



Foreign aid and the quality of economic institutions

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ABSTRACT

Identification of the causal effect that foreign aid has on the quality of institutions in recipient countries has been elusive in the aid effectiveness literature. The main reason is that aid is endogenous with respect to the development of institutions. Our paper examines the impact of foreign aid on economic freedom in the recipient countries at a disaggregated level using an innovative identifying strategy. To do so, we use recently innovated instruments for aid, exploiting the long lags between loan approval and disbursements by official creditors to developing countries. Using plausibly exogenous variations in predicted loan disbursements as instruments for actual aid, we find that foreign aid has a significant positive effect on the quality of economic institutions in recipient countries. The results are robust to alternative specifications and samples. By establishing the existence of a strong link between aid and the quality of economic institutions, we identify the main channel through which aid affects economic growth and development.

1. Introduction

Societies are economically successful when they have ‘good’ economic institutions and it is these institutions that are the cause of prosperity. Jones (1981)

It is well-established in the literature that institutional quality plays a fundamental role in promoting long-run economic growth (Acemoglu et al., 2001, 2005; de Haan and Sturm, 2000; Dollar and Kraay, 2003; Dutta and Williamson, 2016; Rodrik et al., 2004). As outlined in Acemoglu et al. (2001), countries with better institutional quality and more secure property rights tend to invest more in the accumulation of physical and human capital which is vital to promote economic growth and development.

The effect of foreign aid on economic growth in general, and institutional quality in particular, is subject to intense debate.¹ Identification of the causal effect that foreign aid has on institutional quality has been elusive in existing studies due to the endogeneity of aid. Empirically identifying the causal effect of aid on the quality of institutions requires a strategy to isolate changes in foreign aid which are plausibly uncorrelated with shocks in the quality of economic institutions using a valid instrumental variable (IV). However, as argued in Clemens et al. (2012), the aid effectiveness literature does not possess a strong and valid IV to reliably identify the effect of aid on growth. This is reiterated in recent studies by Dutta and Williamson (2016) and Galiani et al. (2017). In addition, most studies which examine the relationship between aid and economic freedom use highly aggregated indices of economic

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¹ Some of the most notable papers about aid effectiveness and development include Burnside and Dollar (2000), Guillaumont and Chauvet (2001), Easterly (2003), Easterly et al. (2004), Rajan and Subramanian (2007, 2008), Askarov and Doucouliagos (2015) and Dutta and Williamson (2016).

freedom. The limitation of using such indices is that the aggregation eliminates much of the valuable information and obstructs the formation of policy conclusions (Lundström, 2005).

This study aims to investigate the causal effect of foreign aid on the quality of economic institutions, namely indices of economic freedom, in recipient countries by taking advantage of a recently innovated instrument for aid. To this end, we use predicted loan disbursements as an IV for aid, as constructed by Kraay (2014), exploiting the long lags between loan approval and disbursements by official creditors to developing countries.² In particular, we pose three questions, the answers to which can lead to some conclusions which are useful for policy development: (1) What is the effect of aid on the economic freedom indicators throughout 1970–2015, across the set of developing countries? (2) Does the result depend on whether a country is an International Development Association (IDA) member or not? (3) Does the relationship vary across the different indices of economic freedom? The first question aims to address the problems stemming from the endogeneity bias to pin down the causality from aid to economic freedom. The second and third questions further aim to determine the heterogeneous effects of aid based on the type of recipient and various components of economic freedom, respectively.

Theoretically, the relationship between foreign aid and economic freedom can be negative or positive. Aid may promote institutional quality through greater availability of financial resources and technical assistance from official creditors (Knack, 2001). However, aid may harm institutional quality in recipient countries by encouraging rent-seeking behaviour (Djankov et al., 2008; Rajan and Subramanian, 2007). The evidence from empirical studies on the topic is also mixed. Some studies find a positive effect of aid on institutions (Dunning, 2004; Tavares, 2003) whereas other studies suggest that aid may undermine institutional quality by encouraging budget dependency, corruption and rent-seeking behaviour in recipient countries (Busse and Gröning, 2009; Djankov et al., 2008; Heckelman and Knack, 2008; Rajan and Subramanian, 2007). Some studies conclude that aid has no effect on institutional quality (Heckelman and Knack, 2009). One of the main reasons for the mixed results in the literature is the issue of endogeneity, as aid flows are not randomly assigned.

Using data for a panel of developing countries which span the period 1970 to 2015 and utilising plausibly exogenous variations in predicted loan disbursements based on long lags between loan approval and disbursement by official creditors as instruments for actual aid, we find that aid has a significant positive effect on economic freedom in recipient countries. When considering the disaggregated indices of economic freedom, aid appears to have a positive and significant effect on the economic freedom categories *Sound Money*, *Size of Government* and *Regulation*, but no effect on the categories *Freedom to Trade Internationally* and *Legal Structure and Security of Property Rights*. We find that these results are robust to alternative specifications and samples.

We contribute to the literature on several fronts. Firstly, we suggest a sound identification strategy based on an instrumental variable approach to uncover the complex relationship between foreign aid and measures of economic freedom. Secondly, we investigate the relationship using disaggregated indices of economic freedom in our estimations, and we show that the effect of aid on economic freedom depends on the type of freedom index being considered. Thirdly, we investigate the heterogeneous effects of aid on economic freedom separately in the IDA member countries, as these countries are especially dependant on foreign aid and suffer from low growth rates. Thus, by obtaining new insights into how aid works for this group of countries, we enrich academic inquiry which is essential for aid policy development.

The remainder of the paper is organised as follows. Section 2 discusses the broader related literature. Section 3 presents the description of data and empirical strategy employed in this paper. Section 4 presents the empirical results and discussions. Section 5 concludes the paper.

2. Review of related literature

The existing literature includes works to ascertain whether economic freedom contributes to economic growth. For example, de Haan and Sturm (2000) conclude that greater economic freedom enhances economic growth; however, they find that the level of economic freedom is not related to economic growth. Along the same lines, Rowley (2000) argues that the low-growth experience of much of sub-Saharan Africa since countries gained independence can be attributed to mostly the low quality of the institutions. De Haan et al. (2006) find that economic liberalisation stimulates economic growth. It appears that economic freedoms may play a role in how economies tackle recessions and crises. Bjornskov (2016) suggests that economic freedom is robustly associated to smaller peak-to-trough ratios and shorter recovery time. Pitlik and Wirth (2003) find that deep crises are conducive to market-oriented policy reforms. The paper also finds evidence for a positive impact of democratic regimes and checks and balances on the extent of economic reforms.

Economic freedom impacts not only growth, but it appears to have also a distributional effect. To this end, Bergh and Nilsson (2010) show that reforms enhancing economic freedom may contribute to the rise of inequality in rich countries. Monetary reforms, legal reforms and political globalisation do not increase inequality. Nejad and Young (2016) investigate emigrant self-selection and find that economic freedoms are a significant pull factor for potential migrants.

Given the evidence for the important role of economic freedom in growth, naturally, researchers have investigated the causes of economic liberalisation. For example, Faria et al. (2016) highlight the crucial role of human capital in improving the quality of economic institutions. Interestingly, political liberalisation is often found to facilitate economic liberalisation, whilst there is less

² Official creditors include multilateral aid agencies, such as the World Bank, African Development Bank, African Development Fund, Asian Development Bank, Asian Development Fund, European Investment Bank, International Bank for Reconstruction and Development, International Development Association, Inter-American Development Bank and Inter-American Development Fund, as well as major bilateral aid agencies.

evidence supporting the feedback from economic freedom to political freedom (De Haan et al., 2006; de Haan and Sturm, 2003). A similar conclusion is obtained by Nejad and Young (2016), who find that once economic freedoms are controlled for, measures of political institutions do not have a significant effect on migration-related decisions. The type of governance is found to play an important role in economic liberalisation. For example, Lundström (2005) finds that democracy appears to have a positive effect on economic freedom measures such as *Government Operations* and *Regulations and Restraints on International Exchange*, but no effect on measures such as *Money and Inflation* and *Takings and Discriminatory Taxation*. Rode and Gwartney (2012) show that the longer the history of democratic governance in a country, the larger the increase in economic freedom gained, in general. They also find that if the transition to democracy is unstable, then a country with such experience suffers adverse effects on their economic liberalisation.

In light of the advances in understanding the causes of economic freedom, there were also attempts to improve the measure of economic freedom. In particular, Gwartney and Lawson (2003) develop a more comprehensive measure of economic freedom by integrating survey data on the legal structure and governmental regulation into the economic freedom index constructed by the Fraser Institute.

Another stream of research focused on explaining aid allocation. For example, Dreher et al. (2009) document a robust positive relationship between temporary United Nations (UN) Security Council membership and the number of World Bank projects a country receives, even after accounting for economic and political factors, as well as regional, country and year effects. The size of World Bank loans, however, is not affected by UN Security Council membership. Dicharry et al. (2019) determine the optimal allocation of the European Cohesion Fund (ECF) and compare it with the observed allocation. They find that the allocation may not be optimal. Minasyan (2018) find that, on average, the US allocates 30 per cent more bilateral aid to US-educated leaders with right-leaning political beliefs compared to those with left-leaning political beliefs.

Narrowing our review of the literature on the relationship between foreign aid and economic freedom, the existing studies provide mixed evidence. Theoretically, foreign aid can have a positive or negative effect on institutional quality. The positive effect of aid can be attributed to greater availability of financial resources, as well as knowledge, expertise and technical assistance provided to recipient nations in association with aid flows (Knack and Bräutigam, 2004). As outlined in the Washington Consensus, promoting key elements of economic freedom, such as free trade, sound money and property rights, are amongst the guiding principles of foreign aid. Aid can also directly affect the quality of institutions by providing governments with additional funds which can be spent on enhancing public institutions and providing training to government workers which boosts institutional capacity. In this respect, donors often intend to entice recipient countries into institutional reforms, including transformation towards economic freedom to promote economic growth and development (Heckelman and Knack, 2009). The negative effect of foreign aid on institutional quality may arise from the rent-seeking behaviour and centralisation of power associated to aid flows (Djankov et al., 2008; Knack, 2001; Rajan and Subramanian, 2007). Specifically, aid may incentivise recipient governments to engage in moral hazard by choosing riskier fiscal behaviours, as the governments expect to be bailed out by donors (Svensson, 2000).

The ambiguity in the theoretical effect of aid is reflected in the empirical literature. The findings of existing empirical studies on aid effectiveness show mixed results regarding the relationship between foreign aid and institutional quality. Some studies find that foreign aid helps improve institutional quality (Dunning, 2004; Dutta and Williamson, 2016; Tavares, 2003). On the other hand, several studies suggest that aid may harm institutional quality by encouraging budget dependency, corruption and rent-seeking behaviour in recipient countries (Busse and Gröning, 2009; Djankov et al., 2008; Heckelman and Knack, 2008; Knack and Bräutigam, 2004; Rajan and Subramanian, 2007; Svensson, 2000; Young and Sheehan, 2014). Some studies conclude that aid has an insignificant effect on institutions. For example, Heckelman and Knack (2009) find that aid has an insignificant effect on overall economic freedom and varied effects on the sub-categories of economic freedom indices, whereas Casey et al. (2012) find that aid interventions do not have a lasting effect on local institutions. Similarly, Jones and Tarp (2016) find that aid does not have a systematic negative effect on political institutions.

In sum, the existing findings are not conclusive about the effects of aid on the quality of institutions and, in particular, on measures of economic freedom. For this reason, the extant literature does not provide a clear insight into how aid impacts growth through its effect on economic institutions. Notably, a common limitation to existing studies which have examined the relationship between foreign aid and institutional quality is the issue of endogeneity. This paper aims to fill this gap in the literature.

3. Data and empirical strategy

3.1. Empirical strategy

To investigate the effects of foreign aid on the quality of economic institutions in recipient countries, we employ an IV identification strategy. Our basic econometric model which relates the measures of quality of institutions to foreign aid is represented in equation (1):

$$y_{it} = \alpha_i + \theta y_{i,t-5} + \beta_1 AID_{i,t-5} + \gamma X_{i,t-5} + \mu_t + \epsilon_{it}, \quad (1)$$

where y_{it} denotes the measures of economic freedom for country i at year t , and α_i are country fixed effects which control cross-country differences in time-invariant determinants of foreign aid and quality of institutions, such as geography, history etc. AID_{it} denotes the log of net official development assistance as a percent of the gross domestic product (GDP). We choose the log of aid to GDP ratio as our measure of aid following the arguments outlined in Galiani et al. (2017). Specifically, the key advantage of the logarithmic form is that it provides a parsimonious way to introduce concavity whilst preserving the ability to identify the causal effect of aid on economic freedom. The parameter β captures the effect of aid on economic freedom, whereas μ_t denotes

the year fixed effects which capture common time shocks (e.g. common global shocks to developing economies, such as business cycles) which affect the level of both foreign aid and economic freedom, and ϵ_{it} is the error term which captures all other omitted factors. X_{it} denotes a vector of control variables which determine the quality of economic institutions, including the level of economic development, democracy, life expectancy, trade and population growth.

The control variables are included based on the following rationale. There is a link between the level of development and the quality of institutions (Aidt et al., 2008; Blackburn et al., 2006; Dzhumashev, 2014; Méndez and Sepúlveda, 2006); hence, we control for this variable. Cincotta and Engelman (1997) emphasise that population growth generates stress on governments and thus leads to institutional adjustments. Democracy implies political competition and the checks and balances which restrict rent-seeking by bureaucrats. Higher accountability of the government to citizens results in more business-friendly rules and regulations (see, North (1990)). Democratic governance also creates conditions for sound judiciary and regulatory bodies. Recent studies also document that there is a positive relationship between democracy and economic freedom. Along these lines, de Haan and Sturm (2003) show that political freedom causes some increase in economic freedom for the period between 1975 and 1990. Subsequent studies, such as De Vanssay et al. (2005) and Lawson et al. (2020), document that a robust system of various checks and balances on the ability of voters and politicians leads to higher economic freedom. The authors find that democracy is linked to higher levels of economic freedom. It is argued that the health of the population (we use life expectancy as a measure) affects the economy and the institutions (Acemoglu and Johnson, 2007). Dollar and Kraay (2003) provide evidence that changes in international trade have some effect on improvements in institutions. Moreover, education is an important determinant of economic freedom. For example, Faria et al. (2016) show that human capital plays a crucial role in improving the quality of economic institutions.

Identification of the causal effect of aid on economic freedom requires a strategy to isolate changes in foreign aid which are plausibly uncorrelated with shocks in the quality of economic institutions in the current year. Specifically, the main issue in the estimation of β in equation (1) is endogeneity bias due to reverse causality, as it is plausible to assume that foreign aid in the current year might be tied to institutional improvements achieved in previous years. Therefore, it is not convincing to consider foreign aid as an exogenous variation affecting the quality of institutions in recipient countries, because donors' decisions to approve aid to developing countries are often based on the performances of the latter. In addition to reverse causality, measurement errors and omission of relevant variables may cause endogeneity bias. To address this issue, we use variations in predicted loan disbursements based on the significant lags between loan approval and eventual disbursements constructed by Kraay (2012, 2014) as an instrument for actual aid to establish a causal link between changes in foreign aid and the degree of economic freedom.

The identifying assumption to justify the exclusion restriction in our instrumental variable estimation is that fluctuations in loan disbursements due to fluctuations in loan approval decisions in previous years are plausibly exogenous to contemporaneous shocks to the quality of economic institutions. More specifically, the assumption of the exclusion restriction in the two-stage least square estimation is that the fluctuations in loan approval decisions in previous years affect only the quality of institutions through their effect on the actual aid disbursements. In other words, by construction, the original loan commitment decisions made in previous years are not correlated to the actual shocks to the institutions brought upon by the actual loan disbursements. Therefore, we use a two-stage least square estimation to correct the endogeneity biases.

Donors incur an opportunity cost of the resources devoted to aid which could otherwise be directed towards domestic investment. Based on the principal-agent theory, the literature on aid effectiveness commonly adopts that donors tend to maximise some form of utility function subject to a budget constraint which includes the cost of renegeing on commitments in the quadratic form (Carter, 2014; Hudson, 2013; Isopi and Mattesini, 2009; Murshed, 2009). Following the literature, the deviations from commitments in disbursements are entered in the quadratic form in our first-stage regression. The corresponding first-stage estimation equation is given by:

$$AID_{it} = \theta_i + \varphi_t + \psi_1 \ln(\text{Predictdisb})_{it} + \psi_2 \ln(\text{Predictdisb})_{it}^2 + \sigma \ln(X)_{it} + u_{it}, \quad (2)$$

where *Predictdisb* denotes the predicted loan disbursement, and the coefficients ψ capture the effects of variations in predicted disbursement on actual aid disbursement. Using the predicted value of the endogenous variable as an instrument is a common practice in instrumental variable estimations. For example, Acemoglu and Johnson (2007) use the predicted values of mortality to study the effects of life expectancy on economic development. Jarotschkin and Kraay (2016) use the predicted value of loan disbursements from official creditors as an instrument for aid flows to study the impact of aid on real exchange rates.

3.2. Identification strategy

Since aid flows are not randomly assigned to recipient nations, isolating the impact of aid on economic freedom requires an important identification strategy. To address this endogeneity concern, we utilise an instrument for aid constructed by Kraay (2012, 2014) based on a predetermined component of foreign aid associated to past loan approvals from official creditors to developing countries. The key feature is that there is a long lag between commitments and disbursements, where loan disbursements to recipient countries are spread out over several years following the approval of the loan by official creditors. The reason is that official creditors typically link their loan disbursements to stages of project implementation to finance multiyear development projects following the original commitment of the loan to developing countries. Therefore, the majority of loan disbursements to developing countries in a given year are associated to loan approvals in many previous years, before the realisation of contemporaneous shocks in the recipient's economy. These delays between loan commitments and eventual loan disbursements can be utilised to isolate a predetermined component of aid.

As outlined in Kraay (2014), the instrument is constructed by calculating a disbursement profile for each loan (the fraction of the

original loan approved in a given year which is disbursed in the same year and each subsequent year). Each loan is assigned to a set of creditor-, decade- and region-specific bins across six geographical regions of the developing world where the recipients are located. Then, the average disbursement profile for each loan is computed across all other loans within the same creditor, decade, region and bin for loan approvals made in previous years only. The average disbursement profile is applied to the original loan commitment to obtain a series of predicted loan-level disbursements. Finally, the predicted loan-level disbursements are aggregated across all loans at a country-year level by excluding loan approvals in the same year. More details on the construction of the predicted loan disbursements can be obtained in [Kraay \(2014\)](#).

The key identifying assumption is that loan approval decisions by official creditors are not correlated with future macroeconomic shocks, including that of economic freedom. The plausibility of this assumption on the exclusion restriction is that, by construction, the only borrower-specific information in the aggregated predicted loan disbursements consists of the original loan approval decisions made in previous years. Therefore, the decision to approve a loan in a given year in the past is assumed to be uncorrelated with shocks in the macro-economy of the recipient nations occurring in subsequent years of project implementations when actual loan disbursements take place.

A crucial feature of the loan commitment and disbursement profile is that disbursements are typically spread out over several years following the original approval of the loan. Specifically, for an average loan, only 22 per cent of the original loan approval is disbursed in the same year when the loan is initially approved, and only a further 18 per cent in the next year, whereas the remaining 60 per cent is spread out over subsequent years following the original approval year ([Kraay, 2014](#)). This implies that a significant portion of the loan disbursements to developing countries in a given country-year reflects decisions on loan approvals made in several years before the realisation of contemporaneous macroeconomic shocks in these countries. Therefore, this predicted loan disbursement series can be used as an instrument for changes in total actual aid, as the changes in aggregate predicted disbursements will be uncorrelated with the error term in the second-stage regression. This instrument for aid is applied in other contexts ([Jarotschkin and Kraay, 2016](#)).

Despite its popularity in the aid effectiveness literature, an important issue with the dynamic fixed effect specification given in equation (1) is a potential bias due to the incidental parameter problem (the Nickell bias). That is, dynamic fixed effect estimates can be biased in short panels due to potential correlations between the error term and the lagged dependent variable. [Nickell \(1981\)](#) revealed that maximum likelihood estimates for dynamic fixed-effect models may not be consistent estimates of the parameters of interest which govern the dynamics.

To deal with the issue of potential bias from the incidental parameter problem, we employ additional appropriate methods. One common approach that is widely adopted in the literature is to perform a bias-corrected fixed-effect procedure ([Bruno, 2005](#); [Bun and Carree, 2005](#); [Kiviet, 1995](#)). This approach eliminates the bias from the incidental parameter problem in short panels without imposing additional restrictive assumptions such as stationarity ([Kotschy and Sunde, 2017](#)). Another popular approach to address endogeneity bias in dynamic panel estimation in the absence of external instruments is to employ generalised methods of moments (GMM). The difference GMM approach proposed by [Arellano and Bond \(1991\)](#) exploits the lagged values of the explanatory variables to instrument the endogenous variables under weaker assumptions that the lagged instruments will be uncorrelated with the contemporary error terms. An important issue with this approach is the potentially weak instruments problem following the removal of the country fixed effects. [Blundell and Bond \(1998\)](#) propose an efficient system GMM estimator which yields stable estimates in the case of persistence and tackle the issue of weak instruments by including the country fixed effects and other time-invariant variables in the level regressions. In the difference and system GMM estimators, the choice of the number of instruments is an important aspect of the estimations. This is because there is a trade-off between the strength of instruments and efficiency of the GMM results which also affects the test statistics' over-identifying assumptions. A rule of thumb in cross-country GMM panel regressions is that the number of instruments to be employed should not exceed the number of countries ([Roodman, 2009](#)).

3.3. Data

To empirically identify the effects of foreign aid on the quality of economic institutions, we use data for a panel of 68 developing countries over the period from 1970 to 2015. Since changes in the quality of institutions are slow-moving, we use five-year non-overlapping interval data, following a common practice in the political economy literature (see e.g. [Acemoglu et al., 2008](#); [Kotschy and Sunde, 2017](#)).

A popular measure of the quality of economic institutions is the Economic Freedom of the World Index (*ef_index*), available from the Fraser Institute. The index captures the degree of economic freedom and is comprised of 42 distinct variables in five major areas, discussed below:

- (1) *Size of Government (sog)*: indicates the country's reliance on the market allocation of resources versus reliance on the political process to allocate goods and services.
- (2) *Legal System and Security of Property Rights (legprop)* includes key ingredients of a legal system, such as the security of property rights, the rule of law and an independent and unbiased judiciary, that are consistent with economic freedom. Protection by the rule of law of property rights is crucial for the enhancement of economic freedom and the efficient operation of markets.
- (3) *Sound Money (sm)* indicates citizens' access to sound money through a consistent monetary policy which maintains price stability over the long term.
- (4) *Freedom to Trade Internationally (ftradeint)* measures the level of restraints which affect international trade, such as quotas, tariffs and restrictions on capital flight and exchange rates. The higher the scores in this area, the lower the restrictions on

Table 1
Summary statistics: 1970–2015, non-overlapping five-year intervals.

Variable	Obs	Mean	Std. Dev.	Min	Max
Economic freedom	465	5.778	1.231	1.990	8.040
Soundness of money	516	6.781	2.044	0.000	9.794
Regulation of credit and business	445	6.073	1.168	2.473	9.055
Size of Government	524	6.150	1.458	1.647	9.076
Freedom to Trade Internationally	489	5.489	2.115	0.000	9.278
Legal System and Security of Property Rights	435	4.240	1.320	0.956	8.047
Log official development assistance (AID)	454	1.407	1.416	-2.808	4.067
Log GDP per capita	608	7.378	1.007	5.036	9.631
Average years of schooling 15+	504	5.252	2.611	0.290	11.100
Log life expectancy at birth	647	61.359	10.613	21.058	79.739
Trade (%GDP)	585	69.376	33.440	12.876	310.582
Polity 2	610	0.872	6.560	-10.000	10.000
Regime durability	611	15.340	16.242	0.000	97.000
Log population 15+	648	15.617	1.587	11.031	19.388
Change in multilateral predicted disbursement	475	0.0008	0.011	-0.092	0.112
Change in bilateral predicted disbursement	475	0.0001	0.008	-0.084	0.077

trade flows and capital movements with easy clearance customs.

- (5) *Regulation (reg)* focuses on regulatory restraints imposed on credit, labour and product markets which inhibit economic freedom.

The indices are based on data from different sources, such as the Global Competitiveness Report, the International Country Risk Guide and the World Bank's Doing Business project. The indices in each component range from 0 to 10, where 10 is the highest level of economic freedom based on various component and sub-component rankings in each area. The overall index represents the average value of the scores in the five areas. We also use an overall composite index of economic freedom from [Kotschy and Sunde \(2017\)](#) constructed by extracting the first principal component from the indices of Economic Freedom of the World and Civil Liberties. The index is placed on a scale from 0 to 1.

Data on loan disbursements by official creditors to developing countries, including predicted disbursements and official development assistance, are from [Kraay \(2014\)](#). To control for the effect of democracy, we use the indices of Polity IV and regime durability, which reflects the extent of institutionalised constraints on the decision-making powers of chief executives. We use several other control variables sourced from the World Development Indicators of the World Bank. The summary statistics of the variables are presented in [Table 1](#).

[Table 1](#) shows that there are significant variations in the quality of institutions in developing countries. The mean value for the index of economic freedom is about 5.6 with a standard deviation of 1.2. Similarly, net official development assistance to developing countries varies significantly, with a standard deviation of 1.4 on a log scale. The predicted bilateral and multilateral disbursements are expressed as annual changes (in constant prices), scaled by lagged GDP. The mean values of both types of predicted disbursement are reported in [Table 1](#). As shown in [Table 1](#), the predicted disbursements change, on average, deviates from the planned disbursements very little. However, there is volatility in this measure which makes it differ from the actual changes in the disbursements levels. This aspect allows using the given variables as instruments for the actual disbursement changes.

We perform diagnostic tests for multicollinearity in the variables. The results for the variance inflation factor (VIF) are reported in [Table A.1](#) in the appendix. The rule of thumb is that one might worry about multicollinearity issues if the VIF is greater than 10. As shown in [Table A.1](#), the VIF for all variables is way below 10 where the maximum VIF is 3, suggesting that multicollinearity is not a concern in the variables.

4. Empirical results and discussion

4.1. Benchmark estimates

We begin the empirical analysis with the discussion of the estimates from the static ordinary least squares (OLS) model as a benchmark for comparing with the main results. All standard errors in our estimations are fully robust against heteroskedasticity. The main variable of interest is AID_{it} . The value of β , therefore, measures the effect of foreign aid on the quality of economic institutions. The benchmark OLS estimates of the effect of aid on economic freedom and its components are presented in [Table 2](#). The basic estimates in [Table 2](#) show that aid is positively correlated with the overall measure of economic freedom, as well as with the individual components except for the index on Legal System and Security of Property Rights (legprop). However, the coefficient is statistically indistinguishable from zero in all regressions at conventional levels of significance.

Whilst the OLS estimates are suggestive of the correlation between aid and economic freedom, they may not necessarily identify the causal effect of aid on economic freedom due to the endogeneity issue in aid flows. Therefore, we rely on the instrumental variable estimation approach as our main identification strategy to estimate the causal effect of foreign aid on the index of economic freedom.

Table 2
Benchmark results: The impact of aid on economic freedom.

	(1)	(2)	(3)	(4)	(5)	(6)
	ef_index	sm	reg	sog	ftradeint	legprop
AID_{t-5}	0.008 (0.007)	0.021 (0.014)	0.011* (0.006)	0.096 (0.096)	0.064 (0.126)	-0.062 (0.081)
GDP per-capita growth	0.210*** (0.062)	0.493*** (0.132)	0.149** (0.060)	0.315 (0.742)	1.595* (0.860)	2.548*** (0.620)
Years of schooling	0.016*** (0.006)	0.012 (0.011)	0.016*** (0.005)	0.115* (0.066)	0.294*** (0.094)	0.132* (0.071)
Life expectancy at birth	0.030 (0.048)	0.127 (0.103)	-0.023 (0.048)	0.693 (1.001)	0.121 (0.901)	-0.581 (0.840)
Trade	0.061** (0.027)	0.103* (0.056)	0.072*** (0.025)	-0.708* (0.378)	1.193** (0.549)	0.613 (0.381)
Democracy	0.003*** (0.001)	0.001 (0.003)	0.004*** (0.001)	0.075*** (0.020)	0.070*** (0.022)	0.038** (0.015)
Durability	0.000 (0.001)	0.001 (0.001)	0.000 (0.000)	-0.002 (0.005)	-0.007 (0.009)	0.007 (0.007)
Population growth	-0.090 (0.154)	0.032 (0.279)	0.049 (0.179)	-4.469* (2.280)	-1.706 (2.817)	1.272 (2.463)
Observations	295	296	288	301	297	290
R-squared	0.483	0.274	0.416	0.321	0.417	0.327

Note: Standard errors are clustered at the country level. Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01.

4.2. Instrumental variable estimates

Table 3 presents the main results from the instrumental variable estimations using the predicted multilateral loan disbursements as an instrument for actual aid received by developing countries. In column (1), we regress the index of economic freedom on the log of official development assistance (AID) only. In column (2) to column (8), we add control variables incrementally, where column (8) includes the full set of the control variables. We conduct three additional estimations to address potential biases from the incidental parameter problem in our estimations of the dynamic model with short panels. Specifically, column (9) reports the estimates from bias-corrected fixed effect estimation, whereas column (10) and column (11) report the estimates from difference GMM and system GMM estimators, respectively. The two-stage least square (2SLS) results in column (1) to column (8) of Table 3 show that foreign aid has a positive and statistically significant effect on economic freedom. More precisely, a 1 per cent increase in foreign aid causes an increase in the economic freedom index of about 0.08–0.10. The first-stage F-statistics are well above 10, suggesting the relevance of the instrument and that the p-value for the test of over-identifying restriction is greater than 0.1 in all regressions, suggesting the validity of the instrument.

Although it is a common practice in the aid effectiveness literature to add a lagged dependent variable in the empirical specifications, the dynamic fixed-effect model with fixed T may introduce possible biases from incidental parameter problems, also known as the Nickell bias. In column (9), we estimate the dynamic fixed-effect model that includes the lagged dependent variable using the bias-corrected fixed-effect approach. Foreign aid has a positive and statistically significant effect on economic freedom after the estimates are corrected for bias. To this end, the estimates of the difference GMM and the system GMM are reported in column (10) and column (11) of Table 3, respectively. The coefficient of foreign aid from the system GMM estimation is quite similar to that of the bias-corrected fixed-effect estimators whereas the difference GMM estimate in column (10) is larger in magnitude. The results in column (9) to column (11) show that the coefficient on the lagged dependent variable is positive and statistically significant, suggesting a moderate persistence. The estimated coefficient of the lagged dependent variable ranges from 0.36 to 0.51 in the three specifications reported in column (9) to column (11). For the difference and system GMM specifications, the p-value of the AR(2) shows that there is no second-order auto-correlation problem in our model, whereas the p-value of the Hansen J-test shows that the null hypothesis stating that the instruments are valid cannot be rejected.

Table 4 presents the 2SLS estimates for the IDA sample. The first eight columns in Table 4 report the results from the regressions with the incremental addition of control variables where column (8) includes the full set of control variables. As in Table 3, column (9) of Table 4 presents the results from the bias-corrected fixed-effect estimator, column (10) the results from the difference GMM estimator and column (11) the results from the system GMM estimator. The 2SLS estimates in column (1) to column (8) of Table 4 show that the effect of aid on economic freedom in IDA sample countries is positive and statistically significant at 1 per cent level in all IV regressions. The results from the first-stage regression suggest the relevance and the validity of the instrument. Specifically, the F-statistics are well above the rule-of-thumb in all regressions indicating the relevance of the IV. Moreover, the p-value for the Hansen J-test of over-identification is well above 0.1 in all regressions indicating that we cannot reject the null hypothesis stating that the instrument is valid.

Our main conclusion holds after we account for dynamics and persistence in the fixed- T panel data. As can be seen in column (9) of Table 4, foreign aid increases economic freedom in IDA countries. The coefficient on aid remains positive and statistically significant after the estimates are corrected for Nickell bias. Further, the estimates from the difference GMM and system GMM estimators in column (10) and column (11) of Table 4 show that the coefficient on aid is statistically significant at 10 per cent and 5 per cent levels, respectively. The diagnostic test results for the difference and system GMM specifications show that the estimates are valid. The p-values for the AR(2) and the Hansen J-test show that we cannot reject the null of the validity of the estimates at

Table 3
IV estimates of the impact of aid on economic freedom. (full-sample).

	Two-stage least square (2SLS)								Bias Corr. FE	Diff GMM	System GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			
<i>AID</i> _{t-5}	0.092*** (0.025)	0.090*** (0.028)	0.108*** (0.020)	0.110*** (0.019)	0.110*** (0.020)	0.119*** (0.021)	0.121*** (0.020)	0.129*** (0.022)	0.020*** (0.006)	0.053** (0.020)	0.029** (0.014)
GDP per-capita growth		0.094 (0.067)	0.113 (0.073)	0.100 (0.073)	0.101 (0.072)	0.111 (0.082)	0.084 (0.092)	0.073 (0.098)	0.137*** (0.041)	-0.042 (0.199)	0.018 (0.116)
Years of schooling			0.084*** (0.018)	0.085*** (0.019)	0.086*** (0.020)	0.095*** (0.021)	0.084*** (0.019)	0.085*** (0.019)	0.027*** (0.009)	0.015 (0.037)	0.018 (0.011)
Life expectancy at birth				0.090 (0.109)	0.080 (0.129)	0.043 (0.148)	0.087 (0.125)	0.085 (0.133)	0.092 (0.084)	0.414** (0.192)	0.101 (0.124)
Population growth					0.054 (0.260)	0.082 (0.291)	0.047 (0.252)	0.077 (0.257)	-0.017 (0.173)	-0.479 (0.319)	-0.059 (0.271)
Trade						-0.026 (0.051)	-0.047 (0.053)	-0.041 (0.056)	-0.021 (0.028)	-0.282** (0.124)	-0.135* (0.071)
Durability							0.003*** (0.001)	0.003** (0.001)	-0.000 (0.001)	0.002 (0.002)	0.002 (0.001)
Democracy								-0.003 (0.003)	0.000 (0.001)	0.000 (0.006)	0.005 (0.005)
Lagged economic freedom index									0.506*** (0.065)	0.364** (0.177)	0.421*** (0.125)
Observations	328	326	308	308	308	296	291	291	272	223	267
Number of countries	56	56	51	51	51	49	48	48	49	43	49
R-squared	0.347	0.372	0.354	0.346	0.344	0.259	0.318	0.259			
Kleibergen Paap	15.59	15.01	14.10	13.62	13.69	16.57	24.64	18.30			
F-statistic											
Hansen p-value	0.164	0.233	0.721	0.585	0.567	0.530	0.214	0.244		0.311	0.407
AR(2) p-value										0.06	0.259
First-stage regression											
Predicted disbursement	-10.946*** (4.209)	-12.518*** (3.834)	-9.833*** (3.560)	-9.629*** (3.417)	-9.465** (3.679)	-8.911** (3.858)	-5.876* (3.521)	-5.885* (3.494)			
Predicted disbursement ²	-183.240*** (32.827)	-153.614*** (30.171)	-170.027*** (33.669)	-172.066*** (35.292)	-173.226*** (34.770)	-168.261*** (30.488)	-186.171*** (29.113)	-173.650*** (31.361)			
F-statistic	15.59	15.01	14.10	13.62	13.69	16.57	24.64	18.30			
GMM: Difference-in-Hansen tests of exogeneity of instruments											
Hansen test excluding group:										0.220	0.325
Difference (null hypothesis = exogenous)										0.492	0.536
GMM instruments for levels (null hypothesis = exogenous)											0.335
Number of instruments										36	44

Note: The dependent variable is the overall index of economic freedom (*ef_index*). All regressions include country and time fixed effects. Standard errors are clustered at the country level. Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01. In columns 10 and 11, we use GMM methods of [Arellano and Bond \(1991\)](#), and [Blundell and Bond \(1998\)](#), respectively, with robust standard errors. In the difference GMM and the differenced equation of system GMM, the instruments include the double lag of log of official development assistance, population, life expectancy and time dummies while the other variables are considered as endogenous regressors. To ensure the same time period for the variables of interest, we use the lagged difference of the regressors in the level equation. The difference-in-Hansen tests of exogeneity of instruments subsets do not reject the null hypothesis of exogeneity at conventional significance levels, indicating that there are no issues of weak instruments.

Table 4
IV estimates of the impact of aid on economic freedom (IDA-sample).

	Two-stage least square (2SLS)								Bias Corr. FE	Diff GMM	System GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
AID_{t-5}	0.127*** (0.030)	0.130*** (0.033)	0.123*** (0.029)	0.126*** (0.026)	0.124*** (0.026)	0.137*** (0.029)	0.141*** (0.024)	0.142*** (0.026)	0.031** (0.014)	0.036* (0.020)	0.040** (0.017)
GDP per-capita growth		0.225** (0.098)	0.267*** (0.077)	0.254*** (0.077)	0.256*** (0.079)	0.268*** (0.089)	0.248*** (0.087)	0.249*** (0.086)	0.200*** (0.061)	0.602* (0.307)	0.177* (0.092)
Years of schooling			0.064*** (0.022)	0.065*** (0.023)	0.063*** (0.022)	0.065*** (0.024)	0.052** (0.022)	0.052** (0.022)	0.031 (0.025)	0.076** (0.028)	0.019*** (0.006)
Life expectancy at birth				0.074 (0.094)	0.104 (0.129)	0.086 (0.146)	0.064 (0.152)	0.071 (0.147)	0.050 (0.117)	0.034 (0.168)	0.046 (0.086)
Population growth					-0.139 (0.285)	-0.154 (0.299)	-0.111 (0.297)	-0.113 (0.293)	-0.002 (0.256)	-0.392 (0.308)	-0.109 (0.197)
Trade						-0.037 (0.044)	-0.056 (0.051)	-0.057 (0.052)	-0.007 (0.056)	-0.028 (0.132)	-0.071 (0.069)
Durability							0.002* (0.001)	0.002* (0.001)	0.002 (0.003)	0.000 (0.002)	-0.002 (0.001)
Democracy								-0.001 (0.003)	0.001 (0.001)	0.008 (0.005)	-0.001 (0.003)
Lagged economic freedom index									0.491*** (0.091)	0.163 (0.238)	0.508*** (0.116)
Observations	166	166	148	148	148	143	143	143	131	104	128
Number of countries	32	32	27	27	27	26	26	26	27	21	27
R-squared	0.433	0.462	0.560	0.555	0.561	0.510	0.511	0.504			
Kleibergen Paap	31.87	26.31	16.49	16.32	17.29	17.60	17.87	13.24			
F-statistic											
Hansen p-value	0.137	0.492	0.985	0.868	0.922	0.930	0.612	0.622		0.987	0.991
AR(2) p-value										0.112	0.129
First-stage regression											
Predicted disbursement	-7.997*** (2.776)	-8.866*** (2.789)	-8.973*** (2.895)	-8.559*** (2.671)	-8.782*** (2.778)	-8.901*** (3.192)	-8.228*** (3.023)	-8.304*** (3.039)			
Predicted disbursement ²	-124.280*** (15.571)	-111.687*** (16.488)	-122.733*** (23.275)	-126.225*** (25.904)	-125.093*** (23.954)	-120.319*** (21.940)	-128.009*** (22.995)	-118.974*** (24.976)			
F-statistic	31.87	26.31	16.49	16.32	17.29	17.60	17.87	13.24			
GMM: Difference-in-Hansen tests of exogeneity of instruments											
Hansen test excluding group:										0.858	0.993
Difference (null hypothesis = exogenous)										0.981	0.729
GMM instruments for levels (null hypothesis = exogenous)											0.961
Number of instruments										36	44

Note: The dependent variable is the overall index of economic freedom (ef_index). All regressions include country and time fixed effect. Standard errors are clustered at the country level. Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01. In columns 10 and 11, we use GMM methods of [Arellano and Bond \(1991\)](#), and [Blundell and Bond \(1998\)](#), respectively, with robust standard errors. In the difference GMM and the differenced equation of system GMM, the instruments include the double lag of log of official development assistance, population, life expectancy and time dummies while the other variables are considered as endogenous regressors. To ensure the same time period for the variables of interest, we use the lagged difference of the regressors in the level equation. The difference-in-Hansen tests of exogeneity of instruments subsets do not reject the null hypothesis of exogeneity at conventional significance levels, indicating that there are no issues of weak instruments.

Table 5
The impact of aid on economic freedom at the disaggregated level: Full sample.

	sm	reg	sog	ftradeint	legprop
Panel A: Full sample					
<i>2SLS – Second-stage regressions</i>					
AID_{t-5}	0.313*** (0.052)	0.157*** (0.022)	1.194*** (0.236)	0.154 (0.423)	–0.356 (0.277)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	292	284	299	293	287
Number of countries	48	48	50	48	49
R-squared	–0.403	–0.310	0.186	0.681	0.341
Hansen J (p-value)	0.543	0.429	0.734	0.112	0.195
<i>First-stage regression</i>					
Predicted disbursement	–5.819* (3.479)	–4.147 (3.603)	–4.136 (3.271)	–4.082 (3.339)	–4.778 (3.662)
Predicted disbursement ²	–174.746*** (31.100)	–207.089*** (31.317)	–177.919*** (31.275)	–178.290*** (32.132)	–173.868*** (31.752)
F -statistic	18.74	23.48	19.78	19.11	18.30
Panel B: IDA sample					
<i>2SLS – Second-stage regressions</i>					
AID_{t-5}	0.348*** (0.058)	0.158*** (0.035)	1.234*** (0.325)	0.201 (0.361)	0.128 (0.359)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	144	141	151	145	140
Number of countries	26	26	28	26	27
R-squared	0.159	0.299	0.361	0.710	0.396
Hansen J (p-value)	0.451	0.067	0.668	0.337	0.182
<i>First-stage regression</i>					
Predicted disbursement	–8.223*** (3.001)	–7.175** (3.146)	–6.359** (2.485)	–6.408** (2.632)	–7.373** (2.938)
Predicted disbursement ²	–120.526*** (24.847)	–148.830*** (25.594)	–125.988*** (26.168)	–124.822*** (26.909)	–120.250*** (27.935)
F -statistic	13.45	17.75	14.46	14.13	11.81

Note: All regressions include country and time fixed-effect. Standard errors are clustered at the country level. Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01.

conventional significance levels. Similar to the results in Table 3, Table 4 also shows that the coefficient of the lagged dependent variables is positive and statistically significant, suggesting that past institutional quality has a larger effect on future institutional quality. We acknowledge this presence of persistence and path-dependence as a caveat to this study.

In comparison to the benchmark estimates in Table 2, the IV estimates are quantitatively larger and highly significant for both the full-sample and IDA-sample countries. The first reason for the quantitatively smaller estimates from the static OLS model could be endogeneity bias which arises from reverse causality as aid flows could be endogenous. The second reason could be measurement errors, as it is argued that classical measurement errors lead to downward bias towards zero. It is evident from the results of several regressions in Tables 3 and 4 that the IV estimates are robust to reverse causality and omitted variable bias.

Table 5 presents the estimation results of the causal effect of foreign aid on the sub-components of economic freedom, namely, *Access to Sound Money (sm)*, *Regulation of Credit, Labour and Business Regulations (reg)*, *Size of Government (sog)*, *Freedom to Trade Internationally (ftradeint)* and *Legal Structure and Security of Property Rights (legprop)*.³ Panel A of Table 5 presents the instrumental variable estimates of the effect of aid on the different sub-components of economic freedom. Table 5 shows that the effect of foreign aid varies across the different components of economic freedom. Specifically, foreign aid has a positive and statistically significant effect on three of the sub-components of economic freedom, including *Access to Sound Money*, *Regulation of Credit, Labor and Business regulations*, *Size of Government*. The coefficients of $\text{Log}(AID)_{t-5}$ are statistically significant at the 1 per cent level. However, the effect of aid on the indices of *Freedom to Trade Internationally* and *Legal Structure and Security of Property Rights* is statistically indistinguishable from zero.

Panel B of Table 5 reports the effects of aid on the components of economic freedom for the IDA-sample countries. We seek to investigate whether the effect of foreign aid on economic institutions is different in IDA-member countries. Given that the IDA is the World Bank's lending arm for the world's poorest countries, the World Bank may exert stringent influences in IDA-member countries through special loan conditions and the imposition of policy blueprints which may affect economic institutions in these countries differently. As shown in Panel B of Table 5, the coefficient on AID_{t-5} is positive and statistically significant for the three components of economic freedom, confirming the positive effect of aid on access to sound money, effective regulations and desired size of government. The effect is quantitatively larger for IDA countries compared to the average effect of the full sample. Our results indicate that foreign aid has no effect on *Freedom to Trade Internationally* and *Legal Structure and Security of Property Rights*. Since

³ With advice from anonymous referees, all regressions in Table 5 excluded the lagged dependent variable to avoid biases from the incidental parameter problem (Nickell bias).

the number of observations for the IDA sample is small, this may introduce possible biases to the estimates. Therefore, the estimates should be interpreted with caution.

To sum up, our results suggest that aid promotes economic freedom in IDA-member countries. The plausible explanation is that low-income developing countries may benefit from financial resources, expertise and technical assistance, as well as knowledge spillovers associated to aid flows, to promote better economic institutions and policy environments conducive to economic growth (Knack and Bräutigam, 2004). Our results are in line with what is envisioned as a guiding principle of foreign aid in the Washington Consensus, which aims to promote key elements of economic freedom. As argued in Heckelman and Knack (2009), official creditors to developing countries often intend to entice recipient countries into promoting policy and institutional reforms. Furthermore, it seems natural that aid by injecting money coupled with the reform requirements can boost the financial system, which seems to be driving the positive effect of aid on *Access to Sound Money* and *Regulation of Credit*. Improvements in the financial system should lead to improvements in how the business and labour markets operate. This is because the banking sector, in an attempt to reduce asymmetric information problems associated to firms applying for loans, should be interested in a better-regulated environment for their borrowers.

In terms of the effect of aid on *Legal Structure and Security of Property Rights*, we obtain similar results as Erbeznik (2011). Although it is not significant, the negative coefficient on *Legal Structure and Security of Property Rights* is in line with the results found by Erbeznik (2011). She argued that foreign aid decreases the incentives of governments and political elites to reform, which makes rule-of-law reform less likely to be successful. Our results also indicate that the distorted incentives of the politicians likely lead to a deterioration of the rule of law in rent-seeking fuelled by the funds coming through aid.

With regards to the broader literature, our results support the findings of some recent studies (e.g. Galiani et al., 2017; Heckelman and Knack, 2009). Using a hedonic approach, Heckelman and Knack (2009) examine the effect of aid on the different categories of economic freedom. They reached a similar conclusion to ours. They find that aid has contributed to better-quality policies and an institutional environment conducive to economic growth, as the improvement in some categories of economic freedom more than offsets any harm done by aid. In a recent notable study, Galiani et al. (2017) employ a novel instrumental approach that exploits eligibility for aid for IDA countries as an identification strategy in a quasi-experimental setting. The results from their reduced-form regressions of aid on economic growth show that foreign aid has a positive and statistically significant effect on economic growth. Their results suggest that aid has a statistically and economically sizable effect on growth in recipient countries. In line with this, our results suggest that economic freedom can be a channel through which the positive effect of aid spurs growth.

Our findings differ from that of Dutta and Williamson (2016). They find that the unconditional effect of aid on economic freedom is statistically indistinguishable from zero, whereas aid may have a positive effect on economic freedom conditional on the level of democracy in recipient countries. As they acknowledge in their paper, the weak instrument problem has been an issue, and they rely on GMM estimates. Our paper complements their study on the effect of aid on economic freedom exploiting an innovative instrumental variable and finding that aid has an unconditionally positive and statistically significant effect on economic freedom. In related research, Askarov and Doucouliagos (2015) document that aid flows have a positive effect on the quality of political institutions in transition countries. Along these lines, some studies find that aid has a small net positive effect on political institutions (see e.g. Jones and Tarp, 2016; Kersting and Kilby, 2014).

4.3. Discussion of instrument quality

An important issue to consider in IV estimations is the quality of the instrumental variable. The exclusion restriction in our identification of exogenous fluctuations in actual aid disbursements is based on the lags between loan approval and disbursements. Following the original approval of the loan, actual spending on projects financed by the World Bank is typically spread out over several years, implying that loan disbursements for spending on these projects in any given year are mainly determined by the variations in the approval decisions made for the project in previous years (Kraay, 2012, 2014). This strategy isolates changes in actual aid disbursements which are plausibly uncorrelated with any contemporaneous shocks to economic institutions in the current year. This supports the plausibility of the exclusion-restriction assumptions as the decision to approve a particular loan in a given year is uncorrelated with shocks to economic institutions which may occur in subsequent years when the actual loan disbursements are executed. Therefore, the core identification strategy is that loan disbursements from donors in subsequent years following the approval of the loan will also be uncorrelated with contemporaneous shocks to economic institutions in recipient countries.

One concern with the validity of this identification strategy, as pointed out in Kraay (2014), is the possibility of a correlation between departures from initial loan commitments with contemporaneous macroeconomic shocks, including shocks in economic freedom. For example, loans which were approved in previous years may lead to an increase in current disbursements to mitigate a negative shock in the current year. To address this potential issue, the actual disbursements are replaced with an estimated synthetic measure of predicted loan disbursements derived from a profile of disbursements which are observed in the same sector and region for a given borrower for each project. Then the total predicted disbursements are computed by aggregating them across all projects, excluding loan approvals in the same year. This construction ensures that initial loan approval decisions are not correlated with future shocks to economic institutions. Therefore, by construction, variations in the predicted loan disbursement are uncorrelated with the second-stage error terms in our IV estimation, fulfilling the assumption of the exclusion restriction.

The second criterion for a good instrument is the relevance of the instrument. That is, the endogenous variable should be correlated with the IV. The first-stage regression results in all IV estimates in Table 3 to Table 5 show that the coefficient on our IV is statistically significant, and the corresponding F-statistics are well above 10 in all regressions, indicating the relevance of the IV.

Table 6
IV estimates using predicted bilateral disbursements as instrument for aid.

	ef_index	sm	reg	sog	ftradeint	legprop
Panel A: Full sample						
<i>2SLS – Second-stage regressions</i>						
AID_{t-5}	0.137*** (0.023)	0.307*** (0.052)	0.166*** (0.018)	1.170*** (0.252)	0.815** (0.375)	0.048 (0.257)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	291	292	284	299	145	140
R-squared	0.181	-0.363	-0.434	0.202	0.702	0.394
Hansen J (p-value)	0.246	0.832	0.781	0.950	0.305	0.212
<i>First-stage regression</i>						
Predicted disbursement	-7.815** (3.785)	-7.733** (3.790)	-5.301 (4.097)	-7.435** (3.685)	-10.127*** (3.134)	-10.977*** (3.703)
Predicted disbursement ²	-189.221*** (33.432)	-191.314*** (33.286)	-228.634*** (33.370)	-193.032*** (33.183)	-125.909*** (29.631)	-122.398*** (31.207)
F-statistic	30.2	31	37.17	32.03	18.35	15.3
Panel B: IDA Sample						
<i>2SLS – Second-stage regressions</i>						
AID_{t-5}	0.163*** (0.033)	0.359*** (0.082)	0.187*** (0.030)	1.337*** (0.331)	0.815** (0.375)	0.048 (0.257)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	143	144	141	151	145	140
R-squared	0.410	0.130	0.130	0.327	0.702	0.394
Hansen J (p-value)	0.536	0.360	0.221	0.599	0.305	0.212
<i>First-stage regression</i>						
Predicted disbursement	-10.776*** (3.466)	-10.713*** (3.466)	-8.632** (3.848)	-10.182*** (3.186)	-10.127*** (3.134)	-10.977*** (3.703)
Predicted disbursement ²	-122.092*** (29.220)	-124.207*** (28.626)	-159.857*** (29.083)	-127.439*** (28.495)	-125.909*** (29.631)	-122.398*** (31.207)
F-statistic	18.05	18.5	21.91	18.71	18.35	18.3

Note: All regressions include country and time fixed-effect. Standard errors are clustered at the country level. Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01.

The Kleibergen Paap F-statistic is always in excess of 10. Thus, following [Staiger and Stock \(1997\)](#), we can reject the null hypothesis of weak instrument bias.

4.4. Robustness checks

4.4.1. Alternative instruments (predicted bilateral disbursements)

To check the robustness of our results, we estimate the effect of foreign aid on economic institutions using an alternative instrument – predicted bilateral disbursements – for the full sample as well as for the IDA sample. The results in [Table 6](#) support the robustness of our main findings. As shown in Panel A of [Table 6](#), aid has an overall positive effect on economic freedom. At the disaggregated level, our alternative estimation results confirm that foreign aid improves the indices of economic freedom related to access to sound money, regulations, size of government and freedom to trade internationally. Our results consistently show that aid does not have any effect on the index of *Legal Structure and Security of Property Rights*.

Panel B of [Table 6](#) presents the IV results for the IDA-sample countries. The results are consistent with our main findings indicating the robustness of our estimates, and that our main conclusion holds. The p-value for the Hansen J-test for the over-identifying restriction is above 0.1 in all regressions, suggesting that we cannot reject the null hypothesis of the validity of our instrument. Similarly, the F-statistics from the first-stage regression are well above 10 in all regressions suggesting the relevance of the instruments.

We use multilateral aid in the main analysis as it is the main source of aid flows to developing countries. Specifically, the importance of multilateral official creditors relative to bilateral creditors has increased substantially over time, where the share of the former has increased from about one-third in the 1970s to nearly 75 per cent in the 2000s. However, for a further robustness check, we have performed estimations using both multilateral and bilateral predicted disbursements as instruments for aid flows. The results reported in [Table A.2](#) of the appendix show that our main findings are robust.⁴

⁴ Following a suggestion from the anonymous referee, we have estimated our model using the UN vote share as an instrument for aid as a benchmark to see the true exogenous nature of our instrument. The results are provided in [Table A.3](#) in the appendix. Whilst the coefficient of aid is positive, it is statistically indistinguishable from zero, unlike our main results which we get using the predicted loan disbursements as IV for aid. The first-stage F-statistics are well below 10 suggesting a weak instrumental variable problem in using the UN vote share. Moreover, the coefficients from the first-stage regressions are mostly insignificant especially when the lagged dependent variable is not included. This is in line with the finding of [Dreher et al. \(2009\)](#) that the size of World Bank loans is not affected by UN Security Council membership.

Table 7
Lewbel (2012) IV estimates using heteroskedasticity-based instruments.

	Standard IV	Generated IV	Generated and External IV
Panel A: Full sample			
AID_{t-5}	0.097***	0.018*	0.027***
	0.012	0.009	0.006
Controls	Yes	Yes	Yes
Observations	271	271	271
Hansen J-stat	2.88	12.6	14
Hansen J: p-value	0.090	0.482	0.524
Panel B: IDA sample			
AID_{t-5}	0.134***	0.051***	0.089***
	0.018	0.023	0.010
Controls	Yes	Yes	Yes
Observations	130	130	130
Hansen J stat	0.937	8.030	10.300
Hansen J: p-value	0.333	0.33	0.329

Note: All regressions include country and time fixed-effect. Standard errors are clustered at the country level. Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01.

4.4.2. Lewbel (2012): heteroskedasticity-based identification

We further investigate the robustness of our results by augmenting our external instruments with heteroskedasticity-based instruments constructed using the method proposed by Lewbel (2012). As argued in Lewbel (2012), the constructed instruments based on heteroskedasticity can be used in the absence of external instruments and for testing the validity of external instruments. To provide a brief explanation of the method, consider the model

$$Y_1 = X'\beta + Y_2\gamma + \varepsilon_1, \quad Y_2 = X'\alpha + \varepsilon_2,$$

where ε_1 and ε_2 are the error terms which may be correlated, Y_1 is the dependent variable which is economic freedom in our case, Y_2 is the endogenous variable, the log aid to GDP ratio (AID) and X is the vector of covariates. An important issue is that it might be possible that no element of X is excluded from the Y_1 equation, or it might be the case that any element β is zero. To address this issue, Lewbel (2012) proposes an identification strategy based on two-stage least-squares estimator in the absence of excluded instruments for the endogenous variable, Y_2 , by constructing valid instruments exploiting information contained in heteroskedasticity of ε_2 . The model follows the standard assumptions of non-singularity of the matrix $E(XX')$, and that $E(X\varepsilon_1) = E(X\varepsilon_2) = 0$. In addition, β and γ are assumed to be constants. Moreover, the Lewbel (2012) estimator requires key additional assumptions, including, $Cov(Z, \varepsilon_1\varepsilon_2) = 0$ and $Cov(Z, \varepsilon_2^2) \neq 0$, as well as Z equals to X or is a subset of the elements of X . After estimating α and getting the residual from OLS regression of Y_2 on X , β and γ can be estimated using the 2SLS regression using X and $(Z - \bar{Z})\hat{\varepsilon}_2$ as instruments, where \bar{Z} is the mean of Z .

Table 7 presents the Lewbel (2012) IV estimates. Column (1) reports the estimates based on the standard instrumental variable, column (2) shows the IV estimates using the constructed instruments and column (3) presents the estimates using external instruments augmented by the constructed instruments. The results in Panel A of Table 7 show that the coefficient of AID remains statistically significant at the 1 per cent level when we augment the standard IV with the generated IV, confirming the positive effect that aid has on economic freedom in developing countries.

Panel B of Table 7 shows the IV estimates for the IDA-sample countries. Clearly, our results show that the coefficient of AID is positive and statistically significant in all regressions. This result confirms the positive causal effect of aid flows on economic freedom in developing countries. Interestingly, the effect is quantitatively larger for IDA member countries. The test for the overidentifying restrictions, as indicated by the Hansen J p-values, cannot reject the null hypothesis of the validity of our instruments. Our results show that the estimates from the standard IV are quantitatively larger than the estimates from the augmented model. However, as pointed out in Lewbel (2012), the estimates from the augmented equation are more efficient. To sum up, we find that aid has a positive effect on economic freedom in recipient countries, and our results are robust across the alternative specifications.

4.4.3. Addressing region- and sector-specific shocks

As discussed above, there might be some cases where excludability restrictions might not hold if official creditors speed up current loan disbursements from previously-approved loans in response to contemporary macroeconomic shocks. The strategy to address this concern using the synthetic measure of predicted loan disbursements from the same sector and region instead of actual disbursements may still suffer from the same issue. This is particularly possible if several countries within a region have a sector-specific shock which alters the current loan disbursement profiles due to such shocks. To circumvent this issue, we control for region-specific shocks by interacting the region dummy with each of the year dummies. We report the results from these estimations in Table 8.

As shown in Table 8, the effect of aid on overall economic freedom and three of its sub-components is positive and statistically significant after controlling for region-specific shocks. The coefficient on *Legal Structure and Security of Property Rights* is consistently

Table 8
The effect of aid on economic freedom: controlling for region-specific shocks.

	(1)	(2)	(3)	(4)	(5)	(6)
	ef_index	sm	reg	sog	fttradeint	legprop
AID_{t-5}	0.017** (0.007)	0.034** (0.016)	0.032*** (0.009)	0.130 (0.111)	0.382** (0.151)	-0.059 (0.109)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Region \times year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	272	289	260	295	283	257
R-squared	0.880	0.759	0.847	0.822	0.855	0.815

Note: Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01. The six regions where the aid recipient countries are located include East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, South Asia and Sub-Saharan Africa.

negative but not statistically significant. Overall, our results are robust to several alternative specifications and a set of sensitivity checks.

5. Concluding remarks

Following the seminal contributions of [Burnside and Dollar \(2000\)](#), several studies have investigated the role of foreign aid on aggregate economic outcomes in recipient countries. It has been argued in the literature that institutional quality appears to be an important channel through which aid contributes to growth. However, existing empirical studies in aid effectiveness literature provide mixed evidence on the causal effect of aid on institutional quality due to the lack of a valid instrumental variable to address the endogeneity of aid.

In this study, we investigate the impact of foreign aid on institutional quality using predicted disbursement as a plausibly exogenous source of variations in foreign aid. We find evidence that foreign aid has a significant positive effect on economic institutions in developing countries once endogeneity is properly addressed. Our results reveal that foreign aid significantly improves the quality of economic institutions in recipient countries. Looking at the disaggregated indices of economic freedom, aid appears to have a positive and significant effect on the economic freedom categories *Access to Sound Money*, *Regulation of Credit, Labour and Business* and *Size of Government*, but no effect on the categories *Freedom to Trade Internationally* and *Legal Structure and Security of Property Rights*.

Our results are robust to alternative specifications and samples. Most importantly, the positive effects of aid on *Access to Sound Money*, *Regulation of Credit, Labour and Business* and *Size of Government* is quantitatively larger for the IDA countries. This implies that the aid activities targeting IDA countries may not be wasted in certain aspects, as they are contributing to improvements in the quality of some economic institutions. Our results underscore the need for further research to explain why the effect of aid varies depending on the economic freedom categories.

Declaration of competing interest

The authors declare that no conflict of interest to declare to best of our knowledge.

Data availability

The authors do not have permission to share data.

A. Appendix

Table A.1
Diagnostic test for multicollinearity: Variance inflation factor (VIF).

Variable	x = ef_index	x = sm	x = reg	x = sog	x = ftradeint	x = legprop
X	1.96	1.31	1.72	1.38	1.70	1.49
AID	1.87	1.81	1.87	1.78	1.81	1.82
GDP per capita	1.34	1.23	1.31	1.22	1.25	1.26
Average years of schooling	2.93	2.87	3.01	2.89	3.00	2.69
Log life expectancy at birth	2.96	2.99	3.04	3.01	3.00	2.83
Trade	1.62	1.51	1.61	1.47	1.54	1.47
Polity 2	1.63	1.60	1.63	1.71	1.63	1.58
Regime durability	1.15	1.15	1.18	1.12	1.14	1.18
Population growth	1.36	1.37	1.39	1.42	1.38	1.45
Mean VIF	1.87	1.76	1.86	1.78	1.83	1.75

Note: The rule-of thumb is that the multicollinearity issue becomes a concern if the VIF is greater than 10.

Table A.2
Robustness check results using multilateral and bilateral instruments.

	Full sample		IDA sample	
	(1)	(2)	(1)	(2)
2SLS - Second-stage regressions				
AID_{t-5}	0.121*** (0.031)	0.088*** (0.023)	0.127*** (0.042)	0.127*** (0.034)
ef_index_{t-5}		0.397*** (0.084)		0.312*** (0.100)
Observations	291	265	143	124
R-squared	0.319	0.590	0.563	0.627
Hansen J-test (p-value)	0.376	0.243	0.636	0.682
First-stage regression				
Predicted multilateral disbursement	-8.213** (4.076)	-4.743 (4.498)	-12.555*** (3.438)	-11.014*** (3.620)
Predicted multilateral disbursement ²	-373.797*** (109.871)	-400.050*** (108.788)	-432.311*** (104.949)	-426.912*** (111.954)
Predicted bilateral disbursement	-21.282* (11.358)	-17.346 (11.626)	-32.167*** (9.842)	-28.139** (10.838)
F-statistic	17.68	24.42	13.76	11.47

Note: The dependent variable is the overall index of economic freedom. All regressions include country and time fixed-effect. Standard errors are clustered at the country level. Robust standard errors in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01.

Table A.3
Comparison with the UN vote share instrument for aid.

	(1)	(2)	(3)	(4)	(5)	(6)
2SLS-Second-stage regressions						
AID_{t-5}	0.085 (0.101)	0.038 (0.027)	0.048 (0.041)	0.078*** (0.028)	0.060 (0.044)	0.045* (0.025)
ef_index_{t-5}		0.333*** (0.094)		0.310** (0.122)		0.329*** (0.099)
Observations	130	122	130	122	130	122
R-squared	0.673	0.795	0.760	0.719	0.741	0.788
Hansen J-test p-value					0.662	0.226
First-stage regression						
Lag IdealPoint_x	0.234 (0.259)	0.771*** (0.191)			0.160 (0.268)	0.697*** (0.195)
Lag NVotes_x			-0.011* (0.006)	-0.014** (0.005)	-0.009 (0.006)	-0.007 (0.006)
F-statistic	0.39	16.35	3.72	6.77	1.7	8.69
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Note: The dependent variable is the overall index of economic freedom. The ideal point is a measure of the vector of the probabilities of observing each possible coalition of voters on a given vote with ideal point x (Bailey et al., 2017) and $Nvotes$ denotes the number of votes. All regressions include country and time fixed-effect. Standard errors are clustered at the country level. Robust standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

References

- Acemoglu, D., Johnson, S., 2007. Disease and development: the effect of life expectancy on economic growth. *J. Polit. Econ.* 115 (6), 925–985.
- Acemoglu, D., Johnson, S., Robinson, J.A., 2001. The colonial origins of comparative development: an empirical investigation. *Am. Econ. Rev.* 91 (5), 1369–1401.
- Acemoglu, D., Johnson, S., Robinson, J.A., 2005. Institutions as a fundamental cause of long-run growth. *Handb. Econ. Growth* 1, 385–472.
- Acemoglu, D., Johnson, S., Robinson, J., Yared, P., 2008. Income and democracy. *Am. Econ. Rev.* 98 (3), 808–842.
- Aidt, T.S., Dutta, J., Sena, V., 2008. Governance regimes, corruption and growth: theory and evidence. *J. Comp. Econ.* 36 (2), 195–220.
- Arellano, M., Bond, S., 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Rev. Econ. Stud.* 58 (2), 277–297.
- Askarov, Z., Doucouliagos, H., 2015. Aid and institutions in transition economies. *Eur. J. Polit. Econ.* 38, 55–70.
- Bailey, M.A., Strezhnev, A., Voeten, E., 2017. Estimating dynamic state preferences from United Nations voting data. *J. Conflict Resolut.* 61 (2), 430–456.
- Bergh, A., Nilsson, T., 2010. Do liberalization and globalization increase income inequality? *Eur. J. Polit. Econ.* 26 (4), 488–505.
- Bjornskov, C., 2016. Economic freedom and economic crises. *Eur. J. Polit. Econ.* 45, 11–23.
- Blackburn, K., Bose, N., Haque, M.E., 2006. The incidence and persistence of corruption in economic development. *J. Econ. Dynam. Contr.* 30, 2447–2467.
- Blundell, R., Bond, S., 1998. Initial conditions and moment restrictions in dynamic panel data models. *J. Econom.* 87 (1), 115–143.
- Bruno, G.S., 2005. Approximating the bias of the LSDV estimator for dynamic unbalanced panel data models. *Econ. Lett.* 87 (3), 361–366.
- Bun, M.J., Carree, M.A., 2005. Bias-corrected estimation in dynamic panel data models. *J. Bus. Econ. Stat.* 23 (2), 200–210.
- Burnside, C., Dollar, D., 2000. Aid, policies, and growth. *Am. Econ. Rev.* 90 (4), 847–868.
- Busse, M., Gröning, S., 2009. Does foreign aid improve governance? *Econ. Lett.* 104 (2), 76–78.
- Carter, P., 2014. Aid allocation rules. *Eur. Econ. Rev.* 71, 132–151.
- Casey, K., Glennerster, R., Miguel, E., 2012. Reshaping Institutions: evidence on aid impacts using a preanalysis plan. *Q. J. Econ.* 127 (4), 1755–1812.
- Cincotta, R.P., Engelman, R., 1997. Economics and Rapid Change: The Influence of Population Growth. Working paper. Population Action International.
- Clemens, M.A., Radelet, S., Bhavnani, R.R., Bazzi, S., 2012. Counting chickens when they hatch: the short-term effect of aid on growth. *Econ. J.* 122 (561), 590–617.
- de Haan, J., Sturm, J.-E., 2000. On the relationship between economic freedom and economic growth. *Eur. J. Polit. Econ.* 16 (2), 215–241.
- de Haan, J., Sturm, J.-E., 2003. Does more democracy lead to greater economic freedom? New evidence for developing countries. *Eur. J. Polit. Econ.* 19 (3), 547–563.
- De Haan, J., Lundstrom, S., Sturm, J.-E., 2006. Market-oriented institutions and policies and economic growth: a critical survey. *J. Econ. Surv.* 20 (2), 157–191.
- De Vanssay, X., Hildebrand, V., Spindler, Z.A., 2005. Constitutional foundations of economic freedom: a time-series cross-section analysis. *Constitut. Polit. Econ.* 16 (4), 327–346.
- Dicharry, B., Nguyen-Van, P., Pham, T.K.C., 2019. The winner takes it all or a story of the optimal allocation of the European cohesion fund. *Eur. J. Polit. Econ.* 59, 385–399.
- Djankov, S., Montalvo, J.G., Reynal-Querol, M., 2008. The curse of aid. *J. Econ. Growth* 13 (3), 169–194.
- Dollar, D., Kraay, A., 2003. Institutions, trade, and growth. *J. Monetary Econ.* 50 (1), 133–162.
- Dreher, A., Sturm, J.-E., Vreeland, J.R., 2009. Development aid and international politics: does membership on the UN security council influence world bank decisions? *J. Dev. Econ.* 88 (1), 1–18.
- Dunning, T., 2004. Conditioning the effects of aid: cold War politics, donor credibility, and democracy in Africa. *Int. Organ.* 58 (2), 409–423.
- Dutta, N., Williamson, C.R., 2016. Aiding economic freedom: exploring the role of political institutions. *Eur. J. Polit. Econ.* 45, 24–38.
- Dzhumashev, R., 2014. Corruption and growth: the role of governance, public spending, and economic development. *Econ. Modell.* 37, 202–215.
- Easterly, W., 2003. Can foreign aid buy growth? *J. Econ. Perspect.* 17 (3), 23–48.
- Easterly, W., Levine, R., Roodman, D., 2004. New data, new doubts: a comment on Burnside and Dollar's "aid, policies, and growth". *Am. Econ. Rev.* 94 (3), 774–780.
- Erbezink, K., 2011. Money can't buy you law: the effects of foreign aid on the rule of law in developing countries. *Indiana J. Global Leg. Stud.* 18 (2) article 9.
- Faria, H.J., Montesinos-Yufa, H.M., Morales, D.R., Navarro, C.E., 2016. Unbundling the roles of human capital and institutions in economic development. *Eur. J. Polit. Econ.* 45, 108–128.
- Galiani, S., Knack, S., Xu, L.C., Zou, B., 2017. The effect of aid on growth: evidence from a quasi-experiment. *J. Econ. Growth* 1 (22), 1–33.
- Guillaumont, P., Chauvet, L., 2001. Aid and performance: a reassessment. *J. Dev. Stud.* 37 (6), 66–92.
- Gwartney, J., Lawson, R., 2003. The concept and measurement of economic freedom. *Eur. J. Polit. Econ.* 19 (3), 405–430.

- Heckelman, J.C., Knack, S., 2008. Foreign aid and market-liberalizing reform. *Economica* 75 (299), 524–548.
- Heckelman, J.C., Knack, S., 2009. Aid, economic freedom, and growth. *Contemp. Econ. Pol.* 27 (1), 46–53.
- Hudson, J., 2013. Promises kept, promises broken? The relationship between aid commitments and disbursements. *Rev. Dev. Finance* 3 (3), 109–120.
- Isopi, A., Mattesini, F., 2009. Good Donors or Good Recipients? A Repeated Moral Hazard Model of Aid Allocation (No. 09/10). CREDIT research paper.
- Jarotschkin, A., Kraay, A., 2016. Aid, disbursement delays, and the real exchange rate. *IMF Econ. Rev.* 64 (2), 217–238.
- Jones, Eric, 1981. *The European Miracle: Environments, Economies and Geopolitics in the History of Europe and Asia*. Cambridge University Press, Cambridge UK.
- Jones, S., Tarp, F., 2016. Does foreign aid harm political institutions? *J. Dev. Econ.* 118, 266–281.
- Kersting, E., Kilby, C., 2014. Aid and democracy redux. *Eur. Econ. Rev.* 67, 125–143.
- Kiviet, J.F., 1995. On bias, inconsistency, and efficiency of various estimators in dynamic panel data models. *J. Econom.* 68 (1), 53–78.
- Knack, S., 2001. Aid dependence and the quality of governance: cross-country empirical tests. *South. Econ. J.* 68 (2), 310.
- Knack, S., Bräutigam, D.A., 2004. Foreign aid, institutions, and governance in Sub-Saharan Africa. *Econ. Dev. Cult. Change* 52 (2), 255–285.
- Kotschy, R., Sunde, U., 2017. Democracy, inequality, and institutional quality. *Eur. Econ. Rev.* 91, 209–228.
- Kraay, A., 2012. How large is the government spending multiplier? Evidence from World Bank lending. *Q. J. Econ.* 127 (2), 829–887 Oxford University Press.
- Kraay, A., 2014. Government spending multipliers in developing countries: evidence from lending by official creditors. *Am. Econ. J. Macroecon.* 6 (4), 170–208.
- Lawson, R.A., Murphy, R., Powell, B., 2020. The determinants of economic freedom: a survey. *Contemp. Econ. Pol.* 38, 622–642.
- Lewbel, A., 2012. Using heteroscedasticity to identify and estimate mismeasured and endogenous regressor models. *J. Bus. Econ. Stat.* 30 (1), 67–80.
- Lundström, S., 2005. The effect of democracy on different categories of economic freedom. *Eur. J. Polit. Econ.* 21 (4), 967–980.
- Méndez, F., Sepúlveda, F., 2006. Corruption, growth and political regimes: cross-country evidence. *Eur. J. Polit. Econ.* 22 (1), 82–98.
- Minasyan, A., 2018. US aid, US educated leaders and economic ideology. *Eur. J. Polit. Econ.* 55, 244–257.
- Murshed, S.M., 2009. On the non-contractual nature of donor-recipient interaction in development assistance. *Rev. Dev. Econ.* 13 (3), 416–428.
- Nejad, M.N., Young, A.T., 2016. Want freedom, will travel: emigrant self-selection according to institutional quality. *Eur. J. Polit. Econ.* 45, 71–84.
- Nickell, S., 1981. Biases in dynamic models with fixed effects. *Econometrica: J. Econom. Soc.* 1417–1426.
- North, D.C., 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press, Cambridge.
- Pitlik, H., Wirth, S., 2003. Do crises promote the extent of economic liberalization?: an empirical test. *Eur. J. Polit. Econ.* 19 (3), 565–581.
- Rajan, R., Subramanian, A., 2007. Does aid affect governance? *Am. Econ. Rev.* 97 (2), 322–327.
- Rajan, R.G., Subramanian, A., 2008. Aid and growth: what does the cross-country evidence really show? *Rev. Econ. Stat.* 90, 643–665.
- Rode, M., Gwartney, J.D., 2012. Does democratization facilitate economic liberalization? *Eur. J. Polit. Econ.* 28 (4), 607–619.
- Rodrik, D., Subramanian, A., Trebbi, F., 2004. Institutions rule: the primacy of institutions over geography and integration in economic development. *J. Econ. Growth* 9 (2), 131–165.
- Roodman, D., 2009. A note on the theme of too many instruments. *Oxf. Bull. Econ. Stat.* 71 (1), 135–158.
- Rowley, C.K., 2000. Political culture and economic performance in sub-saharan africa. *Eur. J. Polit. Econ.* 6 (1), 133–158.
- Staiger, Douglas, Stock, James H, 1997. *Econometrica* 65 (3), 557–586, <https://doi.org/10.2307/2171753>.
- Svensson, J., 2000. Foreign aid and rent-seeking. *J. Int. Econ.* 51 (2), 437–461 2003.
- Tavares, J., 2003. Does foreign aid corrupt? *Econ. Lett.* 79 (1), 99–106.
- Young, A.T., Sheehan, K.M., 2014. Foreign aid, institutional quality, and growth. *Eur. J. Polit. Econ.* 36, 195–208.