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Precision-guided or blunt? The effects of US economic sanctions on human rights

Jerg Gutmann[1,2] · **Matthias Neuenkirch**[2,3,4] · **Florian Neumeier**[2,4,5]

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Abstract
This study analyzes the consequences of economic sanctions for the target country's human rights situation. We offer a political economy explanation for different types of human rights infringements or improvements in reaction to economic shocks caused by sanctions. Based on that explanation, we derive hypotheses linking sanctions to four types of human rights: economic rights, political and civil rights, basic human rights, and emancipatory rights. We use endogenous treatment regression models to test those hypotheses by estimating the causal average treatment effect of US economic sanctions on each type of human rights within a uniform empirical framework. Unlike previous studies, we find no support for adverse effects of sanctions on economic rights or basic human rights, once the endogenous selection of sanctioned countries is modelled. With respect to women's rights, our findings even indicate a positive effect of sanctions that is associated with improvements in women's economic rights. Only our results for political rights and civil liberties suggest significant deterioration under economic sanctions. We conclude that it is important to account for the potential endogeneity of economic sanctions and to distinguish different dimensions of human rights, as the effects of economic sanctions along those dimensions may vary considerably.

Keywords Democratization · Discrimination · Economic sanctions · Endogenous treatment model · Human rights · Repression

JEL Classification F51 · F52 · F53 · K10 · K11 · P14 · P16 · P26

1 Introduction

Economic sanctions typically are imposed to compel the target country to comply with the imposing state's interests. The coercive power sanctions are believed to entail results from their potential to inflict economic damage. Economic sanctions can take on different

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✉ Matthias Neuenkirch
neuenkirch@uni-trier.de

Extended author information available on the last page of the article

forms; they can involve restrictions on commercial or financial transactions, retractions of foreign aid, investment bans, or embargoes on trade with certain or all goods and commodities. Relying on sanctions instead of alternative means of coercion may raise hopes that international military conflict can be avoided. However, the use of sanctions has been criticized because of the potential damage they inflict on the civilian population (de Waart 2015; Peksen 2011). The findings of Allen and Lektzian (2013) indicate that highly effective sanctions have adverse health effects that are comparable to those resulting from major military conflicts. Gutmann et al. (2017) estimate that the average life expectancy at birth falls by half a year when a country is subjected to US sanctions. Indeed, negatively affecting the target country's population is not only an unfortunate side effect of sanctions, but a central element of the causal mechanism, which ideally results in a compliant reaction by the targeted country's political regime. Despite their adverse effects, sanctions remain a popular foreign policy tool and the US government recently has even started to use them as bargaining chips in negotiations with allied countries. A comprehensive understanding of their welfare consequences, not only in terms of income and health of the population, but also regarding deteriorating institutional quality in a country, thus is urgently required.

Compared to their income or health effects, the theoretical relationship between sanctions and the protection of human rights is more ambiguous (Hafner-Burton 2014). On the one hand, sanctions can motivate concessions to improve human rights, if a political regime is starved of the resources it needs to oppress disobedient domestic groups. On the other hand, sanctions may escalate a tense human rights situation by incentivizing the population to dissent and depriving political leaders of the economic means to compensate their supporters for their loyalty. Understanding the human rights consequences of economic sanctions is of fundamental importance for evaluating sanctions as a policy instrument.

The extant empirical evidence indicates that economic sanctions tend to be associated with deteriorations in human rights protections. Table OA1 in the Online Appendix surveys 12 published articles that empirically evaluate the effects of economic sanctions on different measures of the human rights situation in the target state. The majority of the studies report dispiriting results. The adverse economic shock on a country targeted by sanctions appears not only to motivate infringements of economic and political rights through the confiscation of private property (Peksen 2016b) and political repression (Adam and Tsarsitalidou 2019; Peksen and Drury 2009, 2010), but also infringements of basic human rights (Escribà-Folch 2012; Peksen 2009; Wood 2008). Carneiro and Apolinário (2016) provide evidence that targeted UN sanctions against African states do not have less detrimental consequences. Sanctions also amplify discrimination against marginalized social groups, especially ethnic minorities (Peksen 2016a). However, opposing evidence has been reported as well. Soest and Wahman (2015a) find that sanctions aimed at promoting democratization coincide with democratic transitions.

The literature on sanctions not only exhibits some contradictory results, but the tested empirical models also suffer from several drawbacks. First, the potential endogeneity of economic sanctions is ignored, although the imposition of economic sanctions is in many cases motivated by an unfavorable human rights situation; sanctions tend to coincide with political and social transitions. Second, empirical studies typically rely on single, narrowly defined indicators of a country's existing human rights situation. Such a limited perspective neglects the multi-dimensionality of human rights and the interdependencies between those dimensions. Finally, the effects of sanctions on different measures of human rights are tested using different empirical methods and model specifications, making comparisons across studies very difficult.

The present study offers a number of improvements to the literature dealing with the effects of economic sanctions on human rights. First, we systematically evaluate political economy explanations for a political regime's reaction to the economic shocks caused by the imposition of sanctions. Based on that theoretical framework, we derive testable hypotheses that link economic sanctions to four empirically distinguishable human rights dimensions: economic rights, political rights, basic human rights and emancipatory rights. Second, we evaluate the effect of US economic sanctions on each of those four human rights dimensions within a uniform empirical framework, such that we also can take the interdependencies between different human rights dimensions into account. To do so, we draw on two novel datasets for human rights protections (Gutmann and Voigt 2015) and economic sanctions (Neuenkirch and Neumeier 2015, 2016). Third, we take the endogeneity of US economic sanctions into account by estimating endogenous treatment regression models. More precisely, we incorporate the potential target country's geographical and genetic distances from the United States, as well as its voting alignment with the United States in the UN General Assembly (UNGA), as treatment instruments that predict the imposition of US sanctions without affecting the human rights situation in a country directly. The relevance and excludability of our instruments gives us confidence that our estimates can be interpreted causally.

Our key finding is that, once the endogeneity of treatment assignment is accounted for, some of the adverse human rights consequences of sanctions expressed in large parts of the literature are not supported by the data. Basic human rights and economic rights appear not to deteriorate under sanctions. Emancipatory rights are, on average, even strengthened when a country faces sanctions imposed by the United States. Only political and civil rights are an exception, in that we find a causal negative effect of economic sanctions.

2 Theory and hypotheses

To understand the possible human rights consequences of economic sanctions, it is essential to be aware of their economic effects on the targeted country. Countries subject to sanctions experience both increases in poverty and income inequality (Choi and Luo 2013; Neuenkirch and Neumeier 2016) as well as declines in economic growth (Hufbauer et al. 2009; Neuenkirch and Neumeier 2015). Those consequences are important, because it has been argued widely that negative economic shocks, such as a reduction in income or an increase in inequality, help citizens coordinate resistance against elites (Acemoglu and Robinson 2001; Knutsen 2014). In line with the same argument, Allen (2008) shows that anti-government activities do rise under economic sanctions and Marinov (2005) provides empirical evidence that sanctions destabilize political leaders. Obviously, political leaders do well to take the threats caused by economic sanctions seriously. However, from a theoretical perspective, the consequences sanctions have for the human rights situation in the targeted state are ambiguous. Table 1 summarizes the arguments that link economic sanctions to different dimensions of human rights discussed in the literature. As can be seen, arguments can be made for very different human rights effects of sanctions.

Wintrobe (2000) argues that, in principle, dictators have two strategies for dealing with internal threats. They can either redistribute resources to buy the loyalty of the citizens, or they can use repression to discourage the citizens from revolting. The choice between those policy instruments is determined by their relative cost-effectiveness in preventing revolutions. Kaempfer et al. (2004) apply Wintrobe's model to the imposition of economic

Table 1 Theoretical predictions

	Positive effect	Negative effect
Economic rights	H1a: Efficiency hypothesis Politicians who are benevolent or politically accountable may remove barriers to trade to mitigate the effects of sanctions on the population	H1b: Rent-seeking hypothesis Government may use the scarcity of resources to punish opponents and reward loyalists. Furthermore, government may extract rents (Peksen 2016b; Pond 2017)
Political and civil rights	H2a: Concession hypothesis Democracy may serve as a self-commitment of a weakened government regarding future redistribution by permanently sharing or handing over political power	H2b: Repression hypothesis I Weakened government may choose to repress its citizens in order to hold on to power. Due to sanctions, it may lack the means to pay them off (Adam and Tsarsitalidou 2019; Peksen 2009; Peksen and Drury 2009, 2010; Wood 2008)
Basic human rights	H3a: Compliance hypothesis Governments may comply with the demands of senders of sanctions and limit the most severe human rights violations, also because their capacity for coercion is lowered (Peksen 2009)	H3b: Repression hypothesis II Weakened government may choose to repress its citizens in order to hold on to power. Due to sanctions, it may lack the means to pay them off (Adam and Tsarsitalidou 2019; Peksen 2009; Peksen and Drury 2009, 2010; Wood 2008)
Emancipatory rights	H4a: Participation hypothesis Increased labor market participation of women strengthens female empowerment	H4b: Discrimination hypothesis Economic grievances lower the cost of discrimination against women (Drury and Peksen 2014; Peksen 2016a)

sanctions and find that the effect of sanctions on the (relative) costliness of repression is ambiguous. In the models of Acemoglu and Robinson (2001, 2006), the elites (or the dictator, respectively) can choose a third strategy. They can democratize voluntarily to avoid being removed from office in a violent revolution. After democratization, the (poor) majority of the population gain control over the state and choose their benefits from redistribution in the present and future. But why is democratization different from the redistributive policies of the elites? The reason is that an increase in tax rates in non-democracies could be reversed as soon as the citizens no longer pose a threat. Thus, the elites cannot credibly commit to permanent redistributive policies, if both non-democratic institutions persist and the de facto power of citizens to stage a revolution is transitory. In contrast, transition to democracy represents a credible commitment device as *de jure* political power is handed over to the citizens.

The preceding discussion highlights that the effect of economic sanctions on *political and civil rights* is ex ante unclear. On the one hand, a transfer of *de jure* political power to the citizens would imply an improvement in the political and civil rights situation. On the other hand, governments targeted by economic sanctions may prefer to repress the citizenry and restrict political and civil rights. Peksen and Drury (2009, 2010) argue that opposition groups gain momentum when the government is put under pressure by external actors and that the government reacts by limiting political rights to signal its willingness to deter active political dissent. That effect is amplified if the grievances caused by sanctions lead to anti-government violence. Although the argumentation of Peksen and Drury (2009) is somewhat contradictory (opposition groups, e.g., are at the same time weakened and better mobilized owing to sanctions), it further supports the notion that the theoretical association between sanctions and political rights is inconclusive.

If the government reacts to the imposition of economic sanctions by resorting to repression, a deterioration in *basic human rights* is likely to occur as well. Verwimp's (2003) political-economic analysis of the genocide in Rwanda, for example, shows how desperately a regime can react to threats resulting from economic hardship. Acemoglu and Robinson (2000) offer another argument in favor of repression. If asymmetric information about the elite's strength exists, the citizens might interpret economic concessions by the elites as a sign of weakness, which makes the use of repression relatively more attractive. Wood (2008) points out that a regime under economic sanctions simply may lack the resources necessary to placate its citizens and, hence, must resort to repressive measures. Although sanctions may exacerbate human rights violations by instigating repressive measures by the ruling elite, sanctions frequently are employed to put pressure on countries to refrain from those very violations of basic human rights. Hence, target countries face incentives to improve their human rights situations and to end at least the more visible forms of rights violations. Moreover, Peksen (2009) argues that sanctions may weaken the target regime's coercive capacity—by denying them economic and military resources required for maintaining political stability—and thereby reduce basic human rights violations.

Another potentially important effect of sanctions concerns *economic rights*. A political regime may react to sanctions by redistributing resources to those members of society on whose continued support it depends. Redistribution is not only possible by implementing monetary transfers, but also by governmental interference in economic rights. That is a central argument in the rent-seeking literature (Drezner 2011, p. 100; Krueger 1974). Weaker property rights protections and other restrictions on economic liberties, such as price caps, can be used to reduce the risk of a revolution by appeasing the majority of the population or powerful groups within the population. Peksen (2016b) points out that the ruling elite also might tacitly condone the predatory actions of their

key supporters by not enforcing laws that would protect private property. In addition, politicians also might use the scarcities created by sanctions to appropriate rents for themselves, as explained, for example, by Rowe (2001) in the case of the Rhodesian tobacco cartel organized by the government itself (see Kaempfer and Lowenberg 1999 for a more general discussion). Those political economy arguments assume that politics is determined by the self-interests of politicians. If the interests of politicians and the general population are more aligned, economic rights might even improve under sanctions, as well-functioning markets might be the best hope for mitigating the adverse effects of economic sanctions on the economy and, eventually, the citizens.

So far, we have focused on the conflict between a country's general population and its elites. That perspective, however, neglects that the most vulnerable social groups might be threatened the most when societies face income shocks. An extreme case certainly is that of 'witch killings' in rural Tanzania, as studied by Miguel (2005). The literature on the economics of discrimination suggests that labor-market bias, for example, is less costly for those who discriminate during economic downturns, as a recession creates a temporary excess supply of labor (see, e.g. Becker 1971). In line with that hypothesis, Drury and Peksen (2014) argue explicitly that economic grievances caused by sanctions lead to more violations of *women's rights*. In contrast, the so-called added worker effect predicts that an economic shock may force non-working women to take up jobs and contribute to the household's income. That response can lead to pressure against gender discrimination. Sabarwal et al. (2011) survey the literature on women's (labor market) reactions to economic shocks and conclude that an increase in female labor force participation predominates, particularly in the less developed and newly industrialized countries typically sanctioned by the United States. Geddes and Lueck (2002) offer a very straightforward explanation for the extension of women's rights based on property rights theory (see also Lemke 2016). When women's labor market opportunities improve, husbands initially hold all legal power, but are unable to control the efforts exerted by women at work. Given that principal-agent problem, family income could be increased by endowing women with economic rights, which would incentivize them to exert more effort. Similarly, Bertocchi (2011) explains the extension of women's political rights by their labor market opportunities and the resulting reduction in the gender wage gap. If, as a consequence, the gap between the tax rates preferred by (potential) male and female voters or politicians narrows, men are more likely to support the extension of women's political rights. That theoretical argument is supported by Hicks's (2013) finding that female suffrage systematically was extended after interstate conflicts, particularly if the disproportionate losses of male lives in combat led to increases in female labor force participation.

The discussion thus far highlights uncertainty when it comes to forming hypotheses about the human rights effects of sanctions. While ambiguity is a good justification for taking a careful look at the data, we want to be more specific about our own predictions. In light of the preceding discussion, we expect that sanctions lead to a deterioration of economic rights when they are imposed. The reason is that leaders of countries subject to sanctions have an incentive to extract rents in order to buy the loyalty of their supporters. In a similar vein, we expect an infringement of basic human rights as well as political rights and civil liberties under economic sanctions. The sanctioned regime's alternative to the use of repressive measures is democratization, which would imply a permanent loss of political power and privileges and thus can be only the last resort. In other words, we expect the repression hypothesis to be corroborated, which would be consistent with large parts of the empirical literature. Regarding women's rights, we expect a positive effect of economic

Table 2 Principal component analysis of human rights dimensions

Variable	Comp 1	Comp 2	Comp 3	Comp 4	Unexpl.
Disappearances		0.53			0.40
Extrajudicial killings		0.56			0.26
Political imprisonment		0.25			0.40
Torture		0.44			0.35
Freedom of assembly	0.38				0.27
Freedom of foreign movement	0.38				0.31
Freedom of domestic movement	0.31				0.56
Freedom of speech	0.32				0.42
Electoral self-determination	0.35				0.26
Freedom of religion	0.32				0.49
Worker's rights					0.47
Women's economic rights			0.57		0.23
Women's political rights			0.42		0.50
Women's social rights			0.56		0.21
Legal structure and property rights				0.36	0.23
Regulation				0.63	0.26
Freedom to trade internationally				0.60	0.20
Political rights	– 0.32				0.18
Civil liberties	– 0.29				0.14

Source: Gutmann and Voigt (2015). Factor loadings are omitted if |loading| < 0.25

sanctions. In particular, we expect that women's economic rights improve because of the added worker effect.

3 Data and empirical methodology

3.1 Human rights and sanction indicators

As dependent variables, we employ four different human rights indicators. They are taken from a new dataset that measures human rights protections along four empirically distinguishable dimensions: economic rights, political and civil rights, basic human rights, and emancipatory rights. Indicators reflecting those dimensions are collected from Gutmann and Voigt (2015), who apply principal component analysis to 19 well-established human rights indicators for 121 countries over the 1981–2011 period. The underlying rights' indicators are taken from Cingranelli and Richards (2010), Gwartney et al. (2014), and Freedom House (2014). Table 2 shows the varimax rotated factor loadings with Kaiser normalization, as in Gutmann and Voigt (2015).

The bivariate correlations among the four components are around 0.60. It should be noted that all four indicators reflect a country's de facto human rights situation. That makes sense for our research design, as many policies adopted by a regime in reaction to sanctions do not necessarily require legal changes or, in the case of repressive policies, often are extra-legal. Property rights, for example, could be improved or weakened by rewriting

parts of the constitution, but rising expropriation could just as well be based on existing laws. In our analysis, we standardize the four components so that each of them has a mean of 0 and a standard deviation of 1 in order to facilitate the interpretation of our coefficient estimates.

Using principal component analysis for the construction of human rights indicators has an important advantage over reliance on the original variables. Since our principal components are based on common variations in the underlying indicators, they are robust to systematic biases and measurement errors in those variables. Consequently, the principal components provide a reliable and objective estimate of the human rights situation, even when the validities and objectivities of single indicators might be questioned. As part of our robustness checks, we also use the single human rights indicators as dependent variables (see Table OA6 in the Online Appendix).

Our main explanatory variable, the economic sanction indicator, takes the value 1 if a certain country i is subject to US economic sanctions in year t, and 0 otherwise. The main reason for limiting our analysis to US sanctions relates to our identification strategy (see Sects. 3.2 and 3.3).[1] We rely on a unique dataset by Neuenkirch and Neumeier (2015) that extends Hufbauer et al. (2009) and covers all US sanction episodes between 1976 and 2012. After adjusting the sample of Neuenkirch and Neumeier (2015) to the smaller human rights dataset of Gutmann and Voigt (2015), 235 country-year observations with US sanctions in place remain. The countries included in our final dataset as well as the sanction episodes are listed in Table OA2 in the Online Appendix.

Following the extant empirical literature, we also estimate separate effects for different types of economic sanctions. First, we evaluate the effect of sanctions that impose *low costs* versus those imposing *high costs* on the target state. To that end, we utilize estimates of the sanction-induced decline of the target state's GNP provided by Hufbauer et al. (2009), which is available for 205 sanction country-years. We consider sanctions that lead to a reduction in the target state's GNP by $<1\%$ as *low-cost* sanctions (129 observations) and sanctions associated with declines of 1% of GNP or more as *high-cost* sanctions (76 observations). Second, we distinguish between *unilateral* sanctions imposed by the United States only (133 observations) and *multilateral* sanctions when the United States coordinated with other nations or international organizations (102 observations). Third, we distinguish sanctions targeted against *democratic* states, as measured by a polity2 score of six or higher before the imposition of sanctions (40 observations) from those targeted against *non-democratic* states (195 observations). Fourth, we examine the time-wise impact of US sanctions by creating three subgroups: sanctions that have been in place for *fewer than six years* (91 observations), for *six to ten years* (58 observations), and for *eleven or more years* (86 observations). Finally, we distinguish between sanctions imposed explicitly because of human rights infringements in the target state (113 observations) and sanctions that were imposed for other reasons (122 observations).

Figure 1 supplies a first impression of the association between economic sanctions and human rights. It shows the average realizations of our human rights indicators during the sample period, separately for countries subject to sanctions (solid gray lines) and non-sanctioned countries (solid black lines). The dashed lines show the 5% and the 95% quantiles for both groups.

[1] Adam and Tsarsitalidou (2019) also discuss other reasons why focusing on US sanctions might be advantageous.

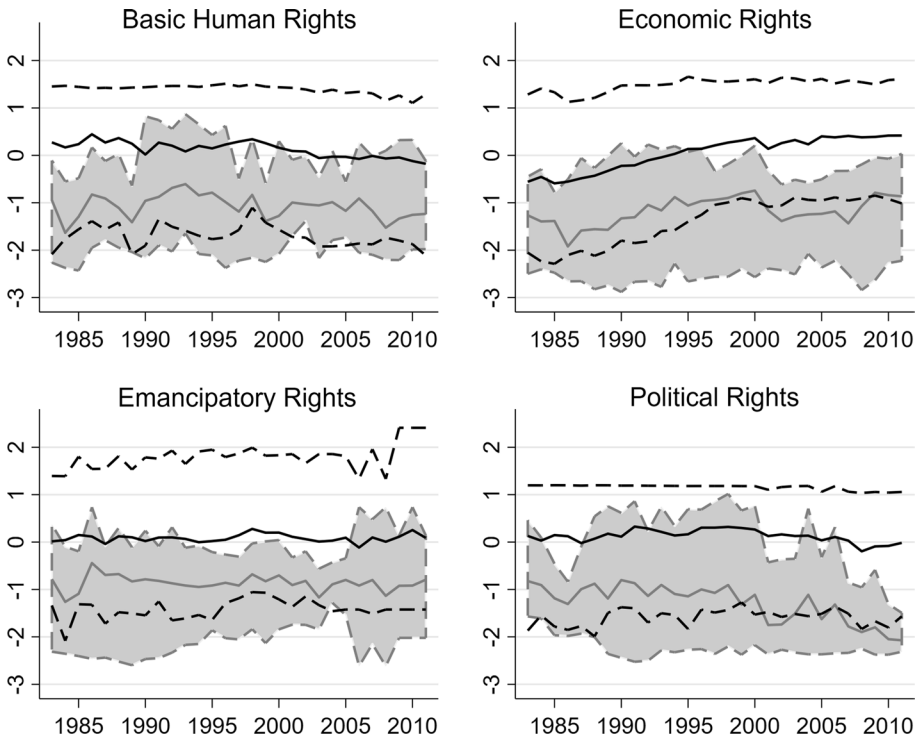

Fig. 1 Human rights over time. *Notes*: Figure shows average human rights conditions per year in non-sanctioned countries (solid black lines) and sanctioned countries (solid gray lines). Dashed black lines represent the 5% and the 95% quantiles for non-sanctioned countries and dashed gray lines as well as the gray-shaded area the corresponding quantiles for sanctioned countries. Figure 2 in the Appendix shows the number of observations for non-sanctioned and sanctioned countries over time

Figure 1 shows a significant upward trend for economic rights in both non-sanctioned and sanctioned countries. In contrast, the level of political rights appears to deteriorate in countries subject to US sanctions. Basic human rights and emancipatory rights remain approximately constant over time. The dispiriting finding that human rights in general do not improve noticeably over our sample period can be explained by the changing composition of the sample (see also Fig. 2 in the Appendix). The number of countries with complete data doubles from 55 in 1983 to roughly 110 countries from 2002 onwards. Over that period, more data for less developed and newly industrialized countries became available.

Figure 1 also suggests a striking difference between human rights in sanctioned and non-sanctioned countries that persists over time. On average, the human rights situation in sanctioned countries is roughly one standard deviation worse than their non-sanctioned counterparts. Arguably, that difference may be driven by two factors. On the one hand, the worse human rights situation could be a direct consequence of economic sanctions, as the incumbent regime might use repression to secure its power (see Sect. 2). On the other hand, an already unfavorable human rights situation could be one of the reasons for the imposition of economic sanctions (see also Hufbauer et al. 2009). Therefore, our estimation

strategy below attempts to disentangle those two (potentially opposing) explanations, that is, we isolate the treatment effect of economic sanctions from selection into the treatment.

3.2 Estimation strategy

When analyzing the human rights consequences of economic sanctions empirically, the biggest challenge is to establish a causal link between economic sanctions and a country's human rights situation. Sanctions frequently are imposed because of human rights violations by the target country's political regime. And even if they are not imposed because of human rights violations, sanction episodes may coincide with political or social transitions that are related to the human rights situation. To account for the endogeneity of sanction episodes and to evaluate the causal influence of US economic sanctions on the target states' respects for human rights, we employ an endogenous treatment model. Endogenous treatment models allow identification of the causal effect, although selection into treatment is based on unobservable factors that also affect the outcome of interest. Identification presupposes the availability of at least one variable that affects treatment assignment without being directly related to the outcome.[2]

Suppose that the consequences of treatment can be modelled as in the following equation, which we refer to as the *outcome model*:

$$y_{it} = \boldsymbol{x}'_{\boldsymbol{it}}\boldsymbol{\beta} + \delta d_{it} + u_{it}, \tag{1}$$

where y is the outcome of interest (i.e., one dimension of human rights), $\boldsymbol{x}$ is a vector of exogenous covariates that potentially explain the outcome, and d is an indicator variable that takes the value 1 if a country is subject to treatment (i.e., it is under US sanctions). Our parameter of interest, the average treatment effect on the treated (ATT), is denoted by δ. To account for the endogeneity of treatment assignment, Eq. (1) is complemented by a binary choice model that explains selection into treatment, which we refer to as the *selection model*:

$$d^*_{it} = \boldsymbol{z}'_{\boldsymbol{it}}\boldsymbol{\gamma} + v_{it}, \tag{2}$$

where d^*_{it} is a latent variable, which is assumed to be standard normally distributed, such that

$$d_{it} \begin{cases} 1 \text{ iff } d^*_{it} > 0 \\ 0 \text{ iff } d^*_{it} \leq 0 \end{cases}$$

and $\boldsymbol{z}$ is a vector of exogenous covariates that affect the likelihood of being selected into treatment. The vector $\boldsymbol{z}$ in the selection model may, but does not have to, overlap with the vector of covariates $\boldsymbol{x}$ employed in the outcome model.

[2] The endogenous treatment model was first introduced by Heckman (1976, 1978). It is closely related to the Heckman selection model, as it can be interpreted as addressing a double sample-selection problem (Clougherty et al. 2016, p. 298). Alternatively, one could estimate two separate Heckman selection models for the treated and untreated units. That would, however, be less efficient, as only the subsample of the treated and untreated units, respectively, could be used to identify the parameter of interest. See Cameron and Trivedi (2005) for a thorough discussion. Compared to an instrumental variable estimation, the treatment effects are estimated more precisely because the outcome and the treatment model are estimated simultaneously.

To see how the endogeneity of treatment assignment affects the outcome of interest, it is helpful to take a closer look at the relation between the error terms of Eqs. (1) and (2). Assume that the vector of error terms $(\boldsymbol{u_{it}}, \boldsymbol{v_{it}})$ comes from a zero mean bivariate normal distribution and has the following covariance matrix:

$$\sum = \begin{bmatrix} \sigma^2 & \sigma\rho \\ \sigma\rho & 1 \end{bmatrix},$$

where ρ measures the correlation between treatment assignment and outcome errors and σ^2 measures the variance of the outcome error. For identification, the variance of v is restricted to 1. Exogeneity of the treatment implies that $\rho = 0$, that is, the outcome of interest is not related to unobservables affecting the likelihood of treatment assignment. The coefficient for ρ allows us to assess the importance of the selection bias for the outcome of interest. For example, a negative (positive) value of ρ implies that unobservables that negatively affect a country's human rights situation tend to concur with unobservables that raise (lower) the likelihood of being subject to US economic sanctions.

Estimating the ATT presupposes the identification of ρ, which, in turn, requires that at least one variable in vector $\boldsymbol{z}$ must not be included in vector $\boldsymbol{x}$. That non-included variable needs to be correlated significantly with the likelihood of receiving treatment, but uncorrelated with the error term of the outcome model. We refer to a variable fulfilling those conditions as a *treatment instrument*. When a suitable treatment instrument is available, all parameters that need to be identified to compute the ATT can be estimated simultaneously by Maximum Likelihood.

In the following, we use simple OLS regressions as an as if benchmark for evaluating the influence of US economic sanctions on the targeted governments' respect for human rights. For that purpose, we estimate the following equation:

$$y_{it} = \boldsymbol{x'_{it}}\tilde{\boldsymbol{\beta}} + \tilde{\delta} d_{it} + \tilde{u}_{it}, \tag{3}$$

where y, x, and d are defined as in Eq. (1). By comparing the findings from simple OLS regressions, which assume that sanctions were assigned randomly, with those obtained from the endogenous treatment regression models, we can assess how severely the endogeneity of the treatment affects the results presented in the extant empirical literature.

3.3 Control variables and treatment instruments

In our empirical analysis,[3] the vector of covariates in the selection model (vector $\boldsymbol{z}$) includes factors that can affect the likelihood of being targeted by US economic sanctions. According to Hufbauer et al. (2009), US sanctions primarily have been imposed for three reasons: (i) to coerce states (or militant groups within states) to stop threatening or infringing the sovereignty of another state; (ii) to foster democratic change in a country, protect democracy, or destabilize an autocratic regime; and (iii) to protect the citizens of a state from political repression and to enforce human rights. Choi and James (2016) provide evidence that the third reason is the principal explanation for US intervention.

Consequently, we include one-year lagged realizations of our human rights indicators in vector $\boldsymbol{z}$. We also account for a country's level of democracy. Furthermore, we consider the

[3] Table 4 in the Appendix summarizes all variables as well as their definitions and sources. Table OA3 provides summary statistics and detailed information on episodes of economic sanctions and conflicts.

occurrence of minor and major conflicts. We add US president fixed effects to control for president-specific and time-specific influences, such as differences with respect to foreign policy stances across the tenures of US presidents (Reagan, Bush Sr., Clinton, Bush Jr., and Obama) and also for changes in the global political environment (e.g., the fall of the Iron Curtain or the adoption of the UN's Millennium Development Goals).

Additionally, we consider one-year lagged macroeconomic variables in the selection model: real GDP per capita in logs, the growth rate of real GDP per capita, population in logs, trade openness (exports plus imports divided by GDP), trade shares with the United States (exports plus imports from the United States divided by the country's total exports plus imports), economic and military aid per capita from the United States (both in logs), and foreign direct investment per capita from the United States (in logs). Vector $\boldsymbol{x}$ in the outcome model includes the same covariates as just described for vector $\boldsymbol{z}$ plus country fixed effects to account for unobserved heterogeneity and year fixed effects instead of US president fixed effects.

In our empirical analysis, we employ four treatment instruments to identify the ATT. Those variables are included in vector $\boldsymbol{z}$, but not in vector $\boldsymbol{x}$, because we believe that they do not affect the outcome variables of interest directly. First, we use the geographical distance in logs between the capital of each country included in our sample and Washington, D.C. as a treatment instrument. Several reasons can be identified for believing that countries that are geographically close to the United States are *ceteris paribus* more likely to be targeted by US economic sanctions. First, internal conflicts in a country that is close to the United States may pose more serious threats to the United States itself. Such types of conflicts also may cause direct adverse consequences for the United States, such as an impairment of economic relations (Martin et al. 2008), or the danger of contagion (Weidmann and Ward 2010). Moreover, human rights violations that cause safety-seeking refugee flows are more threatening to US interests when the country of origin is close to the United States (Nielsen 2013). Second, the closer a country is to the United States, the greater the awareness of its political and social situations among the general US public, thus increasing the pressure on US politicians to intervene. Finally, sanctions may be considered more effective if the prospective target nation is close. Neuenkirch and Neumeier (2015) show that the magnitude of the adverse effect of US economic sanctions on the target state's GDP is inversely related to the target state's distance from the United States. Inasmuch as the United States takes the expected effectiveness of its sanction measures into account, a negative association should be found between the likelihood of implementing sanctions and the potential target country's distance from the US capital. A study that makes use of the same treatment instrument is Bell et al. (2017). They instrument the deployment of US troops by entering distance from the United States (in logs) and a dummy that identifies US allies. Their results indicate that US troops reduce human rights violations in countries where they are deployed, as long as those countries are not strategically important to the United States.

Our second treatment instrument is an indicator of genetic distance by Spolaore and Wacziarg (2009). Genetic distance is a synthetic measure of the difference in selectively neutral allelic frequencies across two populations. It has been argued that genetic distance measures the time since populations have shared common ancestors, that is, the time since they have been the same population. Underlying that instrument is the same logic as for the geographic distance indicator. Giuliano et al. (2014) show that genetic distance functions as a proxy for geographical barriers to migration and trade (specifically seas, mountain chains, and the ruggedness of terrains), because those factors shaped genetic differences across populations, mostly in the Neolithic Period, beyond what can be explained by a

simple measure of geographic distance. Genetic features are important barriers to cultural and economic exchange between countries and we use them to proxy for those barriers. We expect, in line with our arguments in the previous paragraph, that countries more genetically distant from the United States are less likely to be targeted by US sanctions.[4]

Using data taken from Bailey et al. (2017), our third treatment instrument measures the alignment of a country's votes in the UNGA with US votes. To construct that measure, Bailey et al. (2017) propose a dynamic ordinal spatial model to estimate annual state ideal points along a single dimension. The absolute difference between each country's ideal point and the US's ideal point then is employed as an indicator of voting distance. Arguably, a country that tends to vote in alignment with the United States (i.e., those countries for which the values of the voting distance measure are close to zero) can expect more favorable treatment, thus reducing the likelihood of being targeted by US sanctions. Dreher and Jensen (2013), for example, argue that the United States punishes governments economically if they take opposing political positions in the UNGA. Nielsen (2013) finds that aid recipients that vote with donors in the UNGA are exempt from aid sanctions in response to human rights violations. The same holds true in case of joint membership in military alliances. Soest and Wahman (2015b) show that authoritarian regimes whose representatives vote similarly to the West in the UNGA are less likely to be targeted by EU and US sanctions. Our fourth treatment instrument is an interaction term between the UNGA voting distance indicator and a dummy variable for the post-Cold War period. That interaction term takes into account that political alliances have become less stable and unidimensional after the end of the Cold War; UNGA voting, thus, might have become less helpful in predicting the targets of US sanctions.

To check the *excludability* of our treatment instruments, we conduct tests analogous to a standard over identifying restrictions test (Sargan 1958). For that purpose, we regress the structural residuals from Eq. (1) on all variables in the vector $\boldsymbol{x}$ plus the treatment instruments and test for the joint significance of all variables in that auxiliary regression. The test results indicate that the exclusion restriction is met (see Table 3). To illustrate the *relevance* of our treatment instruments, we report the results of the selection model in Table 5 in the Appendix.[5] Countries with better human rights situations in the previous period, larger countries, more open countries, and countries that received more military aid are less likely to be targeted by US economic sanctions. Those findings are consistent with Soest and Wahman's (2015b) result that human rights violations trigger sanctions by the European Union and the United States. When major conflicts are observed, we find that countries are less likely to be targeted by sanctions. That result might seem counterintuitive, but it can be explained by Hultman and Peksen's (2017) finding that economic sanctions, in contrast to weapons embargoes, tend to escalate and not reduce conflict violence.[6] What is most important, our treatment instruments explain selection into treatment significantly. Countries that are closer to the United States in terms of geographical distance and genetic distance are more likely to be targeted by US sanctions. Countries who vote differently from the United States in the UNGA are less likely to be sanctioned, but only during the Cold

[4] An alternative explanation for the use of this instrumental variable relates to Spolaore and Wacziarg's (2016) empirical finding that genetically closely related populations generally are more prone to engage in international conflict with one another.

[5] The estimates and those in Sect. 4 below differ slightly, as the latter are based on a simultaneous estimation of Eqs. (1) and (2), whereas the results reported here are based on Eq. (2) only.

[6] The counterintuitive sign for economic aid can be explained by collinearity with military aid.

Table 3 US sanctions and human rights

	Basic	Economic	Emancip.	Political
Ordinary least squares				
US Sanctions	−0.099* (0.040)	0.000 (0.016)	−0.048 (0.042)	−0.117** (0.026)
Endogenous treatment				
Selection model				
Log(geogr. distance from US)	−0.191* (0.082)	−0.193* (0.081)	−0.175* (0.079)	−0.199* (0.082)
Log(genetic distance from US)	−0.275** (0.080)	−0.271** (0.080)	−0.234** (0.078)	−0.269** (0.080)
Log(voting distance from US)	−0.454** (0.128)	−0.447** (0.129)	−0.429** (0.121)	−0.459** (0.128)
… * After 1989	0.630** (0.178)	0.633** (0.178)	0.610** (0.171)	0.643** (0.178)
Outcome model				
US Sanctions	−0.071 (0.055)	−0.012 (0.024)	0.279** (0.094)	−0.092** (0.035)
Model diagnostics				
P	−0.045 (0.061)	0.049 (0.072)	−0.484** (0.119)	−0.063 (0.060)
Overid. Restrict. F(155,2438)	0.027	0.061	0.233	0.003

Top panel shows selected OLS estimates based on Eq. (3). Bottom panel shows corresponding estimates of an endogenous treatment regression model based on Eqs. (1) and (2). Standard errors are in parentheses. Number of observations: 2,594. ** and * indicate significance at the 5% and the 1% level, respectively. Full table is available on request

War period. That result is consistent with Combs's (2019) observation that "ironically, the most effective use of economic sanctions made by the United States during the Cold War in Europe was against its own allies." A joint exclusion test on all four instruments clearly rejects the null hypothesis ($Chi^2(4) = 36.49^{**}$).[7]

4 Empirical results

4.1 Baseline results

The results for the OLS regressions and the endogenous treatment models are shown in Table 3. In addition, Table 3 reports the coefficients of the treatment instruments in the part labelled selection model and the estimates for ρ, that is, the coefficients of correlation between the treatment assignment errors and the outcome errors; the results of a test in the spirit of an overidentifying restrictions test, that is, a test for the excludability of the treatment instruments (see Sect. 3.3) also are shown. The estimates for control variables are not displayed to conserve space.

[7] The corresponding F-test statistic when estimating a linear probability model for the selection stage is $F(4,2570) = 10.67^{**}$, which exceeds the threshold for non-weak instruments in 2SLS estimations.

The findings based on OLS estimation suggest that US economic sanctions have an adverse effect on the target state's respect for basic human rights as well as for political rights and civil liberties. That finding is consistent with the evidence provided by Peksen (2009) and Wood (2008). In contrast, we do not find a significant association between economic sanctions and the levels of economic rights or emancipatory rights, which stands in contrast to Peksen (2016b), who finds a negative effect of sanctions on economic freedom, as well as our own priors (see Sect. 2).

The results based on the endogenous treatment model, however, draw a different picture. Compared to the OLS regressions, the treatment effect estimates for political rights and civil liberties as well as for basic human rights are smaller and, in case of the latter, even insignificant. The corresponding standard errors remain roughly the same. That evidence indicates that the OLS estimates are biased downward and that the insignificance of the sanctions' indicator for basic human rights in the endogenous treatment model is explained by our correction for selection bias and not by inefficient estimation. Thus, our results suggest that the widely offered criticism that economic sanctions lead targeted regimes to become even more repressive, is backed only by the evidence relating to political rights. Furthermore, we find a strong and significantly positive influence of US economic sanctions on the target state's respect for emancipatory rights, which is well in line with our conjectures. The effect appears to be quite sizeable. When sanctions are in effect, our women's rights indicator increases by more than a third of a standard deviation. Finally, as in the case of OLS estimation, the endogenous treatment model suggests no significant association between the imposition of economic sanctions and the target state's level of economic rights.

Clearly, our results do not provide support for many of the hypotheses outlined in Table 1. Economic rights are not affected systematically by US sanctions. Although our OLS estimates indicate that basic human rights suffer under US economic sanctions, the results from the endogenous treatment models lead us to reject the corresponding hypothesis 3a. From the positive effect of US economic sanctions on emancipatory rights (hypothesis 4b) that we find after modelling the endogeneity of selection into treatment, we conclude that our evidence does not support widespread concerns about the strictly negative human rights consequences of economic sanctions. Nevertheless, one robust result across both specifications is the adverse effect of economic sanctions on political rights and civil liberties (supporting hypothesis 2a). All in all, we conclude that it is important to account for the potential endogeneity of sanctions and to distinguish between different dimensions of human rights, because the effects of economic sanctions seem to vary across them.

In the case of emancipatory rights, the significant and sizable negative estimate for ρ indicates that unobservables that adversely affect a country's human rights situation tend to follow a pattern similar to unobservables that increase the likelihood of being targeted by US economic sanctions in the first place. That finding underlines the endogeneity of US economic sanctions in the case of emancipatory rights: The set of control variables employed in a simple least squares analysis is not sufficient for capturing the differences between the countries on which sanctions are imposed and those not subject to them. Finally, the tests of overidentifying restrictions do not reject the null hypothesis of excludability of our treatment instruments.[8]

[8] As part of our robustness tests, we estimate the endogenous treatment models using only one instrument at a time. As indicated by Tables OA4a–OA4c in the Online Appendix, the estimated treatment effects are robust to variations in the set of instruments.

4.2 Extensions

To glean additional insights, we distinguish between different types of US economic sanctions and estimate separate treatment effects for each type. First, we evaluate the effects of low-cost sanctions versus high-cost sanctions. We run regressions omitting all episodes involving high-cost sanctions from our sample; and then we omit all observations with low-cost sanctions. Using the same approach, we evaluate the impact of unilateral versus multilateral sanctions, sanctions targeted against democracies versus non-democratic states, sanctions that have been in place for one to five versus six to 10 versus 10 or more years, and sanctions imposed with specific references to human rights violations in the target country. The results for OLS regressions and endogenous treatment models are shown in Tables OA5a–OA5e in the Online Appendix.

In general, the results are well in line with those presented in the preceding subsection. First, we find no significant influence of any type of US sanctions on economic rights across all specifications. Second, in the case of political rights and civil liberties, both sets of estimates suggest that the imposition of multilateral sanctions involves adverse effects that are more severe than unilateral sanctions. That finding is in line with the results reported in the extant empirical literature (Peksen and Drury 2010) and theoretical predictions (Kaempfer et al. 2004). In addition, the negative effects of sanctions decline over time. That result, arguably, could reflect endogeneity beyond what can be addressed by our empirical approach; more effective sanctions tend to be lifted sooner. Interestingly, sanctions are equally bad for political rights no matter whether they are imposed in response to human rights violations or not. However, basic human rights are affected only negatively by sanctions aimed directly at human rights violators. That result makes intuitive sense, as regimes will not start to violate the basic rights of their citizens just because they are targeted by US sanctions.

Finally, when we look at the effect of sanctions on the level of emancipatory rights, we find a stronger positive effect for sanctions targeted against democracies as well as countries not targeted for human rights violations. That finding is quite intuitive because democratic governments are more accountable to their citizenries and, hence, more likely to react to demands for more liberal women's rights. Interestingly, the positive effect on women's rights is comparatively stronger for 'weaker' unilateral sanctions and for sanctions with low costs for their targets, possibly suggesting that the added worker effect is strongest for moderate adverse economic shocks. Larger shocks from the most severe economic sanctions could, in contrast, be too harmful to the targeted economies, undermining economic opportunities for female workers. Finally, the positive impact of sanctions on emancipatory rights is largest during the first 5 years after imposition, during which the largest changes in labor force compositions can be expected. After a decade under sanctions, no additional positive effects on women's rights can be expected anymore.

In another extension of our empirical analysis, displayed in Table OA6 in the Online Appendix, we replicate our analysis with the individual human rights measures used to construct the principal components. We want to highlight two interesting insights from that

exercise. First, we find that the positive effect of sanctions on women's rights is indeed driven by an improvement in women's economic rights, whereas the social rights of women deteriorate when sanctions are imposed. That finding is consistent with arguments by Carvalho (2013) and Meyersson (2014) that to promote social acceptance of more active female economic participation in conservative societies, formal or informal constraints on women's social rights may be required. A second interesting observation concerns domestic legal barriers to international trade, which fall under economic sanctions. Although economic rights do not seem to change overall, governments under international sanctions appear to implement policy reforms that facilitate international trade. Arguably, the goal of reform is to mitigate some of the adverse consequences of sanctions.

5 Conclusions

We apply endogenous treatment regression models to estimate the causal average treatment effect of US economic sanctions on four types of human rights. The entering of treatment instruments that are associated directly with the likelihood of being targeted by US sanctions, but not with the outcome variables of interest, allows us to take the endogeneity of the imposition of US economic sanctions explicitly into account.

In contrast to previous studies, which ignore the endogeneity of economic sanctions, we find no support for the hypothesis that sanctions affect economic rights or basic human rights adversely. With respect to women's rights, our findings even indicate a positive relationship. In particular, women's economic rights are strengthened when a country is sanctioned by the United States. That finding is well in line with the observation that in response to economic shocks, many women in less developed and newly industrialized countries enter the labor market. However, in case of political rights and civil liberties, our results confirm the pessimism of previous research. We conclude that it is important to account for the potential endogeneity of sanctions and to distinguish between different dimensions of human rights, as the effects of sanctions may vary. A limitation of our study is that its identification strategy is tailored specifically to fit US sanctions. Future research may identify suitable instruments for sanctions from other senders.

Economic sanctions do not worsen human rights along all dimensions, as has been claimed by many scholars. Our results confirm a negative effect only for political rights and civil liberties. That effect in combination with a lack of improvement in basic human rights, arguably, still is a dispiriting result for proponents of economic sanctions. Things look even darker when one focuses on sanctions motivated by human rights violations. Their negative effects on income, health and human rights cast serious doubt on whether promoting human rights by imposing economic sanctions on their violators constitutes a sensible political strategy.

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Appendix

See Tables 4, 5 and Fig. 2.

Table 4 Variable definitions and sources

Basic Human Rights; Economic Rights; Emancipatory Rights; Political Rights. Principal component scores resulting from 19 human rights indicators, standardized to mean of 0 and standard deviation of 1. *Source*: Gutmann and Voigt (2015)

Log Real GDP/Capita; Real GDP/Capita Growth. Natural logarithm of real GDP per capita in 2005 US dollars; first difference of aforementioned variable. *Source*: United Nations

Log Population. Natural logarithm of total population size. *Source*: United Nations

Openness. Sum of exports and imports over GDP. *Source*: United Nations

Trade with the US. Sum of exports to the United States and imports from the United States, expressed as percentage of GDP. *Source*: IMF

Log Economic Aid/Capita; Log Military Aid/Capita. Economic/military aid per capita from the US, log plus one transformation. *Source*: USAID

Log FDI/Capita. Foreign direct investment per capita from the US, log plus one transformation. *Source*: Bureau of Economic Analysis

Polity2. Polity scale variable, ranges from strongly democratic (+10) to strongly autocratic (− 10). *Source*: Marshall et al. (2016)

Major Conflicts; Minor Conflicts. Armed conflict resulting in at least 1000 (major conflicts) or in between 25 and 999 (minor conflicts) battle-related deaths in a given year. *Source*: Gleditsch et al. (2002)

US Sanctions. *Source*: Hufbauer et al. (2009), Neuenkirch and Neumeier (2015)

Geographical Distance from US. Distance of the target country's capital from Washington, D.C. in logs of 1,000 km, standardized to mean of 0 and standard deviation of 1. *Source*: Gleditsch and Ward (2001)

Genetic Distance from US. Indicator of genetic distance in logs, standardized to mean of 0 and standard deviation of 1. *Source*: Spolaore and Wacziarg (2009)

Voting Distance from US. Distance of the target country's voting in the UN General Assembly (UNGA) from US votes in logs, standardized to mean of 0 and standard deviation of 1. *Source*: Bailey et al. (2017)

Table 5 Results of selection model

	Coefficients		Marginal Effects	
	Coef.	SE	Marg. Eff.	SE
Log(geogr. distance from US)	−0.1950*	(0.0814)	−0.0184*	(0.0077)
Log(genetic distance from US)	−0.2713**	(0.0802)	−0.0256**	(0.0075)
Log(voting distance from US)	−0.4510**	(0.1285)	−0.0425**	(0.0120)
… * After 1989	0.6375**	(0.1781)	0.0601**	(0.0167)
Lag basic human rights	−0.5909**	(0.0761)	−0.0557**	(0.0069)
Lag economic rights	−0.3000**	(0.0863)	−0.0283**	(0.0080)
Lag emancipatory rights	−0.0711	(0.0769)	−0.0067	(0.0073)
Lag political rights	−0.7841**	(0.0993)	−0.0739**	(0.0091)
Lag(log real GDP/capita)	−0.0985	(0.0779)	−0.0093	(0.0073)
Lag(real GDP/capita growth)	−0.0087	(0.0092)	−0.0008	(0.0009)
Lag(log population)	−0.1377**	(0.0483)	−0.0130**	(0.0045)
Lag(openness)	−0.0051*	(0.0021)	−0.0005*	(0.0002)
Lag(trade with the US)	0.0052	(0.0069)	0.0005	(0.0006)
Lag(log economic aid/capita)	0.1250*	(0.0636)	0.0118*	(0.0060)
Lag(log military aid/capita)	−0.3153**	(0.0752)	−0.0297**	(0.0070)
Lag(log FDI/capita)	0.0398	(0.0369)	0.0038	(0.0035)
Polity 2	0.0078	(0.0129)	0.0007	(0.0012)
Minor conflict	−0.2521	(0.1301)	−0.0238	(0.0122)
Major conflict	−0.8621**	(0.2112)	−0.0813**	(0.0197)
President fixed effects	Yes		Yes	
Constant	0.8610	(1.1857)		
Observations	2594			
Pseudo-R^2	0.45			
Chi^2 test instruments	36.49**			

Table shows coefficients and average marginal effects of an estimation of the selection model Eq. (2) without a simultaneous estimation of the outcome model Eq. (1). Standard errors are in parentheses. ** and * indicate significance at the 5% and the 1% level, respectively

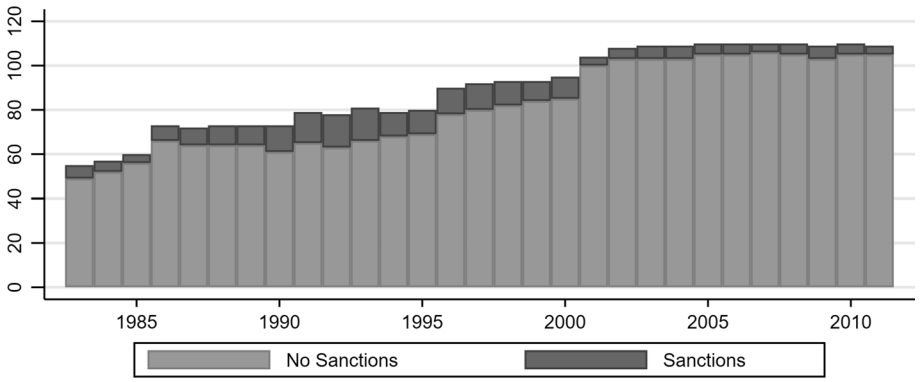

Fig. 2 Number of observations per year

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Affiliations

Jerg Gutmann[1,2] · Matthias Neuenkirch[2,3,4] · Florian Neumeier[2,4,5]

Jerg Gutmann
jerg.gutmann@uni-hamburg.de

Florian Neumeier
neumeier@ifo.de

[1] University of Hamburg, Hamburg, Germany

[2] CESifo, Munich, Germany

[3] Department of Economics, University of Trier, 54286 Trier, Germany

[4] ifo Munich, Munich, Germany

[5] LMU Munich, Munich, Germany