notes: In panel a (b) the solid line shows the aggregate import (export) of Iran over 2008–2014, and the dash and dash–dot lines show import (export) from (to) the sanctioning countries and non-sanctioning countries, respectively. The grey band indicates the post-sanction period. All values are in billions US dollars. Sanctioning countries include the European Union, United States, and countries that enforced sanctions against Iran more aggressively, namely Canada, Japan, South Korea, Australia, Mexico, and Singapore. Data source: Iranian Customs.

A similar pattern is observed for non-oil export. The right panel (b) in Figure (1) shows that total export initially tumbled by around 7% between

2011 and 2013. This was due to a sharp decline in export to sanctioning countries. While export to non-sanctioning countries increased by 3.8%, partly because of a substantial depreciation in the value of Iranian Rials, export to sanctioning countries contracted by 71%. It is evident from the figure that the export to sanctioning economies constitutes a small share of total export. Therefore, such a large drop in export to these countries did not reflect on total export. That is the reason why in this study we mainly focus on the impact of import exposure.

The observed trade patterns led to a reduction in the current account surplus from 11 percent of GDP in 2011 to 4 percent of GDP in 2014 (IMF, 2014). Although our empirical strategy does not directly exploit this dichotomy, the observed changes in the pattern of trade flows to/from the two groups of sanctioning and non-sanctioning countries confirm the effectiveness of sanctions in restraining trade flows.

4 Empirical Approach

We build on the empirical strategy used in Acemoglu et al. (2016) and estimate the direct impact of import competition on manufacturing employment using the following specification:

$$\Delta \ln(L_{j\tau}) = \alpha_\tau + \beta_1 \Delta IP_{j\tau} + \beta_2 HIS_{j2011} + \beta_3 HIS_{j2011} \times \Delta IP_{j\tau} + \eta X_{j0} + e_{j\tau} \qquad (1)$$

where $\Delta \ln(L_{j\tau})$ is 100 times the annual log change in employment in industry j over time period τ; $\Delta IP_{j\tau}$ is 100 times the annual change in import exposure, defined below. HIS_{j2011} is a dummy variable indicating whether industry j's import share in the year before the sanctions, that is, 2011, is above the median, and zero otherwise.

We measure import share as import in 2011 divided by initial industry

real output, $\frac{M_{j2011}}{Y_{j2008}}$. The interaction term serves to explore how the effect of the change in import induced by the sanctions varies with the industry import share in the year prior to the sanctions. X_{j0} is a vector of industry-specific start-of-period controls (specified later); α_τ is a period-specific constant; and $e_{j\tau}$ is the error term.

We fit this equation for stacked first differences covering the two subperiods 2008–2010 and 2012–2014. The subperiod definition follows the timing of the imposition of the most severe, unexpected and unprecedented sanctions in 2012. All variables in change are annualized, the nominal variables are deflated by the producer price index (PPI) and the import and export price indexes, and the control variables in X_{j0} are each normalized with mean zero so that α_τ in equation (1) reflects the change in employment conditional only on the import and export exposure variables. Regression estimates are weighted by the start-of-period industry employment, and standard errors are clustered at the three-digit industry level.

The change in the industry-level import exposure is defined as:

$$\Delta IP_{j\tau} \equiv \frac{\Delta M_{j\tau}}{Y_{j2008} + M_{j2008} - X_{j2008}} \tag{2}$$

where for industry j, $\Delta M_{j\tau}$ is the change in imports over the period τ, and $Y_{j2008} + M_{j2008} - X_{j2008}$ is the initial domestic absorption in Iran, which is measured as industry real output, Y_{j2008}, plus industry net imports, $M_{j2008} - X_{j2008}$. To capture the total effect of the sanctions, following Feenstra et al. (2019), in the robustness analysis we also include the industry's export exposure, which is defined as:

$$\Delta EP_{j\tau} \equiv \frac{\Delta X_{j\tau}}{Y_{j2008}} \tag{3}$$

where $\Delta EP_{j\tau}$ is the change in exports in industry j over period τ.

Data on trade for 2008–2014 are Iran's Customs Administration database obtained from the Statistical Centre of Iran (SCI).[10] The dataset includes import and export in local currency for six-digit HS product level. The data is converted to four-digit International Standard Industrial Classification (ISIC, Rev 3.1) by the SCI. We then aggregate and merged this data into 116 ISIC industries to match the trade data to the employment data.

Our employment data is from the annual Survey of Manufacturing Firms with more than 10 workers of the SCI. All nominal values are deflated to their 2011 equivalent using the Import and Export Price indexes, for the import and export amounts, respectively, and the Producer Price Index, for all the other variables.

We construct a panel of 116 manufacturing industries over the period 2008 to 2014. Summary statistics of the main variables used in the analysis are reported in Table (1).

Table 1: Summary Statistics

		2008–2010				2012–2014			
	N	Mean	S.D.	Min	Max	Mean	S.D.	Min	Max
Δ Employment	116	-1.02	7.55	-60.50	16.24	4.04	6.89	-112.56	39.36
Δ Import Exposure	116	1.48	12.07	-212.40	64.55	-3.46	6.23	-31.09	19.96
Δ Export Exposure	116	3.29	32.66	-58.66	586.47	2.68	31.23	-784.92	1340.55

Notes: For each manufacturing industry, employment changes are expressed as 100 × annual log changes, while changes in import exposure are defined as 100 × annual changes. The quantities used in these computations are deflated by the import and export price indexes. All observations are weighted by 2008 industry employment.

The average manufacturing employment contracted by 1.02 log points per year between 2008 and 2010, that is the pre-sanction period, while expanded by 4.04 log points per year in the post-sanction period between 2012 and

[10] All the data are annual and collected according to Iranian calendar which begins within a day of March 21 of the Gregorian calendar. The analysis is carried out based on the Iranian calendar and the specific Gregorian date, for instance 2012, refers to the period 20 March 2012–20 March 2013 in this study.

2014. The average import exposure increased by 1.48 percentage points per year between 2008 and 2010 and fell sharply by 3.46 percentage points per year after the sanctions. In contrast, the average export exposure shows very little variation over the two subperiods, which justifies our main interest in import exposure.

5 Results

Table (2) presents our main results for the model specified in equation (1). Column 1 presents the results when only the period dummies are included in the model. The estimated coefficients indicate that while the pre-sanctions period is associated with a decrease in employment (though not statistically significant), the years following the sanctions are associated with a significant increase in employment.

In column 2 we add the annual change in import exposure and its interaction with the industry import share (as a continuous variable). Results show that the effect of an increase in import exposure decreases with the import share. Column 3 reports the results for our baseline specification, where we now employ the dichotomous version of import share. The estimates in column 3 indicate that a 1 percentage point rise in industry import exposure increases industry employment by 0.21 percentage points for industries with import share below the median, while it decreases employment by 0.06 percentage points for industries with import share above the median. This is consistent with our first hypothesis (outlined in Section 2) that the sanctions asymmetrically affect industries with different level of exposure to international trade, thus leading to reallocation effects in employment.

In Table (3) we probe the robustness of these results by controlling for

Table 2: Employment Effects of Import Exposure

	(1)	(2)	(3)
Δ Import Exposure		0.072	0.209*
		(0.061)	(0.116)
Import $\text{Share}_{2011} \times \Delta$ Import Exposure		-0.035*	
		(0.018)	
$\text{HIS}_{2011} \times \Delta$ Import Exposure			-0.269**
			(0.115)
Import Share_{2011}		-0.518	
		(0.410)	
HIS_{2011}			-1.554
			(1.411)
1{2008–2010}	-1.016	-0.826	-0.503
	(1.320)	(1.406)	(1.494)
1{2012–2014}	4.037***	4.364***	4.517***
	(0.881)	(1.009)	(1.097)

Notes: The sample includes N=232 observations (116 four-digit ISIC manufacturing sectors over two subperiods). Employment changes are expressed as 100 $\times$ annual log changes, while changes in import exposure are defined as 100 $\times$ annual changes. Import Share is defined as the sector import in 2011 divided by the sector real output in 2008. High Import Share (HIS) is a dummy for industries above the median in the distribution of import share in 2011. In all specifications, observations are weighted by 2008 employment. Robust standard errors in parentheses are clustered on three-digit ISIC industries. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$.

industry-level export exposure and for potential industry confounding factors. First, in column 1 we add the industry export exposure to capture the total effect of the sanctions. Second, in column 2, we incorporate a set of dummies for 10 one-digit sectors. This allows to account for differential trends across the 10 one-digit sectors, therefore purging the effect of an industry's trade exposure from common trends within the one-digit sectors and leveraging variation in import growth across industries that are relatively similar in terms of skill intensities.

Third, in column 3, we include a set of industry-level start-of-period controls to measure the intensity of the use of production labor, namely the share of production workers in total employment and the log of the aver-

Table 3: Employment Effects of Import Exposure Including Industry-Level Controls

	(1)	(2)	(3)	(4)
Δ Import Exposure	0.209*	0.137	0.170**	0.146*
	(0.116)	(0.086)	(0.083)	(0.076)
HIS_{2011} × Δ Import Exposure	-0.270**	-0.182**	-0.239***	-0.194**
	(0.116)	(0.091)	(0.088)	(0.084)
HIS_{2011}	-1.547	-0.834	0.665	0.585
	(1.416)	(1.213)	(1.122)	(1.161)
Δ Export Exposure	-0.002	0.000	0.006	0.006
	(0.009)	(0.006)	(0.007)	(0.006)
1{2008–2010}	-0.497	-0.719	-1.085	-1.100
	(1.499)	(1.209)	(1.164)	(1.055)
1{2012–2014}	4.519***	4.292***	3.864***	3.911***
	(1.100)	(0.882)	(0.989)	(0.922)
One-digit sector dummies	No	Yes	No	Yes
Production controls	No	No	Yes	Yes

Notes: The sample includes N=232 observations (116 four-digit ISIC manufacturing sectors over two subperiods). Employment changes are expressed as 100 × annual log changes, while changes in import exposure are defined as 100 × annual changes. High Import Share (HIS) is a dummy for industries above the median in the distribution of import share in 2011. Production controls include the share of production workers in total employment and the log of average wage at the industry level. In all specifications, observations are weighted by 2008 employment. Robust standard errors in parentheses are clustered on three-digit ISIC industries. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$.

age wage. The inclusion of such variables is meant to capture the extent to which industries are exposed to technical change. Finally, in column 3, we add both one-digit sector dummies and production controls. Reassuringly, the estimates in columns 1-4 are very similar to those reported in column 3 of Table (2).

In Table (4) we further challenge the robustness of our main findings by trimming the sample to verify that results are not driven by industries that belong to the top/bottom 1 or 5% of the import share distribution. Reading the results across columns 1 to 6 of in Table (4), we find that the estimates are remarkably similar in magnitude to the baseline estimates presented in Table (2).

Table 4: Employment Effects of Import Exposure: Trimmed Sample

	(1) No top 1%	(2) No bottom 1%	(3) No top/ bottom 1%	(4) No top 5%	(5) No bottom 5%	(6) No top/ bottom 5%
Δ Import Exposure	0.209*	0.209*	0.209*	0.209*	0.317**	0.316**
	(0.116)	(0.116)	(0.116)	(0.116)	(0.150)	(0.150)
$HIS_{2011} \times \Delta$ Import Exposure	-0.271**	-0.269**	-0.271**	-0.270**	-0.376**	-0.377**
	(0.115)	(0.115)	(0.115)	(0.115)	(0.157)	(0.157)
HIS_{2011}	-1.563	-1.571	-1.580	-1.565	-1.799	-1.810
	(1.416)	(1.408)	(1.413)	(1.428)	(1.438)	(1.455)
1{2008–2010}	-0.491	-0.483	-0.471	-0.471	-0.286	-0.253
	(1.494)	(1.500)	(1.500)	(1.496)	(1.531)	(1.533)
1{2012–2014}	4.506***	4.530***	4.518***	4.485***	4.793***	4.759***
	(1.097)	(1.103)	(1.102)	(1.097)	(1.102)	(1.103)

Notes: The sample includes N=232 observations (116 four-digit ISIC manufacturing sectors over two subperiods). Columns (1)–(6) show the estimates by dropping the top one percent, the bottom one percent, the top and bottom one percent, the top five percent, the bottom five percent, and the top and bottom five percent of observations in Import Share in 2011, respectively. Employment changes are expressed as 100 × annual log changes, while changes in import exposure are defined as 100 × annual changes. High Import Share (HIS) is a dummy for industries above the median in the distribution of import share in 2011. In all specifications, observations are weighted by 2008 employment. Robust standard errors in parentheses are clustered on three-digit ISIC industries. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$.

To assess the heterogeneity in the impact of trade exposure on employment, in Table (5) we replicate the analysis by quartile of industry import share as for 2011. The estimates in column 1 indicate that the employment effect of the change in import exposure induced by the sanctions is highly asymmetric when moving from the 1st to the 4th quartile of the industry import share distribution, with the effect being positive for the former and negative for the latter. This pattern is confirmed in columns 2 to 4 in which we gradually augment our specification to control for all confounding factors discussed above.

Next, in Table (6) we explore whether our main results are heterogeneous across industries with different level of dependence on imported inputs[11], or with different type of technology, i.e. labor-intensive versus capital intensive industries. In line with our second hypothesis in Section 2, the results in columns 1-2 show that our main results are mostly driven by those industries with a high propensity to import inputs from abroad, likely intermediate

[11]Imported-input intensity of industry j is measured by the share of material spending allocated to imported inputs in 2008 in that industry.

Table 5: Employment Effects of Import Exposure by Quartile of Industry Import

	(1)	(2)	(3)	(4)
Δ Import Exposure	0.150*	0.101*	0.122***	0.086**
	(0.086)	(0.059)	(0.039)	(0.042)
2^{nd} Quartile Import $Share_{2011} \times \Delta$ Import Exposure	0.152	0.122	0.148	0.212
	(0.251)	(0.186)	(0.221)	(0.194)
3^{rd} Quartile Import $Share_{2011} \times \Delta$ Import Exposure	-0.177**	-0.117*	-0.181***	-0.109
	(0.081)	(0.068)	(0.055)	(0.068)
4^{th} Quartile Import $Share_{2011} \times \Delta$ Import Exposure	-0.240**	-0.167**	-0.212***	-0.160***
	(0.099)	(0.074)	(0.061)	(0.057)
1{2008–2010}	-0.117	-1.096	-2.404*	-2.759**
	(1.795)	(1.567)	(1.369)	(1.357)
1{2012–2014}	4.970***	3.988**	2.582	2.340
	(1.819)	(1.656)	(1.745)	(1.715)
One-digit sector dummies	No	Yes	No	Yes
Production controls	No	No	Yes	Yes

Notes: The sample includes N=232 observations (116 four-digit ISIC manufacturing sectors over two subperiods). Employment changes are expressed as 100 $\times$ annual log changes, while changes in import exposure are defined as 100 $\times$ annual changes. The i-th Quartile Import Share is a dummy for industries belonging to the i-th quartile in the distribution of import share in 2011. Quartile dummies are included in all specifications, but they are not reported. Production controls include the share of production workers in total employment and the log of average wage at the industry level. In all specifications, observations are weighted by 2008 employment. Robust standard errors in parentheses are clustered on three-digit ISIC industries. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$.

goods that are complement in the production process.

This reasonably explains the positive employment effect of an increase in import exposure for relatively closed industries, that is, with import share below the median. In fact, to the extent that extra imports represent capital/intermediate goods (which feature disproportionately in international trade), one would expect both final-good production and employment within the industry to rise.

In columns 3-6 we investigate whether results vary across industries with different labor intensity in the production process using two alternative classifications of labor- versus capital-intensive industries, namely from Kucera and Sarna (2006) and from Van Beers (1998). In principle, the employment response to a rise in import penetration should be larger in labor-intensive industries than in industries that rely more on machineries and capital in the production process. Interestingly, results in columns 3 to 6 provide empirical

Table 6: Employment Effects of Import Exposure: Heterogeneity by Technology Type and Imported-Input Share

	(1) High imported input intensity	(2) Low imported input intensity	(3) Labor intensive industries (KS classification)	(4) Capital industries industries (KS classification)	(5) Labor intensive industries (UN classification)	(6) Capital intensive industries (UN classification)
Δ Import Exposure	0.408**	-0.009	0.328***	0.026	0.423**	-0.100
	(0.192)	(0.065)	(0.097)	(0.119)	(0.166)	(0.115)
$HIS_{2011} \times \Delta$ Import Exposure	-0.486**	-0.040	-0.343***	-0.215	-0.452**	-0.006
	(0.222)	(0.080)	(0.105)	(0.151)	(0.178)	(0.143)
HIS_{2011}	-1.859	-1.326	-0.497	-4.492	-2.428	-2.160
	(1.945)	(2.410)	(1.340)	(2.787)	(1.742)	(2.262)
1{2008–2010}	-1.006	1.035	-3.277***	5.866*	-1.797	2.877
	(2.335)	(1.596)	(0.984)	(2.793)	(1.970)	(1.880)
1{2012–2014}	4.219***	5.203**	3.294**	6.869***	4.421***	5.421***
	(1.265)	(2.167)	(1.354)	(0.930)	(1.486)	(1.508)

Notes: The sample includes N=232 observations (116 four-digit ISIC manufacturing sectors over two subperiods). Columns (1)–(6) show the estimates for the subsamples based on imported–input intensity of the sectors and sectors' technology type. Specifically, columns (1)–(2) show the estimates for imported–input intensity above median and for imported–input intensity below median subsamples, respectively; columns (3)–(4) for labour intensive and capital intensive sectors subsamples (based on the Kucera and Sarna (2006)'s classification), respectively; and columns (5)–(6) for labour intensive and capital intensive sectors subsamples (based on the United Nations Industrial Development Organization' classification from (Van Beers, 1998)), respectively. Employment changes are expressed as 100 × annual log changes, while changes in import exposure are defined as 100 × annual changes. High Import Share (HIS) is a dummy for industries above the median in the distribution of import share in 2011. Imported-Input intensity of the industry is measured by the share of material spending allocated to imported inputs in (2008). In all specifications, observations are weighted by 2008 employment. Robust standard errors in parentheses are clustered on three-digit ISIC industries. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$.

support to this assumption and show that indeed the employment effects of import exposure are detectable only in the subsample of labor-intensive industries.

Next, we extend our main analysis to account for the sectoral linkages by means of the input-output table. The methodology follows directly from Acemoglu et al. (2016). We apply the input-output table for 2001 from the SCI. The choice of the 2001 input-output table ensures that the measured sectoral linkages are not endogenous to the imposition of sanctions. First-order upstream (downstream) import exposure is a weighted average of the direct trade shocks experienced by a given industry's purchasers (suppliers) defined as

$$\Delta IP_{j\tau}^{up} = \sum_{g} \omega_{gj}^{up} \Delta IP_{g\tau}, \quad \Delta IP_{j\tau}^{down} = \sum_{g} \omega_{gj}^{down} \Delta IP_{g\tau} \tag{4}$$

where ω_{gj} is the use coefficient in the input-output matrix which identifies the share of industry j's output that are used as inputs by industry g. The inverse Leontief matrix has been used for the full input-output linkages. Results are summarised in Table (7). Column 1 replicates our main specification for the sample of industries for which we have information of the input-output linkages.[12] Reassuringly, results are qualitatively similar to the main results reported in column 3 of Table (2), though they are, as expected, larger in magnitude given that we are now examining industries at a more aggregate level.

Column 2 and 3 report the results for the first-order and full input-output linkages, respectively. As shown in columns 2-3 of Table (7), we document no significant indirect effects of the sanctions-induced change in import exposure. To put it differently, we find that while industry employment strongly reacts to an increase in import exposure within the industry, it seems to be unresponsive to changes in import exposure of upstream or downstream sectors.

Based on the estimates shown in Table (7), we also compute the economic magnitude of the impact of economic sanctions. We follow Acemoglu et al. (2016) and Feenstra et al. (2019) and construct the counterfactual changes in employment that would have occurred in the absence of the sanctions, and hence, import changes. The difference between the actual and the counter-

[12] A combination of 28 two-digit and three-digit ISIC manufacturing sectors is identified from the input-output table.

Table 7: Employment Effects of Import Exposure Including Input-Output Linkages

	(1)	(2)	(3)
Direct Import Exposure	0.530***	0.729**	0.728**
	(0.143)	(0.282)	(0.213)
HIS_{2011} × Direct Import Exposure	-0.706***	-0.818**	-0.812***
	(0.190)	(0.328)	(0.261)
Upstream Import Exposure		-0.069	-0.122
		(0.387)	(0.184)
Downstream Import Exposure		-0.760	-0.471
		(0.785)	(0.506)
HIS_{2011} × Upstream Import Exposure		0.226	0.098
		(1.158)	(0.630)
HIS_{2011} × Downstream Import Exposure		-0.077	-0.011
		(1.415)	(0.794)

Notes: The sample includes N=56 observations (a combination of 28 two-digit and three-digit ISIC manufacturing sectors over two subperiods). Observations are weighted by 2010 employment. Employment changes are expressed as 100 × annual log changes, while changes in import exposure are defined as 100 × annual changes. High Import Share (HIS) is a dummy for industries above the median in the distribution of import share in 2011. First-order upstream (downstream) import exposure, in column (1), is a weighted average of the direct exposure experienced by a given industry's customers (suppliers), provided by Statistical Centre of Iran's 2001 input-output table. We use the inverse Leontief matrix for the estimates in column (3) to capture the full input-output linkages. Robust standard errors in parentheses. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$.

factual manufacturing employment in year t is expressed as follows:

$$\Delta L_t^{cf} = \sum_j L_{jt}(1 - e^{-\Delta \widehat{IP_{jt}}}) \tag{5}$$

where $\Delta \widehat{IP_{jt}} = (\widehat{\beta}_1 + \widehat{\beta}_2 HIS_{j2011}) \times \Delta IP_{j\tau}$. The coefficient estimates are those from column 3 of Table (7) and ΔIP_{jt} is the observed import change.

The results reported in Table (8) show that had there been no sanctions imposed on Iran in 2012, Iranian manufacturing employment would have contracted by 17,731 fewer jobs over the period 2012–2014. For the first subperiod over 2008–2010, import changes led to 27,913 job losses. The ob-

served employment between 2012 and 2014 increased by 108,365 jobs. Our estimates, therefore, suggest that in the absence of the sanctions, the expansion of manufacturing employment in Iran would have been 16.4 ($=\frac{17{,}731}{108{,}365}$) percentage points greater after 2012.

Table 8: Implied Employment Changes

	2008–2010	2012–2014	2008–2014
Net	-27,913	-17,731	-45,644
Import Share$_{2011}$ > median	-4,456	4,340	-116
Import Share$_{2011}$ < median	-23,456	-22,072	-45,528

Notes: Reported quantities represent the change in employment attributed to the sanctions-induced changes in import exposure. Negative (positive) values indicate that trade exposure is estimated to have reduced (increased) employment. We first use the estimated coefficients in Table (7), column (3), to predict the changes in each industry's log employment induced by changes in import and export exposure over the periods 2008–2010 and 2012–2014. To do so we multiply the coefficient of interest by the observed change in import exposure. We then use each industry's observed end-of-period employment to convert these estimates from logs into levels.

The implied job loss in employment for more open industries during 2012–2014 is consistent with the findings in Acemoglu et al. (2016) that reducing import exposure generates manufacturing employment gains. Turning to the magnitude of the effect by industry's import share, we document that most of the sanction-induced reduction in job losses would be attributable to industries with import share below the median.

This is in line with the results in Table (6), columns 1-2, which attribute the positive employment effect of an increase in import exposure to industries that feature high dependency on imported inputs. This seems, therefore, to imply that import exposure is affecting manufacturing employment mainly through increasing production costs and reducing labour demand in industries with import share below the median. Interestingly, this suggests that the sanctions caused significant reallocation effects across industries with

different import competition.

6 Conclusions

This paper estimates the effect of economic sanctions on employment in the short run. We use the imposition of unexpected and unprecedented international sanctions on Iran in 2012 and build on Acemoglu et al. (2016) to estimate the effect of a change in import competition on employment in Iran's manufacturing sector. We find significant asymmetric effects of import competition on industries with different import share as of 2011, the year before the sanctions, therefore indicating important employment reallocation effects across industries with different degree of exposure to international trade.

We document that the sanctions had an overall negative effect on employment. Our estimates suggest that, due to the sanctions, the employment growth rate in the manufacturing sector declined by 16.4 percentage points over 2012–2014. Importantly, we show that most of this effect is driven by industries characterized by high imported inputs intensity.

Consistent with (Etkes and Zimring, 2015), our results would suggest that, especially in the context of developing economies, where the manufacturing sector heavily depends on access to inputs from the world markets, trade shocks can have large short-run adverse effects on employment likely via a decline in productivity. In this sense, our results offer key insights to the analysis of trade policy in that extreme and unexpected changes in trade policy can cause important reductions in trade volume and, as a consequence, in employment.

The results of this study also expand our understanding of the possible

implications of international economic sanctions, a foreign policy tool that is still very much used in international relations. Our findings highlight, in fact, that the detrimental effects of sanctions on the economy of the target country extends also to the labor market.

References

Acemoglu, D., D. Autor, D. Dorn, G. H. Hanson, and B. Price (2016): "Import competition and the great US employment sag of the 2000s," *Journal of Labor Economics*, 34, S141–S198.

Adam, A. and S. Tsarsitalidou (2019): "Do sanctions lead to a decline in civil liberties?" *Public Choice*, 180, 191–215.

Afesorgbor, S. and R. Mahadevan (2016): "The Impact of Economic Sanctions on Income Inequality of Target States," *World Development*, 83, 1–11.

Afesorgbor, S. K. (2019): "The impact of economic sanctions on international trade: How do threatened sanctions compare with imposed sanctions?" *European Journal of Political Economy*, 56, 11–26.

Alesina, A., S. Özler, N. Roubini, and P. Swagel (1996): "Political instability and economic growth," *Journal of Economic growth*, 1, 189–211.

Alesina, A. and R. Perotti (1996): "Income distribution, political instability, and investment," *European economic review*, 40, 1203–1228.

Allen, S. H. (2008): "The Domestic Political Costs of Economic Sanctions," *Journal of Conflict Resolution*, 52, 916–944.

Álvarez, R. and S. Claro (2009): "David versus Goliath: The impact of Chinese competition on developing countries," *World Development*, 37, 560–571.

Andreas, P. (2005): "Criminalizing Consequences of Sanctions: Embargo Busting and Its Legacy," *International Studies Quarterly*, 49, 335–360.

Autor, D., D. Dorn, and G. H. Hanson (2013): "The China syndrome: Local labor market effects of import competition in the United States," *American Economic Review*, 103, 2121–68.

Autor, D. H., D. Dorn, and G. H. Hanson (2016): "The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade," *Annual Review of Economics*, 8, 205–240.

Balsvik, R., S. Jensen, and K. G. Salvanes (2015): "Made in China, sold in Norway: Local labor market effects of an import shock," *Journal of Public Economics*, 127, 137–144.

Bernhofen, D. M. and J. C. Brown (2004): "A Direct Test of the Theory of Comparative Advantage: The Case of Japan," *Journal of Political Economy*, 112, 48–67.

Coulibaly, B. (2009): "Effects of financial autarky and integration: The case of the South Africa embargo," *Journal of International Money and Finance*, 28, 454–478.

Dauth, W., S. Findeisen, and J. Suedekum (2014): "The Rise of The East and The Far East: German Labor Markets and Trade Integration," *Journal of the European Economic Association*, 12, 1643–1675.

Economist, T. (2014): "The pros and cons of a SWIFT response," .

Esposito, F. (2020): "Estimating the welfare costs of autarky: a sufficient statistics approach," *Economics Letters*, 194, 109361.

Etkes, H. and A. Zimring (2015): "When trade stops: Lessons from the Gaza blockade 2007–2010," *Journal of International Economics*, 95, 16–27.

Feenstra, R. C., H. Ma, and Y. Xu (2019): "US exports and employment," *Journal of International Economics*, 120, 46–58.

Gladstone, R. and S. Castlel (2012): "Global Network Expels as Many as 30 of Iran's Banks in Move to Isolate Its Economy," *The New York Times*.

Gutmann, J., M. Neuenkirch, and F. Neumeier (2020): "Precision-guided or blunt? The effects of US economic sanctions on human rights," *Public Choice*, 185, 161–182.

Haidar, J. I. (2017): "Sanctions and export deflection: evidence from Iran," *Economic Policy*, 32, 319–355.

Hatipoglu, E. and D. Peksen (2018): "Economic Sanctions and Banking Crises in Target Economies," *Defence and Peace Economics*, 29, 171–189.

Hufbauer, G., J. Schott, K. A. Elliott, and B. Oegg (2009): *Economic Sanctions Reconsidered: History And Current Policy*, Institute for International Economics, Washington, DC.

Hultman, L. and D. Peksen (2017): "Successful or Counterproductive Coercion? The Effect of International Sanctions on Conflict Intensity," *Journal of Conflict Resolution*, 61, 1315–1339.

IMF (2014): "Islamic Republic of Iran, Staff Report for the 2014 Article IV Consultation," *IMF Country Report No. 14/93*.

Irwin, D. A. (2005): "The Welfare Cost of Autarky: Evidence from the Jeffersonian Trade Embargo, 1807–09," *Review of International Economics*, 13, 631–645.

Kucera, D. and R. Sarna (2006): "Trade union rights, democracy, and exports: A gravity model approach," *Review of International Economics*, 14, 859–882.

Marinov, N. (2005): "Do Economic Sanctions Destabilize Country Leaders?" *American Journal of Political Science*, 49, 564–576.

McCaig, B. and N. Pavcnik (2018): "Export Markets and Labor Allocation in a Low-Income Country," *American Economic Review*, 108, 1899–1941.

McLean, E. V. and M. T. Radtke (2018): "Political Relations, Leader Stability, and Economic Coercion," *International Studies Quarterly*, 62, 357–370.

Neuenkirch, M. and F. Neumeier (2015): "The impact of UN and US economic sanctions on GDP growth," *European Journal of Political Economy*, 40, 110–125.

——— (2016): "The impact of US sanctions on poverty," *Journal of Development Economics*, 121, 110–119.

Peksen, D. (2009): "Better or Worse? The Effect of Economic Sanctions on Human Rights," *Journal of Peace Research*, 46, 59–77.

Peksen, D. and C. A. Drury (2010): "Coercive or corrosive: the negative impact of economic sanctions on democracy," *International Interactions*, 36, 240–264.

Pierce, J. R. and P. K. Schott (2016): "The Surprisingly Swift Decline of US Manufacturing Employment," *American Economic Review*, 106, 1632–1662.

Ray, D. and J. Esteban (2017): "Conflict and development," *Annual Review of Economics*, 9, 263–293.

Samore, G. (2015): "Sanctions against Iran: A guide to targets, terms, and timetables," *Addendum to: Decoding the Iranian nuclear deal (April 2015). Cambridge, MA: Belfer Center for Science and International Affairs. http://belfercenter. ksg. harvard. edu/files/Iran% 20Sanctions. pdf.*

Van Beers, C. (1998): "Labour standards and trade flows of OECD countries," *The World Economy*, 21, 57–73.

Whang, T. (2011): "Playing to the Home Crowd? Symbolic Use of Economic Sanctions in the United States," *International Studies Quarterly*, 55, 787–801.

Wood, R. M. (2008): "A Hand upon the Throat of the Nation": Economic Sanctions and State Repression, 1976–2001," *International Studies Quarterly*, 52, 489–513.